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Electric Utility | 400 E. Van Buren St. Tallahassee, FL 32301 | 850.891.4YOU (4968)

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March 31, 2014

Florida Public Service Commission
Office of the Commission Clerk
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Dear Sir/Madam:

Attached please find the City of Tallahassee's (City) 2014 Ten Year Site Plan report provided for electronic filing pursuant to Section 186.801, F.S. This cover letter is followed by an electronic copy of the report in Adobe Acrobat format.

If you should have any questions regarding this report, please feel free to contact me at (850) 891-3130 or paul.clark@talgov.com. Thank you.

Sincerely,

/s/ Paul D. Clark, II
Principal Engineer

Attachments

Ten-Year Site Plan: 2014-2023

City of Tallahassee Utilities

Photo: Substation 32

Report prepared by: City of Tallahassee Electric Utility System Planning

CITY OF TALLAHASSEE
TEN YEAR SITE PLAN FOR ELECTRICAL GENERATING FACILITIES
AND ASSOCIATED TRANSMISSION LINES
2014-2023
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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 Utility presently serves approximately 115,700 customers located within a 221 square mile service territory (see Figure A). The Electric Utility operates three generating stations with a total summer season net generating capacity of 746 megawatts (MW).

The City has two fossil-fueled generating stations, which contain combined cycle (CC), steam and combustion turbine (CT) electric generating facilities. The Sam O. Purdom Generating Station, located in the City 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 seven points of interconnection with Duke Energy Florida ("Duke", formerly Progress Energy Florida); three at 69 kV, three at 115 kV, and one at 230 kV; and a 230 kV interconnection with Georgia Power Company (a subsidiary of the Southern Company ("Southern")).

As shown in Table 1.1 (Schedule 1), 222 MW (net summer rating) of CC generation and 20 MW (net summer rating) of CT generation facilities are located at the City's Sam O. Purdom Generating Station. The former Purdom Unit 7, a conventional gas-fired steam turbine generator originally placed into service in June 1966, was officially retired as of December 31, 2013. The Arvah B. Hopkins Generating Station includes 300 MW (net summer rating) of CC generation, 76 MW (net summer rating) of steam generation and 128 MW (net summer rating) of CT generation facilities.

The City's Hopkins 1 steam generating unit can be fired with natural gas, residual oil or both. The CC and CT units can be fired on either natural gas or diesel oil but cannot burn these fuels concurrently. The total capacity of the three units at the C.H. Corn Hydroelectric Station is 11 MW. However, because the hydroelectric generating units are effectively run-of-river (dependent upon rainfall, reservoir and downstream conditions), the City considers these units as “energy only” and not as dependable capacity for planning purposes.

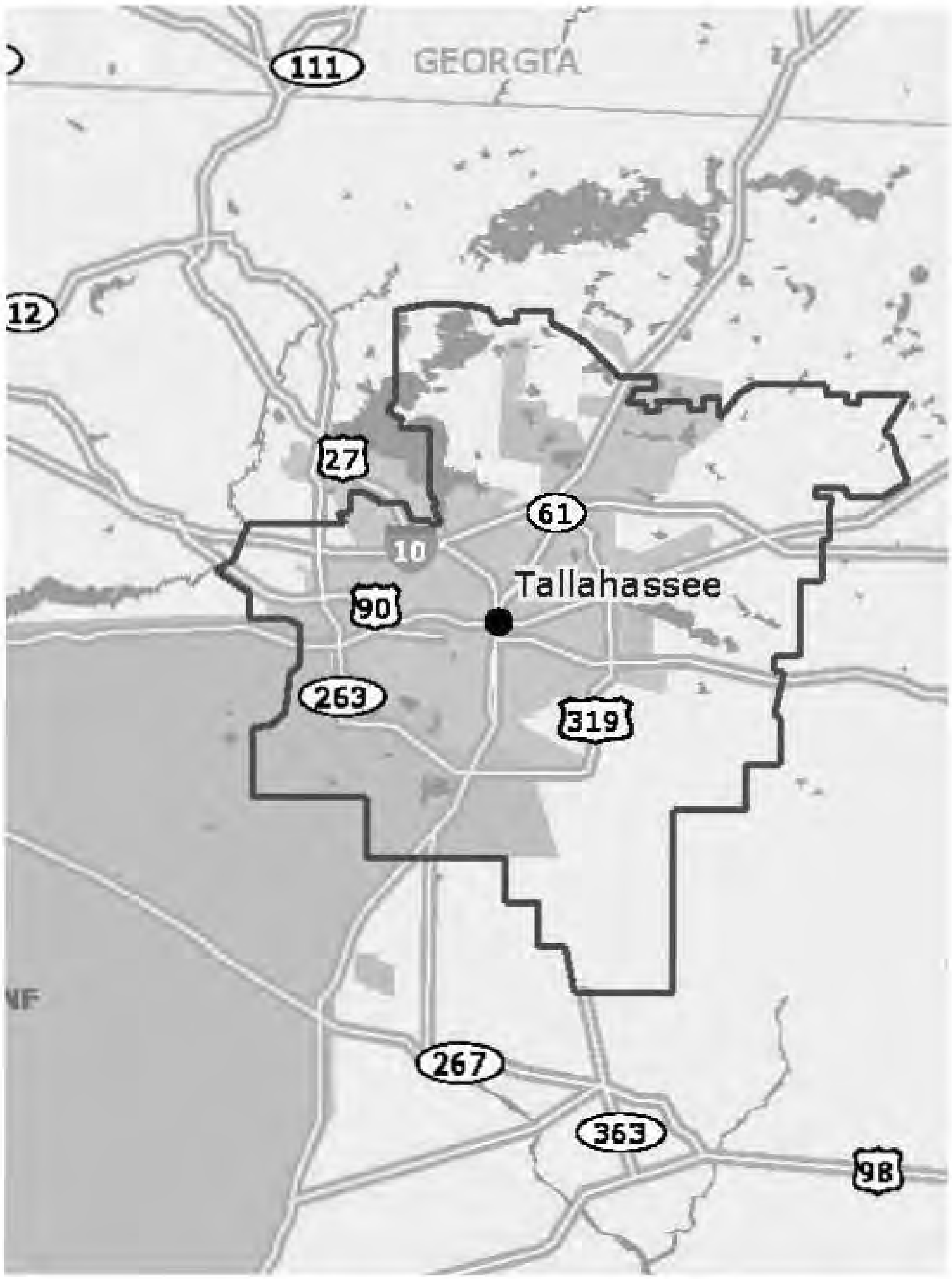
Following the retirement of Purdom Unit 7 the City’s total net summer installed generating capability is 746 MW. The corresponding winter net peak installed generating capability is 822 MW. Table 1.1 contains the details of the individual generating units.

1.2 PURCHASED POWER AGREEMENTS

The City has no long-term firm capacity and energy purchase agreements. Firm retail electric service is purchased from and provided by the Talquin Electric Cooperative (“Talquin”) to City customers served by the Talquin electric system. The projected amounts of electric service to be purchased from Talquin is included in the “Annual Firm Interchange” values provided in Table 2.19 (Schedule 6.1) Reciprocal service is provided to Talquin customers served by the City electric system. Payments for electric service provided to and received from Talquin and the transfer of customers and electric facilities is governed by a territorial agreement between the City and Talquin.

City of Tallahassee, Electric Utility

Service Territory Map



City Of Tallahassee

Schedule 1
Existing Generating Facilities
As of December 31, 2013

(1) Plant	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel Pri	(6) Fuel Alt	(7) Fuel Transport Primary	(8) Fuel Transport Alternate	(9) Alt. Fuel Days Use	(10) Commercial In-Service Month/Year	(11) Expected Retirement Month/Year	(12) Gen. Max. Nameplate (kW)	(13) Net Capability Summer (MW)	(14) Net Capability Winter (MW)
Sam O. Purdom	8	Wakulla	CC	NG	FO2	PL	TK	[1, 2]	7/00	12/40	247,743	222	258 [7]
	GT-1		GT	NG	FO2	PL	TK	[1, 2]	12/63	10/15	15,000	10	10
	GT-2		GT	NG	FO2	PL	TK	[1, 2]	5/64	10/15	15,000	10	10
											Plant Total	242	278
A. B. Hopkins	1	Leon	ST	NG	FO6	PL	TK	[3]	5/71	3/20	75,000	76	78
	2		CC	NG	FO2	PL	TK	[2]	6/08 [4]	Unknown	358,200 [5]	300	330 [7]
	GT-1		GT	NG	FO2	PL	TK	[2]	2/70	3/15	16,320	12	14
	GT-2		GT	NG	FO2	PL	TK	[2]	9/72	3/17	27,000	24	26
	GT-3		GT	NG	FO2	PL	TK	[2]	9/05	Unknown	60,500	46	48
	GT-4		GT	NG	FO2	PL	TK	[2]	11/05	Unknown	60,500	46	48
											Plant Total	504	544
C. H. Corn	1	Leon	HY	WAT	WAT	WAT	WAT	NA	9/85	Unknown	4,440	0	0
Hydro Station	2		HY	WAT	WAT	WAT	WAT	NA	8/85	Unknown	4,440	0	0
[6]	3		HY	WAT	WAT	WAT	WAT	NA	1/86	Unknown	3,430	0	0
											Plant Total	0	0
									Total System Capacity as of December 31, 2013			746	822

Notes

[1] Due to the Purdom facility-wide emissions caps, utilization of liquid fuel at this facility is limited.

[2] The City maintains a minimum distillate fuel oil storage capacity sufficient to operate the Purdom plant approximately 9 days and the Hopkins plant and approximately 3 days at maximum output.

[3] The City maintains a minimum residual fuel oil storage capacity sufficient to operate Hopkins 1 approximately 8 days at maximum output.

[4] Reflects the commercial operations date of Hopkins 2 repowered to a combined cycle generating unit with a new General Electric Frame 7A combustion turbine. The original commercial operations date of the existing steam turbine generator was October 1977.

[5] Hopkins 2 nameplate rating is based on combustion turbine generator (CTG) nameplate and modeled steam turbine generator (STG) output in a 1x1 combined cycle (CC) configuration with supplemental duct firing.

[6] Because the C. H. Corn hydroelectric generating units are effectively run-of-river (dependent upon rainfall, reservoir and downstream conditions), the City considers these units as "energy only" and not as dependable capacity for planning purposes.

[7] Summer and winter ratings are based on 95 ^{o}F and 29 ^{o}F ambient temperature, respectively.

CHAPTER II

Forecast of Energy/Demand Requirements and Fuel Utilization

2.0 INTRODUCTION

Chapter II includes the City's forecasts of demand and energy requirements, energy sources and fuel requirements. This chapter also explains the impacts attributable to the City's current Demand Side Management (DSM) plan. The City is not subject to the requirements of the Florida Energy Efficiency and Conservation Act (FEECA) and, therefore, the Florida Public Service Commission (FPSC) does not set numeric conservation goals for the City. However, the City expects to continue its commitment to the DSM programs that prove beneficial to the City's ratepayers.

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 total energy sales and forecast energy sales by customer class. Figure B2 shows the percentage of energy sales by customer class (excluding the impacts of DSM) for the base year of 2014 and the horizon year of 2023. Tables 2.4 through 2.12 (Schedules 3.1.1 - 3.3.3) contain historical and base, high, and low forecasts of seasonal peak demands and net energy for load. Table 2.13 (Schedule 4) compares actual and two-year forecast peak demand and energy values by month for the 2013-2015 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 since been updated and revised every one or two years. The methodology consists of thirteen 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.

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 customers and 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. In addition to these customer class models, the City's forecasting methodology also incorporates into the demand and energy projections estimated reductions from interruptible and curtailable 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 summarize the details of the models used to generate the system customer, consumption and seasonal peak load forecasts. In addition to those explanatory variables listed, a component is also included in the models that reflect the acquisition of certain Talquin Electric Cooperative (Talquin) customers over the study period consistent with the territorial agreement negotiated between the City and Talquin and approved by the FPSC.

The customer models are used to predict the number of customers by customer class, which in turn serve as input into the customer class consumption models. The customer class consumption models are aggregated to form a total base system sales forecast. The effects of DSM programs and system losses are incorporated in this base forecast to produce the system net energy for load (NEL) requirements.

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. The seasonal peak demand forecasts are developed first by forecasting expected system load factor. Based on the historical relationship of seasonal peaks to annual NEL, system load factors are projected separately relative to both summer and winter peak demand. The predictive variables for projected load factors versus summer peak demand include maximum summer temperature, maximum temperature on the day prior to the peak, annual degree-days cooling and real residential price of electricity. For projected load factors versus winter peak demand minimum winter temperature, degree-days heating the day prior to the winter peak day, deviation from a base minimum temperature of 22 degrees and annual degree-days cooling are used as input. The projected load factors are then applied to the forecast of NEL to obtain the summer and winter peak demand forecasts.

Some of the most significant input assumptions for the forecast are the incremental load modifications at Florida State University (FSU), Florida A&M University (FAMU), Tallahassee Memorial Hospital (TMH) and the State Capitol Center. These four customers represented approximately 15% of the City's 2013 energy sales. Their incremental additions are highly dependent upon annual economic and budget constraints, which would cause fluctuations in their demand projections if they were projected using a model. Therefore, each entity submits their proposed incremental additions/reductions to the City and these modifications are included as submitted in the load and energy forecast.

The rate of growth in residential and commercial customers is driven by the projected growth in Leon County population. While population growth projections decreased in the years immediately following the 2008-2009 recession the current projection shows a slightly higher growth in population versus last year. Leon County population is projected to grow from 2014-2033 at an average annual growth rate (AAGR) of 0.82%. This growth rate is below that for the state of Florida (1.15%) but is higher than that for the United States (0.71%).

Total and per customer demand and energy requirements have also decreased in recent years. There are several reasons for this decrease including but not limited to the issuance of 18 new or updated federal appliance and equipment efficiency standards since 2009 and the 2010 modifications to the State of Florida Energy Efficiency Code for Building Construction. The City's energy efficiency and demand-side management (DSM) programs (discussed in Section 2.1.3) and the economic conditions during and following the 2008-2009 recession have also contributed to these decreases. The decreases in per customer residential and commercial demand and energy requirements are projected to offset the increased growth rate in residential and commercial customers. Therefore, it is not expected that base demand and energy growth will return to pre-recession levels in the near future.

The City believes that the routine update of forecast model inputs, coefficients and other minor model refinements continue to improve the accuracy of its forecast so that they are more consistent with the historical trend of growth in seasonal peak demand and energy consumption.

The changes made to the forecast models for seasonal peak demands and annual sales/net energy for load requirements have resulted in 2014 base forecasts for these characteristics that are generally lower than the corresponding 2013 base forecasts.

2.1.2 LOAD FORECAST UNCERTAINTY & SENSITIVITIES

To provide a sound basis for planning, forecasts are derived from projections of the driving variables obtained from reputable sources. However, there is significant uncertainty in the future level of such variables. To the extent that economic, demographic, weather, or other conditions occur that are different from those assumed or provided, the actual load can be expected to vary from the forecast. For various purposes, it is important to understand the amount by which the forecast can be in error and the sources of error.

To capture this uncertainty, the City produces high and low range results that address potential variance in driving population and economic variables from the values assumed in the base case. The base case forecast relies on a set of assumptions about future population and economic activity in Leon County. However, such projections are unlikely to exactly match actual experience.

Population and economic uncertainty tends to result in a deviation from the trend over the long term. Accordingly, separate high and low forecast results were developed to address population and economic uncertainty. These ranges are intended to capture approximately 80% of occurrences (i.e., 1.3 standard deviations). The high and low forecasts shown in this year's report use statistics provided by Woods & Poole Economics, Inc. (Woods & Poole) to develop a range of potential outcomes. Woods & Poole publishes several statistics that define the average amount by which various projections they have provided in the past are different from actual results. The City's load forecasting consultant, Leidos Engineering, interpreted these statistics to develop ranges of the trends of economic activity and population representing approximately 80% of potential outcomes. These statistics were then applied to the base case to develop the high and low load forecasts presented in Tables 2.5, 2.6, 2.8, 2.9, 2.11 and 2.12 (Schedules 3.1.2, 3.1.3, 3.2.2, 3.2.3, 3.3.2 and 3.3.3).

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 forecast sensitivity cases with reductions from proposed DSM portfolio and the base forecast without proposed DSM reductions against the City's existing and planned power supply resources. This graph allows for the review of the effect of load growth and DSM performance 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 currently offers a variety of conservation and DSM measures to its residential and commercial customers, which are listed below:

Residential Measures	Commercial Measures
Energy Efficiency Loans	Energy Efficiency Loans
Gas New Construction Rebates	Demonstrations
Gas Appliance Conversion Rebates	Information and Energy Audits
Information and Energy Audits	Commercial Gas Conversion Rebates
Ceiling Insulation Grants	Ceiling Insulation Grants
Low Income Ceiling Insulation Grants	Solar Water Heater Rebates
Low Income HVAC/Water Heater Repair Grants	Solar PV Net Metering
Neighborhood REACH Weatherization Assistance	Demand Response (PeakSmart)
Energy Star Appliance Rebates	
High Efficiency HVAC Rebates	
Energy Star New Home Rebates	
Solar Water Heater Rebates	
Solar PV Net Metering	
Duct Leak Repair Grants	
Variable Speed Pool Pump Rebates	
Nights & Weekends Pricing Plan	

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. During the City's last Integrated Resource Planning (IRP) Study potential DSM measures (conservation, energy efficiency, load management, and demand response) were tested for cost-effectiveness utilizing an integrated approach that is based on projections of total achievable load and energy reductions and their associated annual costs developed specifically for the City. The measures were combined into bundles affecting similar end uses and /or having similar costs per kWh saved.

In 2012 the City contracted with a consultant to review its efforts with DSM and renewable resources with a focus on adjusting resource costs for which additional investment and overall market changes impacted the estimates used in the IRP Study. DSM and renewable resource alternatives were evaluated on a levelized cost basis and prioritized on geographic and demographic suitability, demand savings potential and cost. From this prioritized list the consultant identified a combination of DSM and renewable resources that could be cost-effectively placed into service by 2016. The total demand savings potential for the resources identified compared well with that identified in the IRP Study providing some assurance that the City's ongoing DSM and renewable efforts remained cost-effective.

An energy services provider (ESP) is under contract to assist staff in deploying a portion of the City's DSM program. This contract was renewed for an additional one-year term in September 2013 and the ESP's work continues. Staff has worked with consultants and the ESP to develop operational and pricing parameters, craft rate tariffs and solicit participants for a commercial pilot DR/DLC measure. This measure is currently at about 60% of targeted enrollment and the system is scheduled for testing in the coming months. Implementation of the City's residential demand response/direct load control (DR/DLC) measures has been delayed as some of the technology to be employed is still evolving. Otherwise, work continues with the City's Neighborhood REACH/Low-Income Assistance measure and participation in the City's other existing DSM measures continues to increase. Future activities include development of residential DR/DLC and expanding commercial demand reduction and energy efficiency measure offerings.

As discussed in Section 2.1.1 the growth in customers and energy use has slowed in recent years due in part to the economic conditions observed during and following the 2008-2009 recession as well as due to changes in the federal appliance/equipment efficiency standards and state building efficiency code. It appears that many customers have taken steps on their own to reduce their energy use and costs in response to the changing economy - without taking advantage of the incentives provided through the City's DSM program – as well as in response to the aforementioned standards and code changes. These "free drivers" effectively reduce potential participation in the DSM program in the future. And it is questionable whether these customers' energy use reductions will persist beyond the economic recovery. History has shown that post-recession energy use generally rebounds to pre-recession levels. In the meantime, however, demand and energy reductions achieved as a result of these voluntary customer actions as well as those achieved by customer participation in City-sponsored DSM measures appear to have had a considerable impact on forecasts of future demand and energy requirements.

Estimates of the actual demand and energy savings realized from 2007-2013 attributable to the City's DSM efforts are below those projected in the last IRP study. Due to reduced load and energy forecasts and based on the City's experience to date DSM program participation and thus associated demand and energy savings are not expected to increase as rapidly as originally projected, at least not in the near term. Therefore, the City has revised its projections of DSM demand and energy savings versus those reported in the 2013 TYSP. These revised projections reflect DSM savings increasing at a steady rate that is more consistent with historical experience and level of annual program expenditures to date.

Staff will continue to periodically review and, where appropriate, update technical and economic assumptions, expected demand and energy savings and re-evaluate the cost-effectiveness of current and prospective DSM measures. The City will provide further updates regarding its progress with and any changes in future expectations of its DSM program in subsequent TYSP reports.

Energy and demand reductions attributable to the DSM portfolio have been incorporated into the future load and energy forecasts. Tables 2.16 and 2.17 display, respectively, the cumulative potential impacts of the proposed DSM portfolio on system annual energy and seasonal peak demand requirements. Based on the anticipated limits on annual control events it is expected that DR/DLC will be predominantly utilized in the summer months. Therefore, Tables 2.7-2.9 and 2.17 reflect no expected utilization of DR/DLC capability to reduce winter peak demand.

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 requirements, energy sources by resource/fuel type in gigawatt-hours, and energy sources by resource/fuel type in percent, respectively, for the period 2014-2023. Figure B4 displays the percentage of energy by fuel type in 2014 and 2023.

The City's generation portfolio includes combustion turbine/combined cycle, combustion turbine/simple cycle, conventional steam and hydroelectric units. The City's combustion turbine/combined cycle and combustion turbine/simple cycle units are capable of generating energy using natural gas or distillate fuel oil. Natural gas and residual fuel oil may be burned concurrently in one of the City's steam units. This mix of generation types coupled with opportunities for firm and economy purchases from neighboring systems provides allows the City to satisfy its total energy requirements consistent with our energy policies that seek to balance the cost of power with the environmental quality of our community.

The projections of fuel requirements and energy sources are taken from the results of computer simulations using the PROSYM production simulation model (provided by Ventyx) and are based on the resource plan 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]		
Year	Population [1]	Members Per Household	(GWh) [2]	Average No. of Customers [3]	Average kWh Consumption Per Customer	(GWh) [2]	Average No. of Customers [3]	Average kWh Consumption Per Customer
2004	265,393	-	1,064	85,035	12,512	1,604	17,729	90,473
2005	269,619	-	1,088	89,468	12,161	1,622	18,312	88,576
2006	272,648	-	1,097	92,017	11,922	1,602	18,533	86,440
2007	273,684	-	1,099	93,569	11,745	1,657	18,583	89,168
2008	274,926	-	1,054	94,640	11,137	1,625	18,597	87,380
2009	275,059	-	1,050	94,827	11,073	1,611	18,478	87,185
2010	275,783	-	1,136	95,268	11,924	1,618	18,426	87,811
2011	276,799	-	1,113	95,794	11,619	1,598	18,418	86,763
2012	277,935	-	1,021	96,479	10,583	1,572	18,445	85,226
2013	279,172	-	1,014	97,145	10,438	1,544	18,558	83,199
2014	282,107	-	1,042	98,151	10,616	1,575	18,722	84,126
2015	285,799	-	1,051	99,533	10,559	1,594	18,941	84,156
2016	288,477	-	1,056	100,538	10,503	1,604	19,100	83,979
2017	291,178	-	1,061	101,551	10,448	1,613	19,260	83,749
2018	293,909	-	1,066	102,575	10,392	1,633	19,423	84,076
2019	296,667	-	1,071	103,610	10,337	1,643	19,586	83,886
2020	299,336	-	1,076	104,611	10,286	1,653	19,745	83,717
2021	301,843	-	1,081	105,552	10,241	1,660	19,894	83,442
2022	304,371	-	1,086	106,501	10,197	1,668	20,044	83,217
2023	306,918	-	1,090	107,457	10,144	1,677	20,196	83,036

[1] Population data represents Leon County population.

[2] Values include DSM Impacts.

[3] Average end-of-month customers for the calendar year. Marked increase in residential customers between 2004 and 2005 due to change in internal customer accounting practices.

[4] As of 2007 "Commercial" includes General Service Non-Demand, General Service Demand, General Service Large Demand Interruptible (FSU and Goose Pond), Curtailable (TMH), Traffic Control, Security Lights and Street & Highway Lights

City Of Tallahassee

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				Street &		Total Sales
		Average			Highway	Other Sales	to Ultimate
		No. of	Average kWh	Railroads	Lighting	to Public	Consumers
		Customers	Consumption	and Railways	(GWh)	Authorities	(GWh)
Year	(GWh)	[1]	Per Customer	(GWh)	[2]	(GWh)	[3]
2004	-	-	-		14		2,682
2005	-	-	-		14		2,724
2006	-	-	-		15		2,714
2007	-	-	-		0		2,756
2008	-	-	-		0		2,679
2009	-	-	-		0		2,661
2010	-	-	-		0		2,754
2011	-	-	-		0		2,711
2012	-	-	-		0		2,593
2013	-	-	-		0		2,558
2014	-	-	-		0		2,617
2015	-	-	-		0		2,645
2016	-	-	-		0		2,660
2017	-	-	-		0		2,674
2018	-	-	-		0		2,699
2019	-	-	-		0		2,714
2020	-	-	-		0		2,729
2021	-	-	-		0		2,741
2022	-	-	-		0		2,754
2023	-	-	-		0		2,767

[1] Average end-of-month customers for the calendar year.
[2] As of 2007 Security Lights and Street & Highway Lighting use is included with Commercial on Schedule 2.1.
[3] Values include DSM Impacts.

City Of Tallahassee

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

Base Load Forecast

(1) Year	(2) Sales for Resale (GWh)	(3) Utility Use & Losses (GWh)	(4) Net Energy for Load (GWh) [1]	(5) Other Customers (Average No.)	(6) Total No. of Customers [2]
2004	0	159	2,841	0	102,764
2005	0	163	2,887	0	107,780
2006	0	154	2,868	0	110,550
2007	0	158	2,914	0	112,152
2008	0	155	2,834	0	113,237
2009	0	140	2,801	0	113,305
2010	0	177	2,931	0	113,694
2011	0	88	2,799	0	114,212
2012	0	117	2,710	0	114,924
2013	0	126	2,684	0	115,703
2014	0	144	2,761	0	116,873
2015	0	145	2,790	0	118,474
2016	0	146	2,806	0	119,638
2017	0	146	2,820	0	120,811
2018	0	149	2,848	0	121,998
2019	0	149	2,863	0	123,196
2020	0	149	2,878	0	124,356
2021	0	151	2,892	0	125,446
2022	0	151	2,905	0	126,545
2023	0	151	2,918	0	127,653

[1] Values include DSM Impacts.
[2] Average number of customers for the calendar year.

History and Forecast Energy Consumption By Customer Class (Including DSM Impacts)

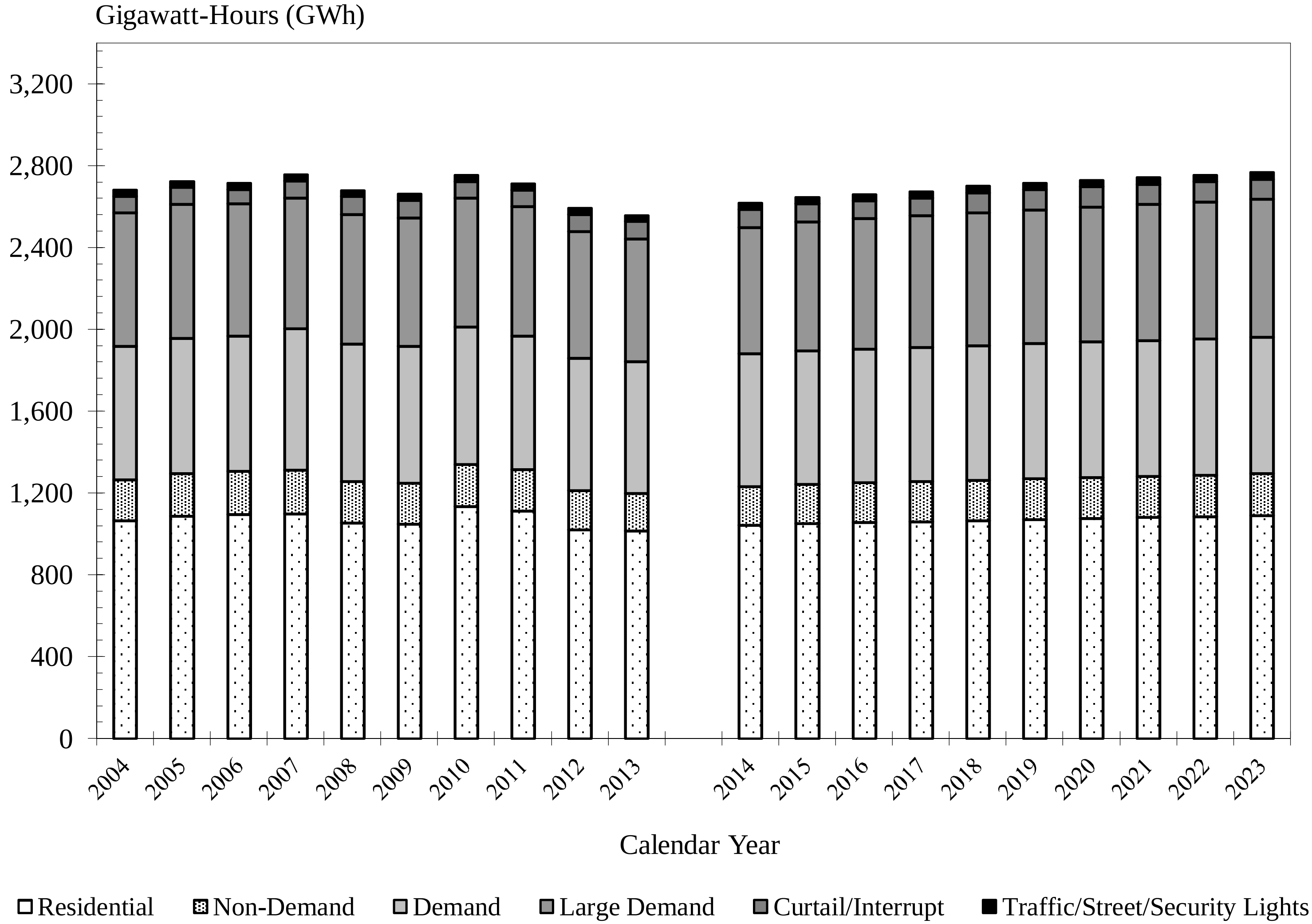
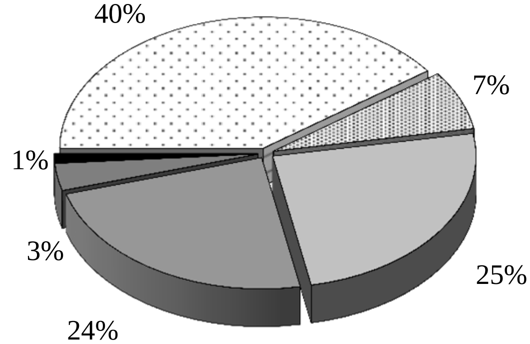


Figure B1

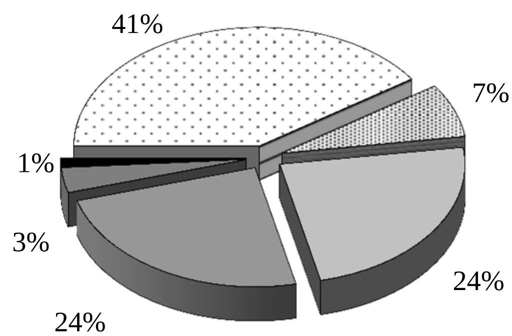
Energy Consumption By Customer Class
(Excluding DSM Impacts)

Calendar Year 2014



Total 2014 Sales = 2,630 GWh

Calendar Year 2023



Total 2023 Sales = 2,900 GWh

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) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management [2]	(7) Residential Conservation [2], [3]	(8) Comm./Ind Load Management [2]	(9) Comm./Ind Conservation [2], [3]	(10) Net Firm Demand [1]
2004	565		565						565
2005	598		598						598
2006	577		577						577
2007	621		621						621
2008	587		587						587
2009	605		605						605
2010	601		601						601
2011	590		590						590
2012	557		557						557
2013	545		545		0	2	0	0	543
2014	571		571		0	1	8	1	561
2015	581		581		0	3	12	3	563
2016	587		587		5	4	12	5	561
2017	593		593		11	6	12	7	557
2018	601		601		16	7	12	9	557
2019	609		609		21	9	12	11	556
2020	614		614		23	10	12	13	556
2021	620		620		24	11	12	15	558
2022	625		625		24	13	12	17	559
2023	631		631		24	14	13	19	561

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2013 DSM is actual at peak.
[3] 2013 values reflect incremental increase from 2012.

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)
Year	Total	Wholesale	Retail	Interruptible	Residential Load Management [2]	Residential Conservation [2], [3]	Comm./Ind Load Management [2]	Comm./Ind Conservation [2], [3]	Net Firm Demand [1]
2004	565		565						565
2005	598		598						598
2006	577		577						577
2007	621		621						621
2008	587		587						587
2009	605		605						605
2010	601		601						601
2011	590		590						590
2012	557		557						557
2013	545		545		0	2	0	0	543
2014	584		584		0	1	8	1	574
2015	598		598		0	3	12	3	580
2016	607		607		5	4	12	5	581
2017	617		617		11	6	12	7	581
2018	628		628		16	7	12	9	584
2019	640		640		21	9	12	11	587
2020	649		649		23	10	12	13	591
2021	659		659		24	11	12	15	597
2022	669		669		24	13	12	17	603
2023	679		679		24	14	13	19	609

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2013 DSM is actual at peak.
[3] 2013 values reflect incremental increase from 2012.

City Of Tallahassee

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

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management [2]	(7) Residential Conservation [2], [3]	(8) Comm./Ind Load Management [2]	(9) Comm./Ind Conservation [2], [3]	(10) Net Firm Demand [1]
2004	565		565						565
2005	598		598						598
2006	577		577						577
2007	621		621						621
2008	587		587						587
2009	605		605						605
2010	601		601						601
2011	590		590						590
2012	557		557						557
2013	545		545		0	2	0	0	543
2014	558		558		0	1	8	1	548
2015	564		564		0	3	12	3	546
2016	567		567		5	4	12	5	541
2017	570		570		11	6	12	7	534
2018	573		573		16	7	12	9	529
2019	578		578		21	9	12	11	525
2020	579		579		23	10	12	13	521
2021	581		581		24	11	12	15	519
2022	583		583		24	13	12	17	517
2023	584		584		24	14	13	19	514

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2013 DSM is actual at peak.
[3] 2013 values reflect incremental increase from 2012.

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 [2], [3]	(7) Residential Conservation [2], [4]	(8) Comm./Ind Load Management [2], [3]	(9) Comm./Ind Conservation [2], [4]	(10) Net Firm Demand [1]
2004 -2005	509		509						509
2005 -2006	532		532						532
2006 -2007	537		537						537
2007 -2008	528		528						528
2008 -2009	526		526						526
2009 -2010	579		579						579
2010 -2011	633		633						633
2011 -2012	584		584						584
2012 -2013	516		516						480
2013 -2014	576		576		0	2	0	0	574
2014 -2015	518		518		0	5	0	2	511
2015 -2016	524		524		0	7	0	3	514
2016 -2017	530		530		0	10	0	4	516
2017 -2018	537		537		0	12	0	5	520
2018 -2019	542		542		0	14	0	6	522
2019 -2020	548		548		0	16	0	7	525
2020 -2021	552		552		0	18	0	8	526
2021 -2022	558		558		0	20	0	10	528
2022 -2023	563		563		0	23	0	11	529
2023 -2024	569		569		0	25	0	12	532

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2013 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2013 values reflect incremental increase from 2012.

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 [2], [3]	(7) Residential Conservation [2], [4]	(8) Comm./Ind Load Management [2], [3]	(9) Comm./Ind Conservation [2], [4]	(10) Net Firm Demand [1]
2004 -2005	509		509						509
2005 -2006	532		532						532
2006 -2007	537		537						537
2007 -2008	528		528						528
2008 -2009	526		526						526
2009 -2010	579		579						579
2010 -2011	633		633						633
2011 -2012	584		584						584
2012 -2013	516		516						480
2013 -2014	576		576		0	2	0	0	574
2014 -2015	533		533		0	5	0	2	526
2015 -2016	542		542		0	7	0	3	532
2016 -2017	552		552		0	10	0	4	538
2017 -2018	562		562		0	12	0	5	545
2018 -2019	570		570		0	14	0	6	550
2019 -2020	579		579		0	16	0	7	556
2020 -2021	587		587		0	18	0	8	561
2021 -2022	597		597		0	20	0	10	567
2022 -2023	606		606		0	23	0	11	572
2023 -2024	615		615		0	25	0	12	578

[1] Values include DSM Impacts.
[2] Reduction estimated at customer meter. 2013 DSM is actual.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2013 values reflect incremental increase from 2012.

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 [2], [3]	(7) Residential Conservation [2], [4]	(8) Comm./Ind Load Management [2], [3]	(9) Comm./Ind Conservation [2], [4]	(10) Net Firm Demand [1]
2004 -2005	509		509						509
2005 -2006	532		532						532
2006 -2007	537		537						537
2007 -2008	528		528						528
2008 -2009	526		526						526
2009 -2010	579		579						579
2010 -2011	633		633						633
2011 -2012	584		584						584
2012 -2013	516		516						480
2013 -2014	576		576		0	2	0	0	574
2014 -2015	504		504		0	5	0	2	497
2015 -2016	506		506		0	7	0	3	496
2016 -2017	509		509		0	10	0	4	495
2017 -2018	512		512		0	12	0	5	495
2018 -2019	515		515		0	14	0	6	495
2019 -2020	517		517		0	16	0	7	494
2020 -2021	517		517		0	18	0	8	491
2021 -2022	520		520		0	20	0	10	490
2022 -2023	522		522		0	23	0	11	488
2023 -2024	523		523		0	25	0	12	486

[1] Values include DSM Impacts.
[2] Reduction estimated at customer meter. 2013 DSM is actual.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2013 values reflect incremental increase from 2012.

City Of Tallahassee

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Total Sales	Residential Conservation [2], [3]	Comm./Ind Conservation [2], [3]	Retail Sales [1]	Wholesale	Utility Use & Losses	Net Energy for Load [1]	Load Factor % [1]
2004	2,682			2,682		159	2,841	57
2005	2,724			2,724		163	2,887	55
2006	2,714			2,714		154	2,868	57
2007	2,756			2,756		158	2,914	54
2008	2,679			2,679		155	2,834	55
2009	2,661			2,661		140	2,801	53
2010	2,754			2,754		177	2,931	56
2011	2,711			2,711		88	2,799	54
2012	2,593			2,593		117	2,710	56
2013	2,567	9	0	2,558		126	2,684	56
2014	2,629	8	4	2,617		144	2,761	56
2015	2,670	17	8	2,645		145	2,790	57
2016	2,698	25	13	2,660		146	2,806	57
2017	2,726	33	19	2,674		146	2,820	58
2018	2,763	41	23	2,699		149	2,848	58
2019	2,793	50	29	2,714		149	2,863	59
2020	2,821	58	34	2,729		149	2,878	59
2021	2,846	66	39	2,741		151	2,892	59
2022	2,873	74	45	2,754		151	2,905	59
2023	2,901	83	51	2,767		151	2,918	59

[1] Values include DSM Impacts.
[2] Reduction estimated at customer meter. 2013 DSM is actual.
[3] 2013 values reflect incremental increase from 2012.

City Of Tallahassee

Schedule 3.3.2
History and Forecast of Annual Net Energy for Load
High Forecast
(GWh)

(1) Year	(2) Total Sales	(3) Residential Conservation [2], [3]	(4) Comm./Ind Conservation [2], [3]	(5) Retail Sales [1]	(6) Wholesale	(7) Utility Use & Losses	(8) Net Energy for Load [1]	(9) Load Factor % [1]
2004	2,682			2,682		159	2,841	57
2005	2,724			2,724		163	2,887	55
2006	2,714			2,714		154	2,868	57
2007	2,756			2,756		158	2,914	54
2008	2,679			2,679		155	2,834	55
2009	2,661			2,661		140	2,801	53
2010	2,754			2,754		177	2,931	56
2011	2,711			2,711		88	2,799	54
2012	2,593			2,593		117	2,710	56
2013	2,567	9	0	2,558		126	2,684	56
2014	2,689	8	4	2,677		147	2,824	56
2015	2,747	17	8	2,722		149	2,871	57
2016	2,790	25	13	2,752		151	2,903	57
2017	2,835	33	19	2,783		153	2,935	58
2018	2,891	41	23	2,827		155	2,982	58
2019	2,938	50	29	2,859		157	3,016	59
2020	2,984	58	34	2,892		159	3,050	59
2021	3,026	66	39	2,921		160	3,082	59
2022	3,071	74	45	2,952		162	3,114	59
2023	3,119	83	51	2,985		164	3,149	59

[1] Values include DSM Impacts.
[2] Reduction estimated at customer meter. 2013 DSM is actual.
[3] 2013 values reflect incremental increase from 2012.

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)
Year	Total Sales	Residential Conservation [2], [3]	Comm./Ind Conservation [2], [3]	Retail Sales [1]	Wholesale	Utility Use & Losses	Net Energy for Load [1]	Load Factor % [1]
2004	2,682			2,682		159	2,841	57
2005	2,724			2,724		163	2,887	55
2006	2,714			2,714		154	2,868	57
2007	2,756			2,756		158	2,914	54
2008	2,679			2,679		155	2,834	55
2009	2,661			2,661		140	2,801	53
2010	2,754			2,754		177	2,931	56
2011	2,711			2,711		88	2,799	54
2012	2,593			2,593		117	2,710	56
2013	2,567	9	0	2,558		126	2,684	56
2014	2,569	8	4	2,557		140	2,698	56
2015	2,593	17	8	2,568		141	2,709	57
2016	2,606	25	13	2,568		141	2,709	57
2017	2,617	33	19	2,565		141	2,706	58
2018	2,638	41	23	2,574		141	2,715	59
2019	2,651	50	29	2,572		141	2,713	59
2020	2,660	58	34	2,568		141	2,709	59
2021	2,668	66	39	2,563		141	2,704	59
2022	2,677	74	45	2,558		140	2,698	60
2023	2,686	83	51	2,552		140	2,692	60

[1] Values include DSM Impacts.
[2] Reduction estimated at customer meter. 2013 DSM is actual.
[3] 2013 values reflect incremental increase from 2012.

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)
	2013 Actual		**2014 Forecast [1][2]**		**2015 Forecast [1]**	
Month	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)
January	427	204	508	225	511	228
February	471	193	481	198	484	200
March	480	208	419	207	422	209
April	409	200	455	208	460	210
May	472	222	517	237	523	239
June	543	257	561	262	563	265
July	535	254	561	272	563	275
August	537	272	561	282	563	285
September	535	256	532	253	538	256
October	464	218	450	217	454	219
November	379	194	386	194	388	196
December	427	206	418	206	421	208
TOTAL		2,684		2,761		2,790

[1] Peak Demand and NEL include DSM Impacts.
[2] Represents forecast values for 2014.

City of Tallahassee, Florida

2014 Electric System Load Forecast

Key Explanatory Variables

Ln. No.	Model Name	Leon County Population	Residential Customers	Cooling Degree Days	Heating Degree Days	Tallahassee Per Capita Taxable Sales	Price of Electricity	State of Florida Population	Minimum Winter Peak day Temp.	Maximum Summer Peak day Temp.	Appliance Saturation	R Squared [1]
1	Residential Customers	X										0.998
2	Residential Consumption		X	X	X	X	X				X	0.937
3	Florida State University Consumption			X				X				0.930
4	Florida A&M University Consumption			X				X				0.926
5	General Service Non-Demand Customers		X									0.965
6	General Service Demand Customers		X									0.959
7	General Service Non-Demand Consumption	X		X	X	X						0.932
8	General Service Demand Consumption	X		X	X							0.956
9	General Service Large Demand Consumption	X		X	X							0.848
10	Summer Peak Demand			X			X			X		0.914
11	Winter Peak Demand			X	X				X			0.880

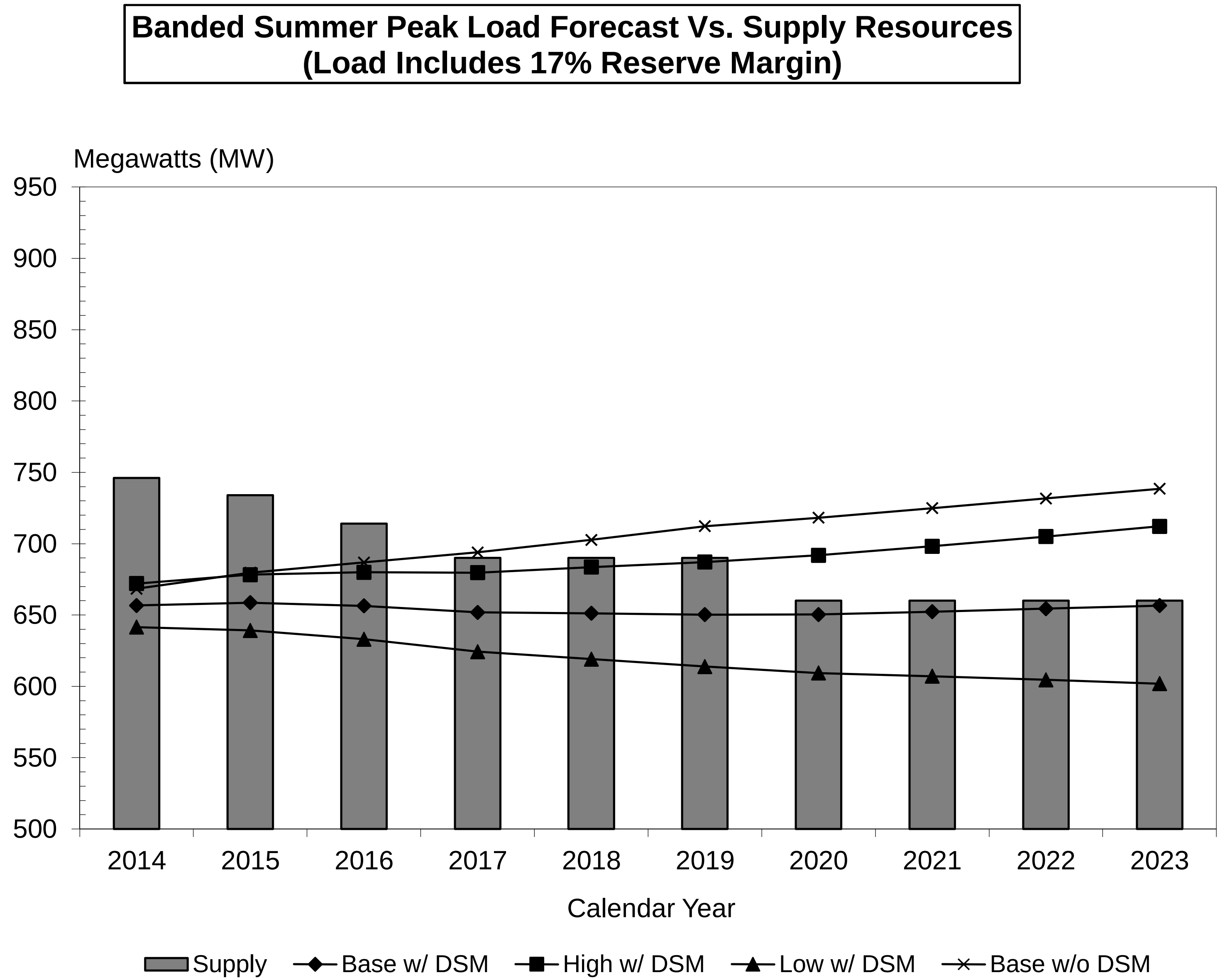
[1] R Squared, sometimes called the coefficient of determination, is a commonly used measure of goodness of fit of a linear model. If the observations fall on the model regression line, R Squared is 1. If there is no linear relationship between the dependent and independent variable, R Squared is 0.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

City of Tallahassee

2014 Electric System Load Forecast

Sources of Forecast Model Input Information

Energy Model Input Data	Source
1. Leon County Population	Bureau of Economic and Business Research
2. Talquin Customers Transferred	City Power Engineering
3. Cooling Degree Days	NOAA reports
4. Heating Degree Days	NOAA reports
5. AC Saturation Rate	Appliance Saturation Study
6. Heating Saturation Rate	Appliance Saturation Study
7. Real Tallahassee Taxable Sales	Florida Department of Revenue, CPI
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	City Utility Services
14. Tall. Memorial Curtailable	System Planning/ Utilities Accounting.
15. System Peak Historical Data	City System Planning
16. Historical Customer Projections by Class	System Planning & Customer Accounting
17. Historical Customer Class Energy	System Planning & Customer Accounting
18. GDP Forecast	Blue Chip Economic Indicators
19. CPI Forecast	Blue Chip Economic Indicators
20. Interruptible, Traffic Light Sales, & Security Light Additions	System Planning & Customer Accounting
21. Historical Residential Real Price of Electricity	Calculated from Revenues, kWh sold, CPI
22. Historical Commercial Real Price Of Electricity	Calculated from Revenues, kWh sold, CPI



Banded Summer Peak Load Forecast Vs. Supply Resources
(Load Includes 17% Reserve Margin)
Megawatts (MW)
950
900
850
800
750
700
650
600
550
500
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Calendar Year
Supply
Base w/ DSM
High w/ DSM
Low w/ DSM
Base w/o DSM

Figure B3

City Of Tallahassee

2014 Electric System Load Forecast

Projected Demand Side Management
Energy Reductions [1]

Calendar Year Basis

Year	Residential Impact (MWh)	Commercial Impact (MWh)	Total Impact (MWh)
2014	8,719	4,537	13,256
2015	17,439	8,595	26,034
2016	26,158	13,633	39,791
2017	34,878	19,651	54,529
2018	43,597	24,563	68,160
2019	52,316	30,077	82,393
2020	61,036	35,756	96,792
2021	69,755	41,600	111,355
2022	78,475	47,609	126,084
2023	87,194	53,783	140,977

[1] Reductions estimated at generator busbar.

City Of Tallahassee

2014 Electric System Load Forecast

Projected Demand Side Management
Seasonal Demand Reductions [1]

Year		Residential Energy Efficiency Impact		Commercial Energy Efficiency Impact		Residential Demand Response Impact		Commercial Demand Response Impact		Demand Side Management Total	
Summer	Winter	Summer (MW)	Winter (MW)	Summer (MW)	Winter (MW)	Summer (MW)	Winter [2] (MW)	Summer (MW)	Winter [2] (MW)	Summer (MW)	Winter (MW)
2014	2014-2015	1	5	1	2	0	0	8	0	10	7
2015	2015-2016	3	7	3	3	0	0	12	0	18	10
2016	2016-2017	4	10	5	4	5	0	12	0	26	14
2017	2017-2018	6	12	7	5	11	0	12	0	36	17
2018	2018-2019	7	14	9	6	16	0	12	0	44	20
2019	2019-2020	9	16	11	7	21	0	12	0	53	23
2020	2020-2021	10	18	13	8	23	0	12	0	58	26
2021	2021-2022	11	20	15	10	24	0	12	0	62	30
2022	2022-2023	13	23	17	11	24	0	12	0	66	34
2023	2023-2024	14	25	19	12	24	0	13	0	70	37

[1] Reductions estimated at busbar.

[2] Represents projected winter peak reduction capability associated with demand response (DR) resource. However, as reflected on Schedules 3.1.1-3.2.3 (Tables 2.4-2.9), DR utilization expected to be predominantly in the summer months.

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 2012	Actual 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1)	Nuclear		Billion Btu	0	0	0	0	0	0	0	0	0	0	0	0
(2)	Coal		1000 Ton	0	0	0	0	0	0	0	0	0	0	0	0
(3)	Residual	Total	1000 BBL	4	0	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	4	0	0	0	0	0	0	0	0	0	0	0
(5)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(6)		CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(7)		Diesel	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(8)	Distillate	Total	1000 BBL	1	0	0	0	0	0	0	0	0	0	0	0
(9)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(10)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(11)		CT	1000 BBL	1	0	0	0	0	0	0	0	0	0	0	0
(12)		Diesel	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(13)	Natural Gas	Total	1000 MCF	20,691	21,648	20,755	20,880	21,050	21,039	21,172	21,295	21,247	21,232	21,315	21,433
(14)		Steam	1000 MCF	2,209	2,263	595	825	669	642	727	749	98	0	0	0
(15)		CC	1000 MCF	17,621	18,756	19,599	19,313	19,576	19,983	19,850	19,714	20,555	19,963	20,457	20,719
(16)		CT	1000 MCF	862	629	561	742	805	414	595	832	594	1,269	858	714
(17)		Diesel	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
(18)	Other (Specify)		Trillion Btu	0	0	0	0	0	0	0	0	0	0	0	0

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 2012	Actual 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1)	Annual Firm Interchange		GWh	98	1	25	24	24	25	25	29	26	26	27	27
(2)	Coal		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(3)	Nuclear		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(4)	Residual	Total	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(5)		Steam	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(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	0	2	0	0	0	0	0	0	0	0	0	0
(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	0	2	0	0	0	0	0	0	0	0	0	0
(13)		Diesel	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(14)	Natural Gas	Total	GWh	2,509	2,662	2,761	2,779	2,801	2,812	2,835	2,846	2,869	2,871	2,887	2,903
(15)		Steam	GWh	168	177	51	70	57	54	62	64	8	0	0	0
(16)		CC	GWh	2265	2433	2,656	2,633	2660	2714	2710	2,694	2798	2737	2797	2828
(17)		CT	GWh	76	52	54	76	84	44	63	88	63	134	90	75
(18)		Diesel	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(19)	Hydro		GWh	6	23	11	11	11	11	11	11	11	11	11	11
(20)	Economy Interchange[1]		GWh	97	-3	-36	-24	-30	-28	-23	-23	-28	-16	-20	-23
(21)	Renewables		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(22)	Net Energy for Load		GWh	2,710	2,684	2,761	2,790	2,806	2,820	2,848	2,863	2,878	2,892	2,905	2,918

[1] Negative values reflect expected need to sell off-peak power to satisfy generator minimum load requirements, primarily in winter and shoulder mont

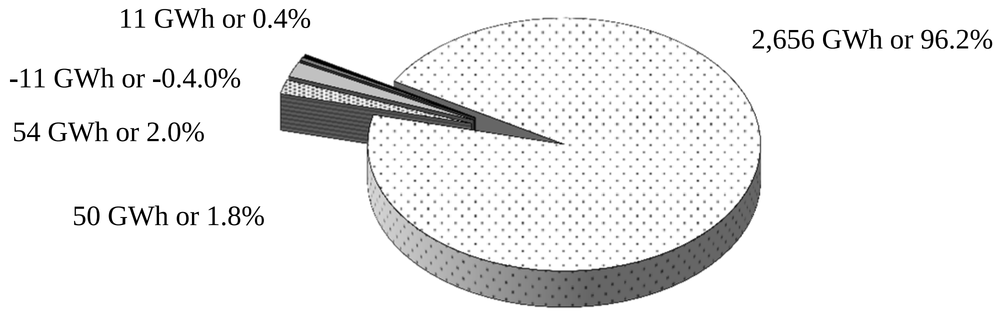
City Of Tallahassee

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 2012	Actual 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1)	Annual Firm Interchange		%	3.6	0.0	0.9	0.9	0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9
(2)	Coal		%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3)	Nuclear		%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(4)	Residual	Total	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(5)		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
(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	%	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(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	%	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(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	%	92.6	99.2	100.0	99.6	99.8	99.7	99.5	99.4	99.7	99.3	99.4	99.5
(15)		Steam	%	6.2	6.6	1.8	2.5	2.0	1.9	2.2	2.2	0.3	0.0	0.0	0.0
(16)		CC	%	83.6	90.7	96.2	94.4	94.8	96.2	95.2	94.1	97.2	94.6	96.3	96.9
(17)		CT	%	2.8	1.9	2.0	2.7	3.0	1.6	2.2	3.1	2.2	4.6	3.1	2.6
(18)		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
(19)	Hydro		%	0.2	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
(20)	Economy Interchange		%	3.6	-0.1	-1.3	-0.9	-1.1	-1.0	-0.8	-0.8	-1.0	-0.6	-0.7	-0.8
(21)	Renewables		%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(22)	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

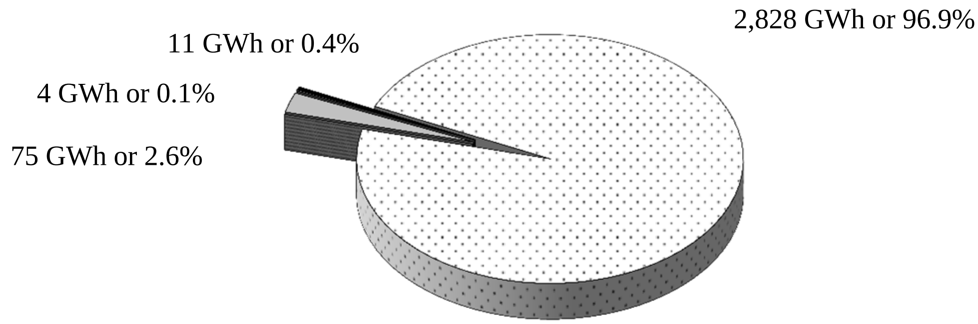
Generation By Resource/Fuel Type

Calendar Year 2014



Total 2014 NEL = 2,761 GWh

Calendar Year 2023



Total 2023 NEL = 2,918 GWh

CC - Gas | Steam - Gas | CT/Diesel - Gas | Net Interchange | Hydro

Chapter III

Projected Facility Requirements

3.1 Planning Process

In December 2006 the City completed its last comprehensive IRP Study. The purpose of this study was to review future DSM and power supply options that are consistent with the City's policy objectives. Included in the IRP Study was a detailed analysis of how the DSM and power supply alternatives perform under base and alternative assumptions.

The preferred resource plan identified in the IRP Study included the repowering of Hopkins Unit 2 to combined cycle operation, renewable energy purchases, a commitment to an aggressive DSM portfolio and the latter year addition of peaking resources to meet future energy demand.

Based on more recent information including but not limited to the updated forecast of the City's demand and energy requirements (discussed in Chapter II) the City has made revisions to its resource plan. These revisions will be discussed in this chapter.

3.2 Projected Resource Requirements

3.2.1 Transmission Limitations

The City's projected transmission import capability continues to be a major determinant of the need for future power supply resource additions. The City's internal transmission studies have reflected a gradual deterioration of the system's transmission import (and export) capability into the future, due in part to the lack of investment in the regional transmission system around Tallahassee as well as the impact of unscheduled power flow-through on the City's transmission system. The City has worked with its neighboring utilities, Duke and Southern, to plan and maintain, at minimum, sufficient transmission import capability to allow the City to make emergency power purchases in the event of the most severe single contingency, the loss of the system's largest generating unit.

The prospects for significant expansion of the regional transmission system around Tallahassee hinges on the City's ongoing discussions with Duke and Southern, the Florida Reliability Coordinating Council's (FRCC) regional transmission planning process, and the evolving set of mandatory reliability standards issued by the North American Electric Reliability Corporation (NERC). Unfortunately, none of these efforts is expected to produce substantive improvements to the City's transmission import/export capability in the short-term. In consideration of the City's limited transmission import capability the results of the IRP Study and other internal analysis of options tend to favor local generation alternatives as the means to satisfy future power supply requirements. To satisfy load, planning reserve and operational requirements in the reporting period, the City may need to advance the in-service date of new power supply resources to complement available transmission import capability.

3.2.2 Reserve Requirements

For the purposes of this year's TYSP report the City uses a load reserve margin of 17% as its resource adequacy criterion. This margin was established in the 1990s then re-evaluated via a loss of load probability (LOLP) analysis of the City's system performed in 2002. The City periodically conducts LOLP analyses to determine if conditions warrant a change to its resource adequacy criteria. The results of recent LOLP analyses suggest that reserve margin may no longer be suitable as the City's sole resource adequacy criterion. This issue is discussed further in Section 3.2.4.

3.2.3 Recent and Near Term Resource Additions

At their October 17, 2005 meeting the City Commission gave the Electric Utility approval to proceed with the repowering of Hopkins Unit 2 to combined cycle operation. The repowering was completed and the unit began commercial operation in June 2008. The former Hopkins Unit 2 boiler was retired and replaced with a combustion turbine generator (CTG) and a heat recovery steam generator (HRSG). The Hopkins 2 steam turbine and generator is now powered by the steam generated in the HRSG. Duct burners have been installed in the HRSG to provide additional peak generating capability. The repowering project provides additional capacity as well as increased efficiency versus the unit's capabilities prior to the repowering project. The repowered unit has achieved official seasonal net capacities of 300 MW in the summer and 330 MW in the winter.

No new resource additions are expected to be needed in the near term (2014-2018). Resource additions expected in the longer term (2019-2023) are discussed in Section 3.2.6, "Future Power Supply Resources".

3.2.4 POWER SUPPLY DIVERSITY

Resource diversity, particularly with regard to fuels, has long been a priority concern for the City because of the system's heavy reliance on natural gas as its primary fuel source. This issue has received even greater emphasis due to the historical volatility in natural gas prices. The City has addressed this concern in part by implementing an Energy Risk Management (ERM) program to limit the City's exposure to energy price fluctuations. The ERM program established an organizational structure of interdepartmental committees and working groups and included the adoption of an Energy Risk Management Policy. This policy identifies acceptable risk mitigation products to prevent asset value losses, ensure price stability and provide protection against market volatility for fuels and energy to the City's electric and gas utilities and their customers.

Other important considerations in the City's planning process are the diversity of power supply resources in terms of their number, sizes and expected duty cycles as well as expected transmission import capabilities. To satisfy expected electric system requirements the City currently assesses the adequacy of its power supply resources versus the 17% load reserve margin criterion. But the evaluation of reserve margin is made only for the annual electric system peak demand and assuming all power supply resources are available. Resource adequacy must also be evaluated during other times of the year to determine if the City is maintaining the appropriate amount and mix of power supply resources.

Currently, about two-thirds of the City's power supply comes from two generating units, Purdom 8 and Hopkins 2. The outage of either of these units can present operational challenges especially when coupled with transmission limitations (as discussed in Section 3.2.1). Further, the projected retirement of older generating units will reduce the number of power supply resources available to ensure resource adequacy throughout the reporting period. For these reasons the City has evaluated alternative and/or supplemental probabilistic metrics such as loss of load expectation, or LOLE, to its current load reserve margin criterion that may better balance resource adequacy and operational needs with utility and customer costs. The results of this evaluation confirmed that the City's current capacity mix and limited transmission import capability are the biggest determinants of the City's resource adequacy and suggest that there are risks of potential resource shortfalls during periods other than at the time of the system peak demand. Therefore, the City's current deterministic load reserve margin criterion may need to be increased and/or supplemented by a probabilistic criterion that takes these issues into consideration. Toward this end the City intends to contract with a consultant to perform an economic resource adequacy study during calendar year 2014. The study will give consideration to the capital carrying costs and potential production cost savings associated with new generating units, the costs associated with power purchases from the external bulk power market (including potential investments to improve transmission import transfer capability) during normal operations, emergencies and during periods of scarcity, and the cost of unserved energy from the customer's perspective. From the results the level of reserves that best balances resource adequacy and economics consistent with the City's risk tolerance will be identified. An update of the City's efforts in this regard will be provided in a future TYSP report(s).

Purchase contracts can provide some of the diversity desired in the City's power supply resource portfolio. The City's last IRP Study evaluated both short and long-term purchased power options based on conventional sources as well as power offers based on renewable resources. A consultant-assisted study completed in 2008 evaluated the potential reliability and economic benefits of prospectively increasing the City's transmission import (and export) capabilities. The results of this study indicate the potential for some electric reliability improvement resulting from the addition of facilities to achieve more transmission import capability. However, the study's model of the Southern and Florida markets reflects, as with the City's generation fleet, natural gas-fired generation on the margin the majority of the time. Therefore, the cost of increasing the City's transmission import capability could not likely be offset by the potential economic benefit from increased power purchases from conventional sources.

As an additional strategy to address the City's lack of power supply diversity, planning staff has investigated options for a significantly enhanced DSM portfolio. Commitment to this expanded DSM effort (see Section 2.1.3) and an increase in customer-sited renewable energy projects (primarily solar panels) improve the City's overall resource diversity. However, due to limited availability and uncertain performance, studies indicate that DSM and solar projects would not improve resource adequacy (as measured by LOLE) as much as the addition of conventional generation resources.

3.2.5 RENEWABLE RESOURCES

The City believes that offering green power alternatives to its customers is a sound business strategy: it will provide for a measure of supply diversification, reduce dependence on fossil fuels, promote cleaner energy sources, and enhance the City's already strong commitment to protecting the environment and the quality of life in Tallahassee. As part of its continuing commitment to explore clean energy alternatives, the City has continued to invest in opportunities to develop viable solar photovoltaic (PV) projects as part of our efforts to offer "green power" to our customers. There are ongoing concerns regarding the potential impact on service reliability associated with reliance on a significant amount of intermittent resources like PV on the City's relatively small electric system. The City will continue to monitor the proliferation of PV and other intermittent resources and work to integrate them so that service reliability is not jeopardized.

As of the end of calendar year 2013 the City has a portfolio of 223 kW of solar PV operated and maintained by the Electric Utility and a cumulative total of 1,500 kW of solar PV has been installed by customers. The City promotes and encourages environmental responsibility in our community through a variety of programs available to citizens. The commitment to renewable energy sources (and particularly to solar PV) by its customers is made possible through the Go Green Tallahassee initiative, that includes many options related to becoming a greener community such as the City's Solar PV Net Metering offer. Solar PV Net Metering promotes customer investment in renewable energy generation by allowing residential and commercial customers with small to moderate sized PV installations to return excess generated power back to the City at the full retail value.

In 2011, the City of Tallahassee signed contracts with SunnyLand Solar and Solar Developers of America (SDA) for over 3 MWs of solar PV. These demonstration projects are to be built within the City's service area and will utilize new technology pioneered by Florida State University. As of December 31, 2013 both of these projects have been delayed due to manufacturing issues associated with the technology. Such delays are to be expected with projects involving the demonstration of emerging technologies. The City remains optimistic that the technology will mature into a viable energy resource.

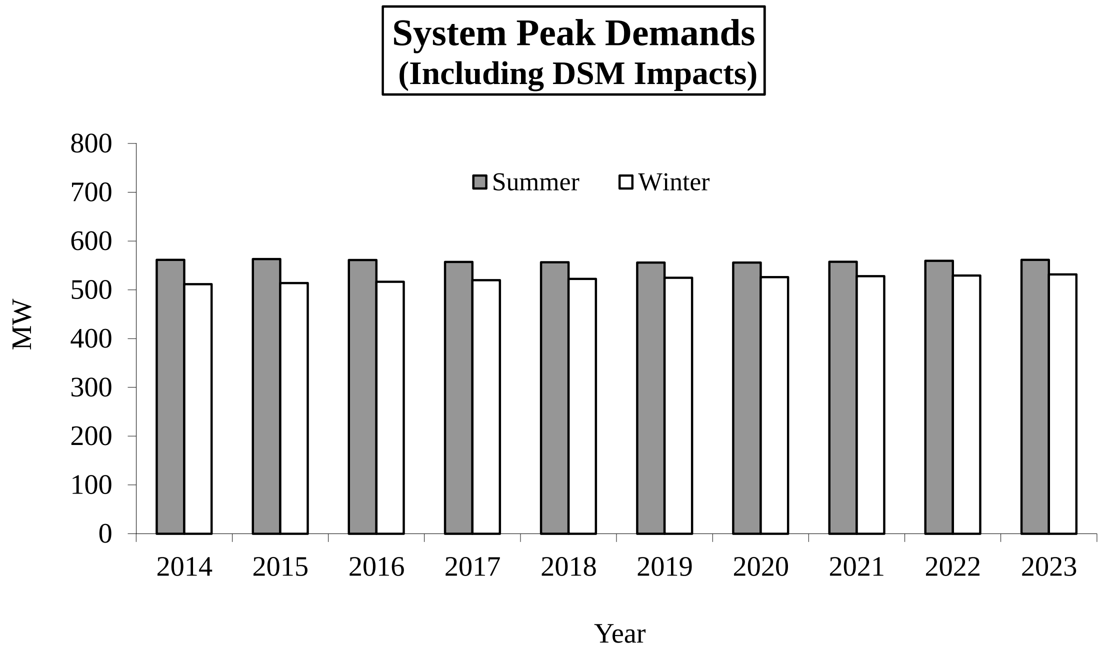
The City continues to seek out suitable projects that utilize the renewable fuels available within the big bend and panhandle of Florida.

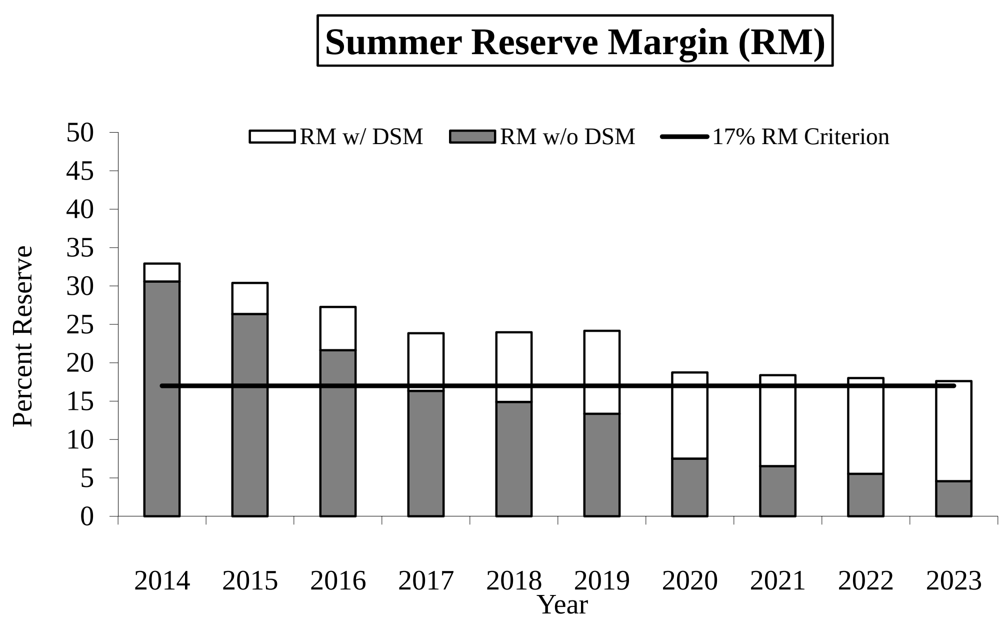
3.2.6 FUTURE POWER SUPPLY RESOURCES

The City currently projects that additional power supply resources will be needed to maintain electric system adequacy and reliability through the 2023 horizon year. The City has identified the need for additional capacity in the summer of 2020 following the retirement of Hopkins 1 in order to satisfy its 17% reserve margin criterion. The timing, site, type and size of any new power supply resource may vary dependent upon the metric(s) used to determine resource adequacy and as the nature of the need becomes better defined. Any proposed addition could be a generator or a peak season purchase. Alternatively, the planned retirement of Hopkins 1 could be postponed. The suitability of this resource plan is dependent on the performance of the City's DSM portfolio (described in Section 2.1.3 of this report) and the City's projected transmission import capability. If only 50% of the projected annual DSM peak demand reductions are achieved, the City would require about 25 MW of additional power supply resources to meet its planning reserve requirements in the summer of 2020.

The City continues to monitor closely the performance of the DSM portfolio and, as mentioned in Section 2.1.3, will be revisiting and, where appropriate, updating assumptions regarding and re-evaluating cost-effectiveness of our current and prospective DSM measures. This will also allow a reassessment of expected demand and energy savings attributable to DSM.

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 has specified its planned capacity 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 for the period from 2014 through 2023.


System Peak Demands
(Including DSM Impacts)
Summer
Winter
MW
800
700
600
500
400
300
200
100
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year


Summer Reserve Margin (RM)
RM w/ DSM
RM w/o DSM
17% RM Criterion
Percent Reserve
50
45
40
35
30
25
20
15
10
5
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year

City Of Tallahassee

Schedule 7.1
Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Summer Peak [1]

(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 Summer 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
2014	746	0	0	0	746	561	185	33	0	185	33
2015	734	0	0	0	734	563	171	30	0	171	30
2016	714	0	0	0	714	561	153	27	0	153	27
2017	690	0	0	0	690	557	133	24	0	133	24
2018	690	0	0	0	690	557	133	24	0	133	24
2019	690	0	0	0	690	556	134	24	0	134	24
2020	660	0	0	0	660	556	104	19	0	104	19
2021	660	0	0	0	660	558	102	18	0	102	18
2022	660	0	0	0	660	559	101	18	0	101	18
2023	660	0	0	0	660	561	99	18	0	99	18

[1] All installed and firm import capacity changes are identified in the proposed generation expansion plan (Table 3.4).

City Of Tallahassee

Schedule 7.2
Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Winter Peak [1]

(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
2014/15	822	0	0	0	822	511	311	61	0	311	61
2015/16	788	0	0	0	788	514	274	53	0	274	53
2016/17	788	0	0	0	788	516	272	53	0	272	53
2017/18	762	0	0	0	762	520	242	47	0	242	47
2018/19	762	0	0	0	762	522	240	46	0	240	46
2019/20	762	0	0	0	762	525	237	45	0	237	45
2020/21	732	0	0	0	732	526	206	39	0	206	39
2021/22	732	0	0	0	732	528	204	39	0	204	39
2022/23	732	0	0	0	732	529	203	38	0	203	38
2023/24	732	0	0	0	732	532	200	38	0	200	38

[1] All installed and firm import capacity changes are identified in the proposed generation expansion plan (Table 3.4).

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)
								Const.	Commercial	Expected	Gen. Max.	Net Capability		
	Unit		Unit	Fuel		Fuel Transportation		Start	In-Service	Retirement	Nameplate	Summer	Winter	
Plant Name	No.	Location	Type	Pri	Alt	Pri	Alt	Mo/Yr	Mo/Yr	Mo/Yr	(kW)	(MW)	(MW)	Status
Hopkins	CT-1	Leon	GT	NG	DFO	PL	TK	NA	2/70	3/15	16,320	-12	-14	RT
Purdom	CT-1	Wakulla	GT	NG	DFO	PL	TK	NA	12/63	10/15	15,000	-10	-10	RT
Purdom	CT-2	Wakulla	GT	NG	DFO	PL	TK	NA	5/64	10/15	15,000	-10	-10	RT
Hopkins	CT-2	Leon	GT	NG	DFO	PL	TK	NA	9/72	3/17	27,000	-24	-26	RT
Hopkins	1	Leon	ST	NG	RFO	PL	TK	NA	5/71	3/20	75,000	-76	-78	RT
Hopkins	5	Leon	CT	NG	DFO	PL	TK	5/17	5/20	NA	50,000	46	48	P

Acronyms

GT	Gas Turbine	Pri	Primary Fuel	kW	Kilowatts
ST	Steam Turbine	Alt	Alternate Fuel	MW	Megawatts
		NG	Natural Gas	RT	Existing generator scheduled for retirement.
		DFO	Diesel Fuel Oil	P	Planned for installation but not utility authorized. Not under construction.
		RFO	Residual Fuel Oil		
		PL	Pipeline		
		TK	Truck		

City Of Tallahassee

Generation Expansion Plan

	Load Forecast & Adjustments								
Year	Forecast Peak Demand (MW)	DSM [1] (MW)	Net Peak Demand (MW)	Existing Capacity Net (MW)	Firm Imports (MW)	Firm Exports (MW)	Resource Additions (Cumulative) (MW)	Total Capacity (MW)	Res %
2014	571	10	561	746	0			746	33
2015	581	18	563	734 [2]	0			734	30
2016	587	26	561	714 [3]	0			714	27
2017	593	36	557	690 [4]	0			690	24
2018	601	44	557	690	0			690	24
2019	609	53	556	690	0			690	24
2020	614	58	556	614 [5]	0		46 [6]	660	19
2021	620	62	558	614	0		46	660	18
2022	625	66	559	614	0		46	660	18
2023	631	70	561	614	0		46	660	18

Notes

[1] Demand Side Management includes energy efficiency and demand response/control measures.
[2] Hopkins CT 1 official retirement currently scheduled for March 2015.
[3] Purdom CTs 1 and 2 official retirement currently scheduled for October 2015.
[4] Hopkins CT 2 official retirement currently scheduled for March 2017.
[5] Hopkins ST 1 official retirement currently scheduled for March 2020.
[6] For the purposes of this report, the City has identified the addition of a GE LM 6000 combustion turbine generator (similar to the City's existing Hopkins CT3 and CT4) at existing Hopkins Plant site. The timing, site, type and size of this new power supply resource may vary as the nature of the need becomes better defined. Alternatively, this proposed addition could be a generator(s) of a different type/size at the same or different location or a peak season purchase or the planned retirement of Hopkins 1 could be postponed .

Chapter IV

Proposed Plant Sites and Transmission Lines

4.1 PROPOSED PLANT SITE

As discussed in Chapter 3 the City currently expects that additional power supply resources will be required in the reporting period to meet future system needs (see Table 4.1). For the purposes of this report, the City has identified the addition of a GE LM 6000 combustion turbine generator (similar to the City's existing Hopkins CT3 and CT4) at its existing Hopkins Plant site. The timing, site, type and size of this new power supply resource may vary as the nature of the need becomes better defined. Alternatively, this proposed addition could be a generator(s) of a different type/size at the same or different location or a peak season purchase or the planned retirement of Hopkins Unit 1 could be postponed.

4.2 TRANSMISSION LINE ADDITIONS/UPGRADES

Internal studies of the transmission system have identified a number of system improvements and additions that will be required to reliably serve future load. The majority of these improvements are planned for the City’s 115 kV transmission network.

As discussed in Section 3.2, the City has been working with its neighboring utilities, Duke and Southern, to identify improvements to assure the continued reliability and commercial viability of the transmission systems in and around Tallahassee. At a minimum, the City attempts to plan for and maintain sufficient transmission import capability to allow for emergency power purchases in the event of the most severe single contingency, the loss of the system’s largest generating unit. The City’s internal transmission studies have reflected a gradual deterioration of the system’s transmission import (and export) capability into the future. This reduction in capability is driven in part by the lack of investment in facilities in the panhandle region as well as the impact of unscheduled power flow-through on the City’s transmission system. The City is committed to continue to work with Duke and Southern as well as existing and prospective regulatory bodies in an effort to pursue improvements to the regional transmission systems that will allow the City to continue to provide reliable and affordable electric service to the citizens of Tallahassee in the future. The City will provide the FPSC with information regarding any such improvements as it becomes available.

Beyond assessing import and export capability, the City also conducts annual studies of its transmission system to identify further improvements and expansions to provide increased reliability and respond more effectively to certain critical contingencies both on the system and in the surrounding grid in the panhandle. These evaluations indicate that additional infrastructure projects are needed to address (i) improvements in capability to deliver power from the Hopkins Plant (on the west side of the City's service territory) to the load center, and (ii) the strengthening of the system on the east side of the City's service territory to improve the voltage profile in that area and enhance response to contingencies.

The City's transmission expansion plan includes a 230 kV loop around the City to be completed by summer 2016 to address these needs and ensure continued reliable service consistent with current and anticipated FERC and NERC requirements. As the first phase of this transmission project, the City tapped its existing Hopkins-Duke Crawfordville 230 kV transmission line and extended a 230 kV transmission line to the east terminating at the existing Substation BP-5. The City will then upgrade existing 115 kV lines to 230 kV from Substation BP-5 to Substation BP-4 to Substation BP-7 as the second phase of the project completing the loop by summer 2016. This new 230 kV loop would address a number of potential line overloads for the single contingency loss of other key transmission lines in the City's system. Additional 230/115 kV transformation along the new 230 kV line is expected to be added at BP-4. Table 4.2 summarizes the proposed new facilities or improvements from the transmission planning study that are within this Ten Year Site Plan reporting period.

The City's budget planning cycle for FY 2015 is currently ongoing, and any revisions to project budgets in the electric utility will not be finalized until the summer of 2014. Some of the construction of the aforementioned 230 kV transmission projects is currently underway. If these improvements do not remain on schedule the City has prepared operating solutions to mitigate adverse system conditions that might occur as a result of the delay in the in-service date of these improvements.

City Of Tallahassee

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Hopkins 5	[1]
(2)	Capacity		
	a.) Summer:	46	
	b.) Winter:	48	
(3)	Technology Type:	CT	
(4)	Anticipated Construction Timing		
	a.) Field Construction start - date:	May-17	
	b.) Commercial in-service date:	May-20	
(5)	Fuel		
	a.) Primary fuel:	NG	
	b.) Alternate fuel:	DFO	
(6)	Air Pollution Control Strategy:	BACT compliant	
(7)	Cooling Status:	Unknown	
(8)	Total Site Area:	Unknown	
(9)	Construction Status:	Not started	
(10)	Certification Status:	Not started	
(11)	Status with Federal Agencies:	Not started	
(12)	Projected Unit Performance Data		
	Planned Outage Factor (POF):	5.89	
	Forced Outage Factor:	3.22	
	Equivalent Availability Factor (EAF):	89.37	
	Resulting Capacity Factor (%):	4.0	[2]
	Average Net Operating Heat Rate (ANOHR):	9,877	[3]
(13)	Projected Unit Financial Data		
	Book Life (Years)	30	
	Total Installed Cost (In-Service Year $/kW)	1,218	[4]
	Direct Construction Cost ($/kW):	1,050	[5]
	AFUDC Amount ($/kW):	NA	
	Escalation ($/kW):	168	
	Fixed O & M ($kW-Yr):	7.51	[5]
	Variable O & M ($/MWH):	15.83	[5]
	K Factor:	NA	

Notes

[1] For the purposes of this report, the City has identified the addition of a GE LM 6000 combustion turbine generator (similar to the City's existing Hopkins CT3 and CT4) at its existing Hopkins Plant site. The timing, site, type and size of this new power supply resource may vary as the nature of the need becomes better defined. Alternatively, this proposed addition could be a generator(s) of a different type/size at the same or different location or a peak season purchase or the planned retirement of Hopkins 1 could be postponed.

[2] Expected first year capacity factor.
[3] Expected first year net average heat rate.
[4] Estimated 2020 dollars.
[5] Estimated 2014 dollars.

Figure D-1 – Hopkins Plant Site

Figure D-2 – Purdom Plant Site

City Of Tallahassee

Planned Transmission Projects, 2014-2023

Project Type	Project Name	From Bus Name	From Bus Number	To Bus Name	To Bus Number	Expected In-Service Date	Voltage (kV)	Line Length (miles)
New Lines	Line 55	Sub 14	7514	Sub 7	7507	6/1/15	115	6.0
Line Rebuild/ Reconductor	Line 15B	Sub 5	7505	Sub 9	7509	5/1/14	115	6.0
	Line 15A [1]	Sub 5	7505	Sub 4	7504	12/1/14	230	9.0
	Line 17 [1]	Sub 4	7605	Sub 7	7607	6/1/16	230	3.8
Transformers	Sub 4 230/115 Auto	Sub 4 230	7604	Sub 4 115	7504	12/1/14	NA	NA
Substations	Sub 22 (Bus 7522)	NA	NA	NA	NA	1/1/17	115	NA
	Sub 23 (Bus 7523)	NA	NA	NA	NA	1/1/17	115	NA

[1] The second phase of the 230 kV loop project. Current 115 kV lines 15A and 17 will be operated at 230 kV after their respective in-service dates.

Table 4.2

City Of Tallahassee

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

(1)	Point of Origin and Termination:	Substation 5 - Substation 4 - Substation 7 [1]
(2)	Number of Lines:	1
(3)	Right-of -Way:	TAL Owned
(4)	Line Length:	12.8 miles
(5)	Voltage:	230 kV
(6)	Anticipated Capital Timing:	See note [2]; target in service May 2015
(7)	Anticipated Capital Investment:	See note [2]
(8)	Substations:	See note [3]
(9)	Participation with Other Utilities:	None

Notes

[1] Rebuilding/reconductoring existing Line 15A and Line 17 and changing operating voltage from 115 kV to 230 kV.

[2] Anticipated capital investment associated with rebuilding/reconductoring associated existing transmission and substation facilities has not been segregated from that related to other improvements being made to these facilities for purposes other than that of establishing this 230 kV transmission line.

[3] North terminus will be existing Substation 7; south terminus will be existing Substation 5; intermediate terminus will be existing Substation 4.