Report
03/31/2023

City of Tallahassee
Your Own Utilities℠

2023-2032

City of Tallahassee Utilities

Ten Year Site Plan

Report prepared by: City of Tallahassee Electric System Integrated Planning

Photo: Tallahassee brings home the Overall Journeyman Team Winner's Cup

CITY OF TALLAHASSEE
TEN YEAR SITE PLAN FOR ELECTRICAL GENERATING FACILITIES AND ASSOCIATED TRANSMISSION LINES
2023-2032
TABLE OF CONTENTS

Cover photo: From left to right - Tony Guillen, Steve Dotson, Michael Patterson, Michael Gramling, Darryln Rone, Reese Goad, Blake Burns, Coy Judd, Justin Johnson, Mike Crow, Josh Helton

III. Projected Facility Requirements

IV. Proposed Plant Sites and Transmission Lines

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 127,000 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 725 megawatts (MW).

The City has three fossil-fueled generating stations, which contain combined cycle (CC), combustion turbine (CT) and reciprocating internal combustion engine (RICE or IC) electric generating facilities. The Sam O. Purdom Generating Station, located in the City of St. Marks, Florida has been in operation since 1952; the Arvah B. Hopkins Generating Station, located on Geddie Road west of the City, has been in commercial operation since 1970; and the Substation 12 Distributed Generation Facility, located on Medical Drive, has been in operation since late 2018.

1.1 SYSTEM CAPABILITY

The City maintains four points of interconnection with Duke Energy Florida ("Duke", formerly Progress Energy Florida); one 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 ("Southern")).

As shown in Table 1.1 (Schedule 1), 222 MW (net summer rating) of CC generation is located at the City's Sam O. Purdom Generating Station. The Arvah B. Hopkins Generating Station includes 300 MW (net summer rating) of CC generation, 92 MW (net summer rating) of CT generation and 92 MW (net summer rating) of RICE generation. The Substation 12 Distributed Generation Facility includes 18 MW (net summer rating) of RICE generation. The CC and CT units can be fired on either natural gas or diesel oil but cannot burn these fuels concurrently. The RICE generators can only be fired on natural gas.

As of December 31, 2022 the City's total net summer installed generating capability is 725 MW. The corresponding winter net peak installed generating capability is 795 MW. Table 1.1 contains the details of the individual generating units.

1.2 PURCHASED POWER AGREEMENTS (PPA)

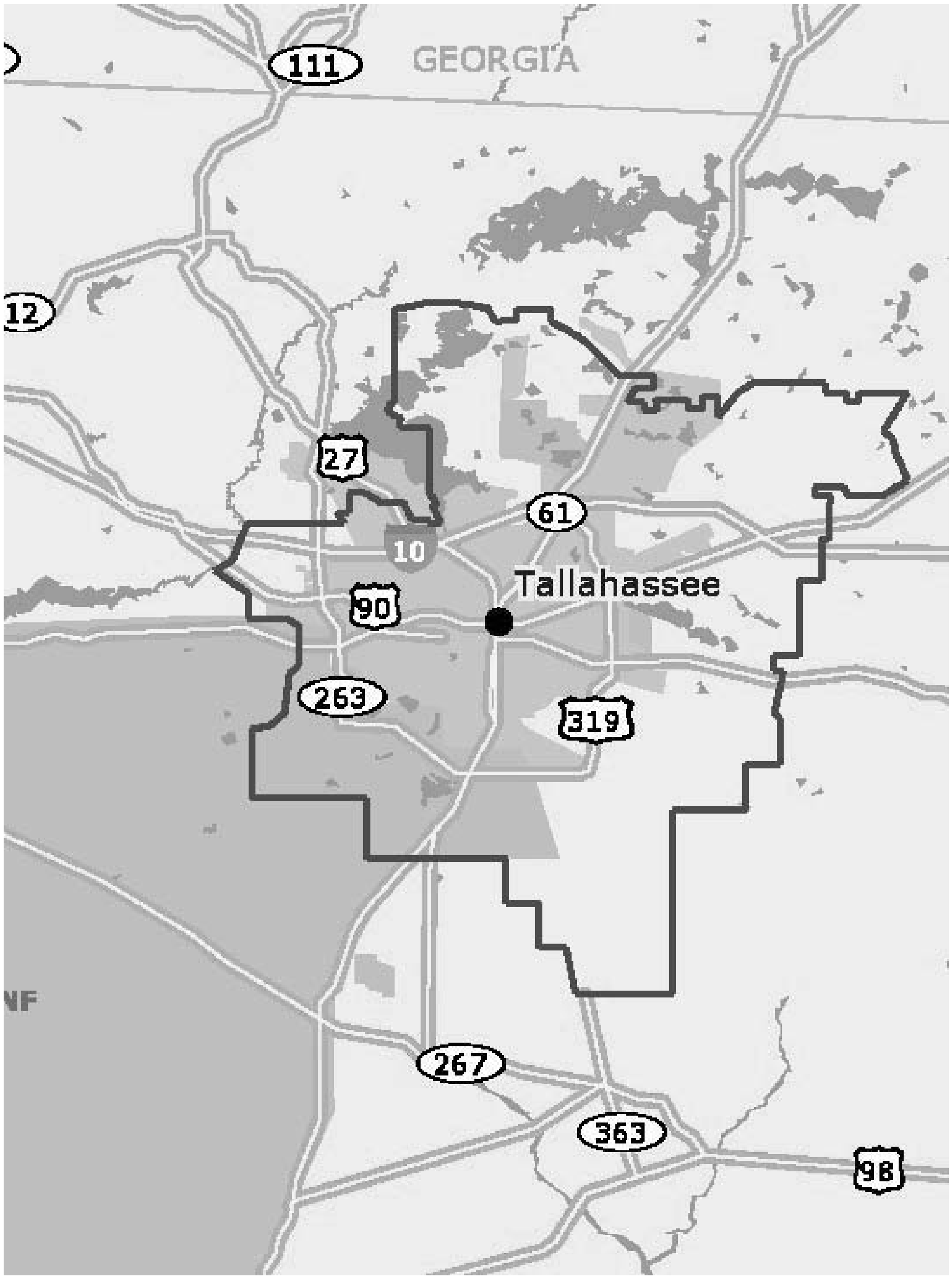
The City has no long-term firm wholesale capacity and energy purchase agreements. On July 24, 2016, the City executed a PPA for 20 MW_{ac} of non-firm solar PV with Origis Energy USA ("Origis"), doing business as FL Solar 1, LLC (Solar Farm 1). Solar Farm 1 is located adjacent to the Tallahassee International Airport and delivers power to City-owned distribution facility. The City declared commercial operations of the project on December 13, 2017. The City also entered into a second PPA with Origis (dba FL Solar 4, LLC) for a 42 MW_{ac} non-firm solar PV facility (Solar Farm 4). Solar Farm 4 is also located adjacent to the Tallahassee International Airport and interconnected with the City-owned 230 kV transmission system. Solar Farm 4 was placed into commercial operation on December 26, 2019. Together, Solar Farms 1 and 4 are the world's largest airport-based solar facility.

The City has conducted analyses of the output of the Solar Farm 1 and Solar Farm 4 facilities that revealed that neither contribute to meeting the winter peaks but do contribute towards meeting the summer peaks. Based on these analyses, an average of approximately 50% of the facilities' total rated capacity has been available during summer peak and near peak hours. However, the City has elected to utilize a conservative estimate of 20% of the combined rated capacity of the facilities as firm capacity available for the summer peak. The City will continue to review and, if appropriate, revise the assumed firm contribution from its solar power supply resources.

Firm retail electric service is purchased from and provided by the Talquin Electric Cooperative ("Talquin") to City customers served by the Talquin electric system. Similarly, firm retail electric service is sold to and provided by the City to Talquin customers served by the City electric system. In accordance with their territorial agreement certain Talquin facilities within the geographic boundaries of the City electric system service territory will be transferred to the City over the coming years. It is anticipated that these transfers will soon be completed after which time some City customers will continue to be served via Talquin facilities. Reciprocal service will continue to be provided to all Talquin customers currently served by the City electric system and those served by the facilities to be transferred to the City who choose to retain Talquin as their electric service provider. Payments for electric service provided to and received from Talquin and the transfer of customers and electric facilities is governed by the 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, 2022

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
				Fuel		Fuel Transport		Alt. Fuel Days	Commercial In-Service	Expected Retirement	Gen. Max. Nameplate	Net Capability	
Plant	Unit No.	Location	Unit Type	Primary	Alternate	Primary	Alternate	Use	Month/Year	Month/Year	(kW)	Summer (MW)	Winter (MW)
S. O. Purdom	8	Wakulla	CC	NG	FO2	PL	TK	[1, 2]	7/00	12/40	270,100	222.0	258.0 [5]
											Plant Total	222.0	258.0
A. B. Hopkins	2	Leon	CC	NG	FO2	PL	TK	[2]	6/08 [3]	6/48	458,100 [4]	300.0	330.0 [5]
	GT-3		GT	NG	FO2	PL	TK	[2]	9/05	9/45	60,500	46.0	48.0
	GT-4		GT	NG	FO2	PL	TK	[2]	11/05	11/45	60,500	46.0	48.0
	IC-1		IC	NG	NA	PL	TK	[2]	3/19	3/49	18,800	18.5	18.5
	IC-2		IC	NG	NA	PL	TK	[2]	2/19	2/49	18,800	18.5	18.5
	IC-3		IC	NG	NA	PL	TK	[2]	2/19	2/49	18,800	18.5	18.5
	IC-4		IC	NG	NA	PL	TK	[2]	2/19	2/49	18,800	18.5	18.5
	IC-5		IC	NG	NA	PL	TK	[2]	4/20	4/50	18,800	18.5	18.5
											Plant Total	484.50	518.5
Substation 12	IC-1	Leon	IC	NG	NA	PL	TK	NA	10/18	10/48	9,300	9.2	9.2
	IC-2		IC	NG	NA	PL	TK	NA	10/18	10/48	9,300	9.2	9.2
											Plant Total	18.4	18.4
									Total System Capacity as of December 31, 2022			724.9	794.9

[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

[3] 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.

[4] Hopkins 2 nameplate rating is the sum of the combustion turbine generator (CTG) nameplate rating of 198.9 MW and steam turbine generator (STG) nameplate rating of 259.2 MW. However, in the current 1x1 combined cycle (CC) configuration with supplemental duct firing the repowered STG's maximum output is steam limited to about 150 MW.

[5] Summer and winter ratings are based on 95 °F and 29 °F ambient temperature, respectively.

This page intentionally left blank.

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 2023 and the horizon year of 2032. 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 2022-2024 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 and its forecast consultant, nFront Consulting LLC ("nFront"). The forecast is developed utilizing essentially the same methodology first employed in 1980 that has since been updated and revised every one or two years. The methodology consists of a combination of multi-variable regression models and other models that utilize subjective escalation assumptions and known incremental additions. All models are 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 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 transfers of certain City and 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, some of which in turn serve as input into their respective 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.

The seasonal peak demand forecasts are developed first by forecasting expected system load factor. Table 2.14 also shows the key explanatory variables used in developing the monthly load factor model. 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 projected monthly load factors for January and August (the typical winter and summer peak demand months, respectively) are then multiplied by 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 account for a significant percentage of the City's total annual 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.

As with the 2022 forecast, the 2023 forecast utilizes mobility data published by Google as an input variable to help further explain current electric consumption deviations in the residential and non-residential classes from pre-pandemic levels. The mobility data provides information regarding people's location and activity at home versus at commercial business and workplaces and helps explain the deviations in electric consumption by class observed since the onset of the pandemic.

These deviations have diminished somewhat over time but it is clear that a return to normal is not yet complete for much of the non-residential class. As with the 2021 and 2022 forecasts, the City worked with nFront to refine its assumptions in its 2023 forecast regarding the extent and timing of an eventual return to normal, however a full return to pre-pandemic behaviours is seeming increasingly unlikely. Instead, the 2022 consumption profile across customer classes may be the new normal.

The rate of growth in residential and commercial customers is driven by the projected growth in Leon County population. Leon County population is projected to grow from 2023-2032 at an average annual growth rate (AAGR) of 0.73.%. This growth rate is below that for the state of Florida (1.07%) but is slightly higher than that for the United States (~0.71%).

Starting in the 2022 forecast the City incorporated potential increases in the penetration of electric vehicles (EV). Since an increase in EV penetration has the potential to significantly increase the NEL and peak demand requirements for the City, the 2023 forecast produced explicit estimates of the potential impact on the City's load growth related to EV adoption. Historical data obtained from the Florida Department of Motor Vehicles indicates that EV penetration in Leon County (at approximately 0.5%) is considerably lower than for Florida overall (approximately

0.7%). And the forecast results suggest that by 2040, the incremental amount of light duty EV energy sales is estimated to be 1.3 percent of NEL on a gross of DSM basis.

The City's energy efficiency and demand-side management (DSM) programs (discussed in Section 2.1.3) have decreased the average residential and commercial demand and energy requirements and are projected to somewhat offset the increased growth from population in residential and commercial customers. The Clean Energy Resolution (discussed in this chapter and further in Chapter III), which promotes electrification, may reverse this observed trend in reduced average consumption. Therefore, the average consumption for residential and commercial customers may be at or near its minimum and is forecasted to increase (Schedule 2.1).

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 load and energy requirements have resulted in 2023 base forecasts for annual total retail sales/net energy for load and seasonal peak demand forecasts that are essentially equal to those previously projected.

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, and severe and mild weather sensitivity cases that address the potential variance in driving weather variables from the values assumed in the base case. The base case forecast relies on a set of assumptions about future population, economic activity and weather in Leon County. However, such projections are unlikely to exactly match actual experience.

Population and economic uncertainty tend 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 represent an 80% confidence interval, implying only a 10% chance each of being higher or lower than the resulting bounds. The high and low forecasts shown in this year's report were developed based on varied inputs of economic and demographic variables within the forecast models by nFront to capture 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).

Uncertainty regarding weather conditions has received more attention following the extreme 2021 winter weather event that impacted Texas. The City has worked, internally and with the other Florida utilities, to evaluate the increased electric load and its resultant impact on resource availability under extreme winter weather conditions consistent with such events that have occurred in Florida in the past. Given the City's winter reserve margin, backup fuel capabilities and system winterization efforts, the evaluation results indicate that the City's electric system would be well positioned to serve all of its customers during a one in forty-year extreme winter weather event like that experienced in Texas last year.

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
Low Income Duct Leak Repair Grants	
Neighborhood REACH Weatherization Assistance	
Energy Star Appliance Rebates	
High Efficiency HVAC Rebates	
Energy Star New Home Rebates	
Solar Water Heater Rebates	
Solar PV Net Metering	
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 completed in 2006 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.

In 2017 the City contracted with an engineering consultant to build upon the 2006 and 2012 studies and recommend DSM opportunities that are cost-effective alternatives to the City's evolving supply-side resources. The study concluded that many of the existing measures in the City's DSM program are cost-effective and several new measures related to demand response (DR) appear to be promising based on the benefit-cost evaluation. Battery storage and thermal storage do not appear to be cost-effective at this time, based on the high capital cost, but may be in the future combined with time-of-use rates with a large differential between the on-peak cost and off-peak cost. Storage may also serve as a means for mitigating the intermittency of solar PV and/or its non-coincidence with load requirements, particularly on sunny days with mild weather.

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 Great Recession as well as due to changes in the federal appliance/equipment efficiency standards and state building efficiency code and, more recently, due to the coronavirus pandemic. 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 financial incentives provided through the City's DSM program – as well as in response to the aforementioned appliance efficiency standards and code changes. These "free drivers" effectively reduce potential participation in the DSM program in the future. It is uncertain whether these customers' energy use reductions will persist. 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 and lasting impact on forecasts of future demand and energy requirements.

The latest projections reflect a revised outlook for DSM needs over the coming years. Future DSM activities will be based in part on the recommendations in the 2017 DSM study. The City has adopted a Clean Energy Plan resolution with the goal to achieve 100% clean, renewable energy by 2050. This will likely impact the City's DSM programs and offerings. The City will provide further updates regarding 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 2022-2031. Figure B4 displays the percentage of energy by fuel type in 2023 and 2032.

The City's generation portfolio includes combustion turbine/combined cycle (CC), combustion turbine/simple cycle (CT), and reciprocating internal combustion engine (RICE or IC) generators. The City's CC and CT units are capable of generating energy using natural gas or distillate fuel oil. The RICE units utilize natural gas only. This mix of generation types coupled with the contracted solar PPAs and opportunity purchases allows the City to satisfy total energy requirements while balancing 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 Hitachi ABB Power Grids Portfolio Optimization production simulation model 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		
Year	Population [1]	Members Per Household	(GWh) [2]	Average No. of Customers	Average kWh Consumption Per Customer	(GWh) [2]	Average No. of Customers	Average kWh Consumption Per Customer
2013	279,468	-	1,014	97,145	10,442	1,544	18,558	83,183
2014	282,471	-	1,089	97,985	11,119	1,548	18,723	82,690
2015	285,651	-	1,088	99,007	10,989	1,567	18,820	83,263
2016	288,972	-	1,080	100,003	10,801	1,559	19,002	82,065
2017	290,466	-	1,059	100,921	10,497	1,558	19,130	81,439
2018	292,700	-	1,122	102,395	10,962	1,552	19,282	80,506
2019	294,200	-	1,152	104,104	11,063	1,565	19,434	80,505
2020	293,800	-	1,149	105,829	10,857	1,432	19,649	72,886
2021	296,400	-	1,139	106,321	10,713	1,427	19,580	72,856
2022	299,130	-	1,157	107,327	10,776	1,468	19,830	74,034
2023	301,500	-	1,163	107,372	10,834	1,514	20,070	75,450
2024	304,000	-	1,161	108,401	10,706	1,533	20,292	75,525
2025	304,900	-	1,160	109,455	10,595	1,552	20,434	75,959
2026	306,760	-	1,158	110,431	10,488	1,566	20,548	76,226
2027	308,620	-	1,157	111,281	10,400	1,573	20,659	76,144
2028	310,480	-	1,157	112,128	10,317	1,579	20,784	75,960
2029	312,340	-	1,156	112,975	10,229	1,585	20,925	75,731
2030	314,200	-	1,154	113,824	10,139	1,590	21,071	75,466
2031	316,060	-	1,155	114,634	10,076	1,594	21,215	75,128
2032	317,920	-	1,157	115,379	10,026	1,598	21,354	74,845

[1] Population data represents Leon County population.
[2] Values include DSM impacts.

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						
Year	(GWh)	Average No. of Customers [1]	Average kWh Consumption Per Customer	Railroads and Railways (GWh)	Street & Highway Lighting (GWh) [2]	Other Sales to Public Authorities (GWh) [3]	Total Sales to Ultimate Consumers (GWh) [4]
2013	-	-	-		0	(5)	2,553
2014	-	-	-		0	(7)	2,631
2015	-	-	-		0	1	2,656
2016	-	-	-		0	4	2,643
2017	-	-	-		0	17	2,634
2018	-	-	-		0	23	2,698
2019	-	-	-		0	22	2,739
2020	-	-	-		0	26	2,607
2021	-	-	-		0	25	2,590
2022	-	-	-		0	25	2,649
2023	-	-	-		0	25	2,702
2024	-	-	-		0	25	2,718
2025	-	-	-		0	25	2,736
2026	-	-	-		0	25	2,749
2027	-	-	-		0	25	2,755
2028	-	-	-		0	25	2,760
2029	-	-	-		0	25	2,765
2030	-	-	-		0	25	2,769
2031	-	-	-		0	25	2,773
2032	-	-	-		0	25	2,780

[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] Reflects net of Talquin sales (for Talquin customers served by the City) and Talquin purchases (for City customers served by Talquin).
[4] Values include DSM impacts.

City Of Tallahassee

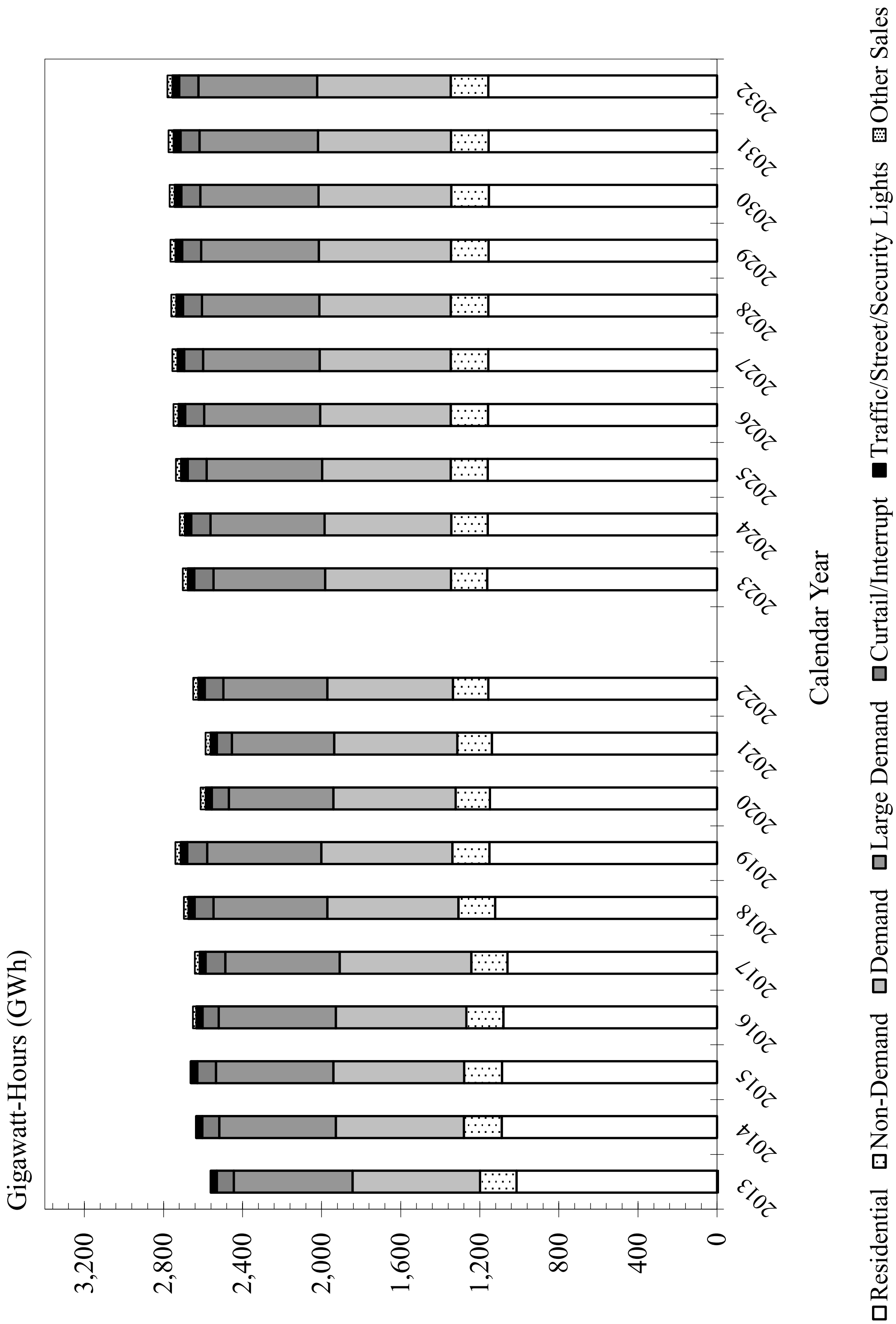
Schedule 2.3
History and Forecast of Energy Consumption and Number of Customers by Customer Class

Base Load Forecast

(1)	(2)	(3)	(4)	(5)	(6)
Year	Sales for Resale (GWh)	Utility Use & Losses (GWh)	Net Energy for Load (GWh) [1]	Other Customers (Average No.)	Total No. of Customers [2]
2013	0	131	2,684	0	115,703
2014	0	121	2,751	0	116,708
2015	0	120	2,776	0	117,827
2016	0	135	2,779	0	119,005
2017	0	124	2,758	0	120,051
2018	0	126	2,824	0	121,677
2019	0	112	2,851	0	123,538
2020	0	121	2,728	0	125,478
2021	0	115	2,705	0	125,901
2022	0	105	2,754	0	127,157
2023	0	125	2,827	0	127,442
2024	0	133	2,851	0	128,693
2025	0	127	2,863	0	129,889
2026	0	128	2,877	0	130,979
2027	0	128	2,883	0	131,940
2028	0	135	2,895	0	132,912
2029	0	129	2,894	0	133,900
2030	0	129	2,898	0	134,895
2031	0	130	2,903	0	135,850
2032	0	130	2,910	0	136,733

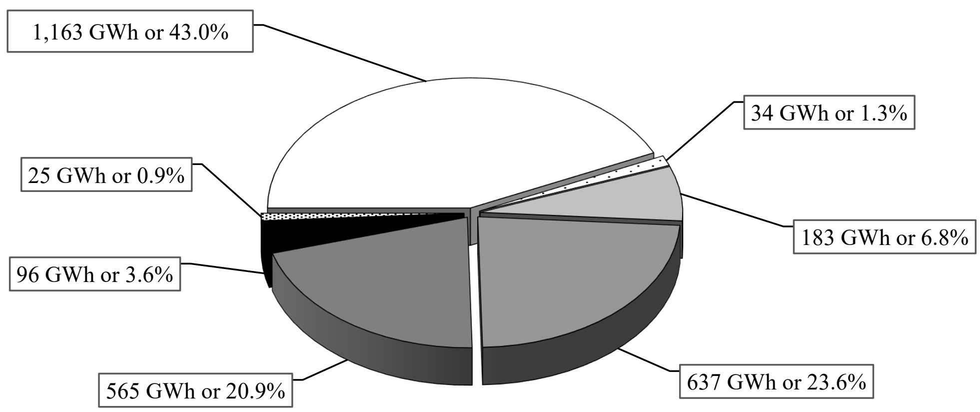
[1] Reflects NEL served by City electric system. Values include DSM Impacts.
[2] Average number of customers for the calendar year.

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



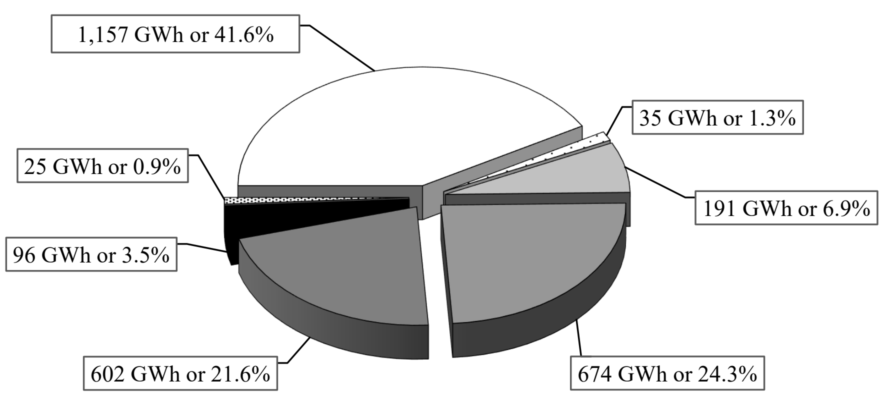
Energy Consumption By Customer Class
(Excluding DSM Impacts)

Calendar Year 2023



2023 Total Sales = 2,702 GWh

Calendar Year 2032



2032 Total Sales = 2,780 GWh

Residential | Traffic/Street/Security Lights | Non-Demand
Demand | Large Demand | Curtail/Interrupt
Other Sales

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]
2013	543		543						543
2014	565		565						565
2015	600		600						600
2016	597		597						597
2017	598		598						598
2018	596		596						596
2019	616		616						616
2020	576		576						576
2021	573		573						573
2022	590		590		0	1	0	0	589
2023	610		610		0	1	0	0	609
2024	614		614		0	2	0	0	612
2025	619		619		0	3	0	0	616
2026	623		623		0	5	0	0	618
2027	628		628		0	7	0	1	620
2028	630		630		1	8	1	1	619
2029	634		634		2	9	3	2	618
2030	636		636		3	10	4	2	617
2031	641		641		4	12	6	3	616
2032	642		642		4	13	7	3	615

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022 DSM is actual at peak.
[3] 2022 values reflect incremental increase from 2021.

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]
2013	543		543						543
2014	565		565						565
2015	600		600						600
2016	597		597						597
2017	598		598						598
2018	596		596						596
2019	616		616						616
2020	576		576						576
2021	573		573						573
2022	590		590		0	1	0	0	589
2023	621		621		0	1	0	0	620
2024	636		636		0	2	0	0	634
2025	650		650		0	3	0	0	647
2026	662		662		0	5	0	0	657
2027	673		673		0	7	0	1	665
2028	685		685		1	8	1	1	674
2029	699		699		2	9	3	2	683
2030	711		711		3	10	4	2	692
2031	726		726		4	12	6	3	701
2032	737		737		4	13	7	3	710

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022 DSM is actual at peak.
[3] 2022 values reflect incremental increase from 2021.

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]
2013	543		543						543
2014	565		565						565
2015	600		600						600
2016	597		597						597
2017	598		598						598
2018	596		596						596
2019	616		616						616
2020	576		576						576
2021	573		573						573
2022	590		590		0	1	0	0	589
2023	601		601		0	1	0	0	600
2024	597		597		0	2	0	0	595
2025	597		597		0	3	0	0	594
2026	597		597		0	5	0	0	592
2027	598		598		0	7	0	1	590
2028	599		599		1	8	1	1	588
2029	602		602		2	9	3	2	586
2030	603		603		3	10	4	2	584
2031	607		607		4	12	6	3	582
2032	608		608		4	13	7	3	581

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022 DSM is actual at peak.
[3] 2022 values reflect incremental increase from 2021.

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]
2013 -2014	574		574						574
2014 -2015	556		556						556
2015 -2016	511		511						511
2016 -2017	533		533						533
2017 -2018	621		621						621
2018 -2019	508		508						508
2019 -2020	528		528						528
2020 -2021	504		504						504
2021 -2022	538		538						538
2022 -2023	562		562		0	1	0	0	561
2023 -2024	563		563		0	3	0	0	560
2024 -2025	568		568		0	4	0	0	564
2025 -2026	572		572		0	6	0	0	566
2026 -2027	574		574		0	7	0	0	567
2027 -2028	579		579		0	9	0	1	569
2028 -2029	582		582		0	10	0	1	571
2029 -2030	583		583		0	10	0	1	572
2030 -2031	586		586		0	11	0	1	574
2031 -2032	590		590		0	12	0	2	576
2032 -2033	593		593		0	13	0	2	578

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022-2023 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2022-2023 values reflect incremental increase from 2021-2022.

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]
2013 -2014	574		574						574
2014 -2015	556		556						556
2015 -2016	511		511						511
2016 -2017	533		533						533
2017 -2018	621		621						621
2018 -2019	508		508						508
2019 -2020	528		528						528
2020 -2021	504		504						504
2021 -2022	538		538						538
2022 -2023	564		564		0	1	0	0	563
2023 -2024	578		578		0	3	0	0	575
2024 -2025	589		589		0	4	0	0	585
2025 -2026	600		600		0	6	0	0	594
2026 -2027	607		607		0	7	0	0	600
2027 -2028	617		617		0	9	0	1	607
2028 -2029	625		625		0	10	0	1	614
2029 -2030	631		631		0	10	0	1	620
2030 -2031	639		639		0	11	0	1	627
2031 -2032	648		648		0	12	0	2	634
2032 -2033	656		656		0	13	0	2	641

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022-2023 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2022-2023 values reflect incremental increase from 2021-2022.

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]
2013 -2014	574		574						574
2014 -2015	556		556						556
2015 -2016	511		511						511
2016 -2017	533		533						533
2017 -2018	621		621						621
2018 -2019	508		508						508
2019 -2020	528		528						528
2020 -2021	504		504						504
2021 -2022	538		538						538
2022 -2023	559		559		0	1	0	0	558
2023 -2024	549		549		0	3	0	0	546
2024 -2025	546		546		0	4	0	0	542
2025 -2026	545		545		0	6	0	0	539
2026 -2027	542		542		0	7	0	0	535
2027 -2028	542		542		0	9	0	1	532
2028 -2029	540		540		0	10	0	1	529
2029 -2030	537		537		0	10	0	1	526
2030 -2031	535		535		0	11	0	1	523
2031 -2032	535		535		0	12	0	2	521
2032 -2033	533		533		0	13	0	2	518

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2022-2023 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2022-2023 values reflect incremental increase from 2021-2022.

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 [1]	Comm./Ind Conservation [1]	Retail Sales [2], [3]	Wholesale [4]	Utility Use & Losses	Net Energy for Load [3], [5]	Load Factor % [3]
2013	2,542			2,542	(5)	145	2,682	56
2014	2,631			2,631	(6)	121	2,745	55
2015	2,677			2,677	(1)	112	2,788	53
2016	2,623			2,623	3	144	2,770	53
2017	2,612			2,612	12	126	2,751	52
2018	2,666			2,666	23	126	2,815	54
2019	2,698			2,698	22	129	2,848	53
2020	2,618			2,618	26	79	2,724	54
2021	2,588			2,588	25	117	2,730	54
2022	2,629	4	0	2,625	25	105	2,755	53
2023	2,682	4	0	2,678	25	125	2,828	53
2024	2,704	10	0	2,693	25	133	2,851	53
2025	2,730	17	1	2,712	25	127	2,864	53
2026	2,750	25	1	2,724	25	128	2,878	53
2027	2,764	32	2	2,730	25	128	2,884	53
2028	2,778	40	3	2,736	25	135	2,896	53
2029	2,793	49	4	2,740	25	129	2,895	53
2030	2,807	57	5	2,744	25	129	2,899	54
2031	2,820	65	6	2,749	25	130	2,904	54
2032	2,834	72	7	2,755	25	130	2,910	54

[1] Reduction estimated at customer meter. 2022 DSM is actual incremental increase from 2021.
[2] History is total sales to City customers. Forecast is sales served by City electric system.
[3] Values include DSM Impacts.
[4] Reflects net of Talquin sales (for Talquin customers served by the City) and Talquin purchases (for City customers served by Talquin).
[5] Reflects NEL served by City electric system.

City Of Tallahassee

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Total Sales	Residential Conservation [1]	Comm./Ind Conservation [1]	Retail Sales [2], [3]	Wholesale [4]	Utility Use & Losses	Net Energy for Load [3], [5]	Load Factor % [3]
2013	2,542			2,542	(5)	124	2,661	56
2014	2,631			2,631	(6)	131	2,755	56
2015	2,677			2,677	(1)	121	2,796	53
2016	2,623			2,623	3	120	2,746	53
2017	2,612			2,612	12	135	2,760	53
2018	2,666			2,666	23	124	2,813	54
2019	2,698			2,698	22	126	2,845	53
2020	2,618			2,618	26	112	2,757	55
2021	2,588			2,588	25	121	2,734	54
2022	2,629	4	0	2,625	25	115	2,764	54
2023	2,708	4	0	2,704	25	126	2,855	53
2024	2,778	10	0	2,767	25	132	2,924	53
2025	2,837	17	1	2,819	25	128	2,973	52
2026	2,886	25	1	2,860	25	130	3,016	52
2027	2,926	32	2	2,892	25	132	3,050	52
2028	2,966	40	3	2,923	25	140	3,089	52
2029	3,006	49	4	2,953	25	136	3,114	52
2030	3,046	57	5	2,983	25	138	3,146	52
2031	3,085	65	6	3,014	25	139	3,179	52
2032	3,126	72	7	3,047	25	148	3,220	52

[1] Reduction estimated at customer meter. 2022 DSM is actual incremental increase from 2021.
[2] History is total sales to City customers. Forecast is sales served by City electric system.
[3] Values include DSM Impacts.
[4] Reflects net of Talquin sales (for Talquin customers served by the City) and Talquin purchases (for City customers served by Talquin).
[5] Reflects NEL served by City electric system.

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 [1]	Comm./Ind Conservation [1]	Retail Sales [2], [3]	Wholesale [4]	Utility Use & Losses	Net Energy for Load [3], [5]	Load Factor % [3]
2013	2,542			2,542	(5)	145	2,682	56
2014	2,631			2,631	(6)	121	2,745	55
2015	2,677			2,677	(1)	112	2,788	53
2016	2,623			2,623	3	144	2,770	53
2017	2,612			2,612	12	126	2,751	52
2018	2,666			2,666	23	126	2,815	54
2019	2,698			2,698	22	129	2,848	53
2020	2,618			2,618	26	79	2,724	54
2021	2,588			2,588	25	117	2,730	54
2022	2,629	4	0	2,625	25	107	2,756	53
2023	2,656	4	0	2,651	25	123	2,799	53
2024	2,630	10	0	2,619	25	124	2,768	53
2025	2,624	17	1	2,606	25	118	2,749	53
2026	2,618	25	1	2,592	25	118	2,734	53
2027	2,607	32	2	2,573	25	118	2,716	53
2028	2,598	40	3	2,555	25	123	2,703	53
2029	2,590	49	4	2,538	25	117	2,679	52
2030	2,582	57	5	2,520	25	117	2,661	52
2031	2,574	65	6	2,503	25	116	2,644	52
2032	2,568	72	7	2,488	25	121	2,634	52

[1] Reduction estimated at customer meter. 2022 DSM is actual incremental increase from 2021.
[2] History is total sales to City customers. Forecast is sales served by City electric system.
[3] Values include DSM Impacts.
[4] Reflects net of Talquin sales (for Talquin customers served by the City) and Talquin purchases (for City customers served by Talquin).
[5] Reflects NEL served by City electric system.

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)
	2022 Actual		**2023 Forecast [1][2]**		**2024 Forecast [1]**	
Month	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)
January	538	230	562	229	563	230
February	487	196	501	199	501	206
March	388	198	451	204	454	205
April	423	199	450	208	453	210
May	518	241	531	243	535	245
June	589	281	575	264	579	266
July	590	273	597	286	601	288
August	557	275	610	289	615	291
September	570	252	563	260	568	262
October	445	211	485	224	489	226
November	442	194	453	201	457	202
December	592	215	480	217	484	219
TOTAL		2,766		2,826		2,850

[1] Peak Demand and NEL include DSM Impacts.
[2] Represents forecast values for 2023.

City of Tallahassee, Florida

2023 Electric System Load Forecast

Key Explanatory Variables

Explanatory Variable	RS Customers	RS Consumption	GSND Customers	GSND Consumption	GSD Customers	GSD Consumption	GSLD Consumption	System Losses	Monthly Load Factor [3]
	Forecast Model								
Leon County Population	X			X	X	X			
Leon County Personal Income			X				X		
Leon County Gross Product									
Leon County Non-Store Sales				X			X		
Tallahassee MSA Taxable Sales				X					
Tallahassee MSA Per Capita Taxable Sales		X							
Residential Customers		X							
Florida Mortgage Originations	X								
Florida Home Vacancies	X								
US Personal Spending			X				X		
Energy Efficiency Standards		X							
Price of Electricity		X							
Leon County Residential Location Prevalence		X							
Leon County Commercial Location Prevalence				X		X	X		X
Cooling Degree Days [1]		X		X		X	X	X	X
Heating Degree Days [1]		X		X				X	X
Prior Month Cooling Degree Days [1]								X	
Prior Month Heating Degree Days [1]								X	
Winter Peak and Prior Day HDD [1]									X
Summer Peak and Prior Day HDD [1]									X
Adjusted R-Squared [2]	0.992	0.931	0.982	0.919	0.952	0.939	0.876	0.871	0.714

[1] The base from which monthly heating and cooling degree days (HDD/CDD, respectively) are computed is 65 degrees Fahrenheit (dF). Peak day HDD and CDD reflect differing bases. For winter peak HDD the base is 55 degrees Fahrenheit (^{o}F); for summer peak CDD the base is 70^{o}F.

[2] R-Squared, sometimes called the coefficient of determination, is a commonly used measure of goodness of fit of a linear model. If all 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. Adjusted R-Squared reflects a downward adjustment to penalize R-squared for the addition of regressors that do not contribute to the explanatory power of the model.

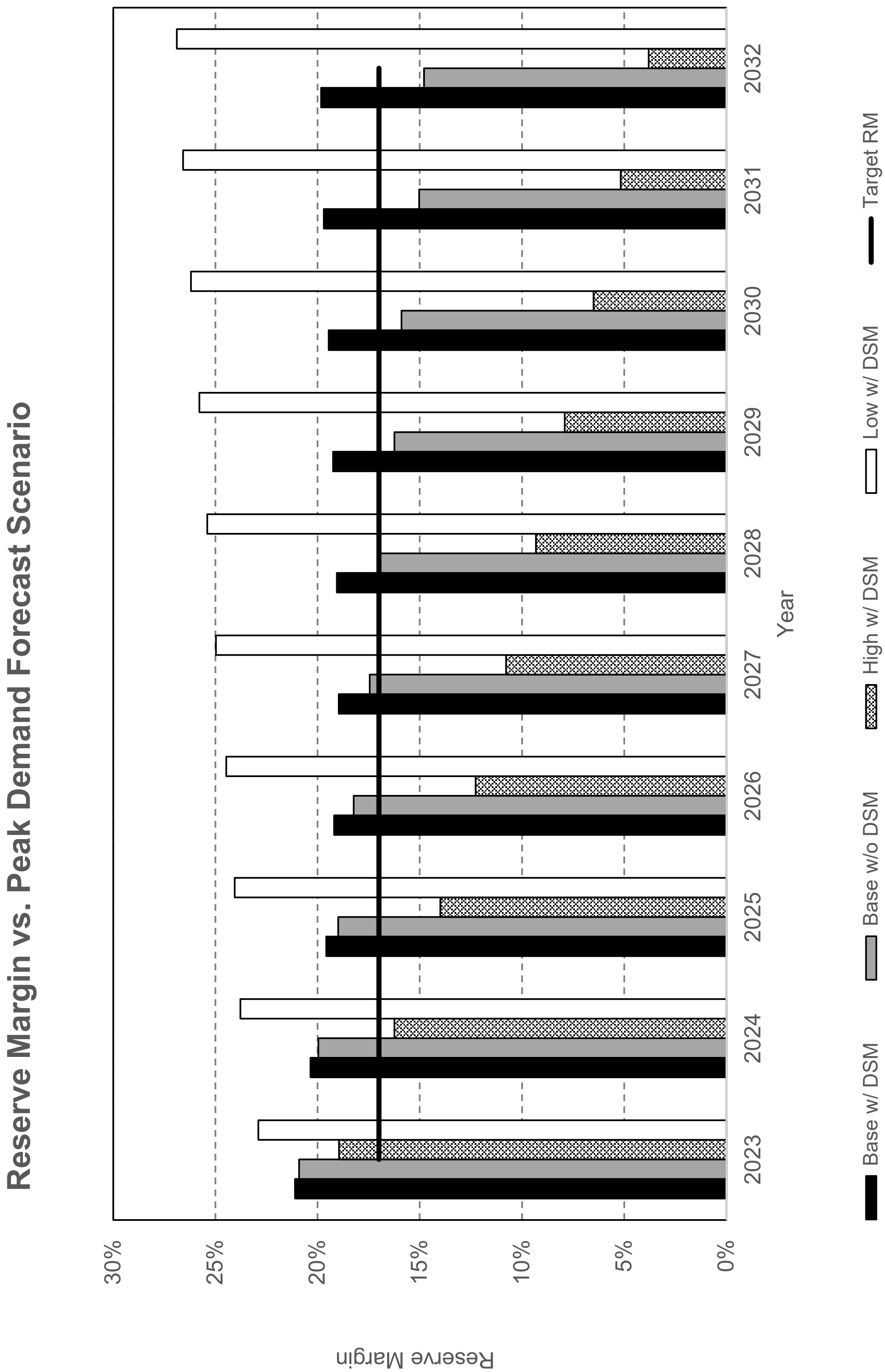
[3] As monthly load factor is essentially a stationary series, indicators of goodness of fit should be viewed differently. In combination with estimates of NEL, forecasted peak demands from this equation will have far better fit than the adjusted R-Squared here indicates. The equation also includes daytype variables.

City of Tallahassee

2023 Electric System Load Forecast

Sources of Forecast Model Input Information

Energy Model Input Data	Source
Leon County Population	Bureau of Economic and Business Research Woods and Poole Economics
Leon County Personal Income	Woods and Poole Economics
Leon County Gross Product	Woods and Poole Economics
Leon County Non-Store Sales	Woods and Poole Economics
Cooling Degree Days	NOAA
Heating Degree Days	NOAA
AC Saturation Rate	Appliance Saturation Study; EIA
Heating Saturation Rate	Appliance Saturation Study; EIA
Real Tallahassee Taxable Sales	Florida Department of Revenue, CPI Woods and Poole Economics
Real Tallahassee Taxable Sales Per Capita	Florida Department of Revenue, CPI Woods and Poole Economics
Florida Population	Bureau of Economic and Business Research Woods and Poole Economics
Florida Home Vacancy Rate	U.S. Bureau of the Census
Florida Mortgage Originations	IHS Global Insight (now IHS Markit)
U.S. Personal Spending Rate	U.S. Bureau of Economic Analysis
State Capitol Incremental	Department of Management Services
FSU Incremental Additions	FSU Planning Department
FAMU Incremental Additions	FAMU Planning Department
GSLD Incremental Additions	City Utility Services
Other Commercial Customers	City Utility Services
Tall. Memorial Curtailable	City Utility Services
System Peak Historical Data	City System Planning
Historical Customer Projections by Class	City Utility Services
Historical Customer Class Energy	City Utility Services
Interruptible, Traffic Light Sales, & Security Light Additions	City Utility Services
Residential/Commercial Real Price of Electricity	Calculated from Revenues, kWh sold, CPI 2022 Annual Energy Outlook
Leon County Residential Location Prevalence	Published by Google
Leon County Commercial Location Prevalence	Published by Google


Reserve Margin vs. Peak Demand Forecast Scenario
Reserve Margin
30%
25%
20%
15%
10%
5%
0%
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
Year
Base w/ DSM
Base w/o DSM
High w/ DSM
Low w/ DSM
Target RM

City Of Tallahassee

2023 Electric System Load Forecast

Projected Demand Side Management
Energy Reductions [1]

Calendar Year	Residential Impact (MWh)	Commercial Impact (MWh)	Total Impact (MWh)
2023	4,100	199	4,299
2024	10,433	478	10,911
2025	17,395	851	18,247
2026	24,746	1,272	26,018
2027	31,729	1,714	33,443
2028	40,266	2,558	42,824
2029	48,907	3,690	52,597
2030	57,395	4,879	62,275
2031	64,887	6,070	70,957
2032	72,081	7,303	79,384

[1] Reductions estimated at generator busbar.

City Of Tallahassee

2023 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)
2023	2023-2024	1	3	0	0	0	0	0	0	1	3
2024	2024-2025	2	4	0	0	0	0	0	0	2	4
2025	2025-2026	3	6	0	0	0	0	0	0	3	6
2026	2026-2027	5	7	0	0	0	0	0	0	5	7
2027	2027-2028	7	9	1	1	0	0	0	0	8	10
2028	2028-2029	8	10	1	1	1	0	1	0	11	11
2029	2029-2030	9	10	2	1	2	0	3	0	16	11
2030	2030-2031	10	11	2	1	3	0	4	0	19	12
2031	2031-2032	12	12	3	2	4	0	6	0	25	14
2032	2032-2033	13	13	3	2	4	0	7	0	27	15

[1] Reductions estimated at busbar.
[2] Reflects no expected utilization of demand response (DR) resources in winter.

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 2021	Actual 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
(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	0	0	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	0	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	2	3	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	2	3	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	21,344	22,529	22,757	22,583	22,980	23,017	22,533	23,030	23,039	23,048	23,173	23,297
(14)		Steam	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
(15)		CC	1000 MCF	18,318	20,666	21,671	20,853	21,801	21,831	20,587	21,410	21,283	21,474	21,670	22,012
(16)		CT	1000 MCF	3,027	1,863	1,087	1,731	1,179	1,186	1,946	1,620	1,756	1,574	1,504	1,285
(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 2021	Actual 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
(1)	Annual Firm Interchange		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(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	1	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	1	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	2,764	2,764	2,955	2,939	2,988	2,994	2,933	2,995	2,996	3,003	3,017	3,033
(15)		Steam	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(16)		CC	GWh	2,520	2,520	2,827	2,735	2,849	2,854	2,704	2,804	2,790	2,818	2,840	2,881
(17)		CT	GWh	244	244	128	204	139	140	229	191	206	185	177	151
(18)		Diesel	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(19)	Hydro		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(20)	Economy Interchange[1]		GWh	(159)	(269)	(182)	(130)	(169)	(164)	(95)	(140)	(135)	(129)	(132)	(130)
(21)	Renewables		GWh	99	114	121	120	119	119	118	118	117	116	116	115
(22)	Net Energy for Load		GWh	2,705	2,611	2,894	2,929	2,938	2,948	2,957	2,972	2,977	2,990	3,001	3,018

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

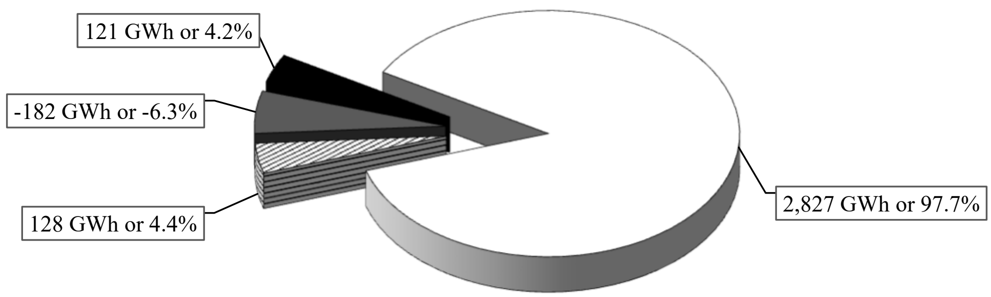
City Of Tallahassee

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 2021	Actual 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
(1)	Annual Firm Interchange		%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(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	%	102.2	105.9	102.1	100.3	101.7	101.5	99.2	100.8	100.6	100.4	100.5	100.5
(15)		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
(16)		CC	%	93.2	96.5	97.7	93.3	97.0	96.8	91.4	94.3	93.7	94.2	94.6	95.5
(17)		CT	%	9.0	9.3	4.4	7.0	4.7	4.8	7.8	6.4	6.9	6.2	5.9	5.0
(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		%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(20)	Economy Interchange		%	(5.9)	(10.3)	(6.3)	(4.4)	(5.8)	(5.6)	(3.2)	(4.7)	(4.5)	(4.3)	(4.4)	(4.3)
(21)	Renewables		%	3.7	4.4	4.2	4.1	4.1	4.0	4.0	4.0	3.9	3.9	3.9	3.8
(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

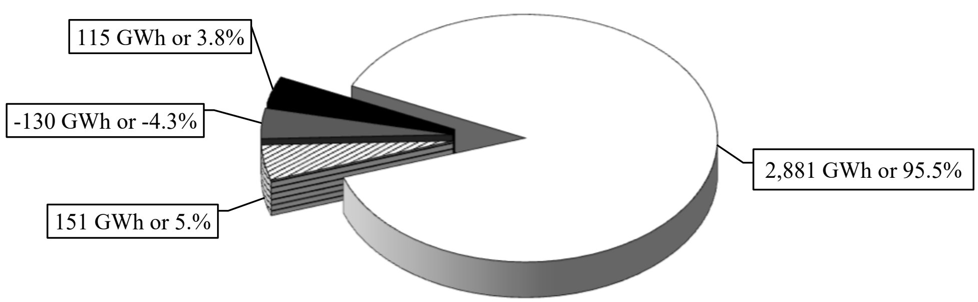
Generation By Resource/Fuel Type

Calendar Year 2023

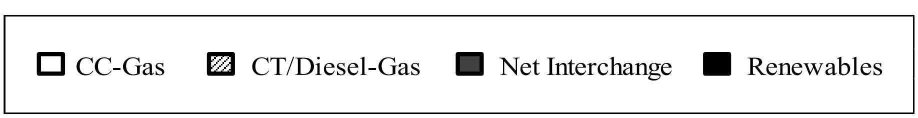


2023 Total NEL = 2,894 GWh

Calendar Year 2032



2032 Total NEL = 3,018 GWh



Chapter III

Projected Facility Requirements

3.1 PLANNING PROCESS

The City periodically reviews future DSM and power supply options that are consistent with the City's policy objectives. Included in these reviews are analyses of how the DSM and power supply alternatives perform under base and alternative assumptions. Revisions to the City's resource plan will be discussed in this chapter.

3.2 PROJECTED RESOURCE REQUIREMENTS

3.2.1 TRANSMISSION LIMITATIONS

The City's projected transmission import and export capability continues to be a major determinant of the type and timing of 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 to the expected configuration and use, both scheduled and unscheduled, of the City's transmission system and the surrounding regional 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, and sufficient export capability to allow for the sale of incidental and/or economic excess local generation.

The prospects for significant expansion of the regional transmission system around Tallahassee hinge 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). However, no substantive improvements to the City's transmission import/export capability are expected absent the City's prospective purchase of firm transmission service. In consideration of the City's limited transmission import capability internal analysis of options tend to favor local power supply alternatives as the means to satisfy future power supply requirements.

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 probabilistic resource adequacy assessments to determine if conditions warrant a change to its resource adequacy criteria. The results of more recent 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 Changes

Expected future resource additions are discussed in Section 3.2.6, "Future Power Supply Resources".

In 2018, the City placed two 9.2 MW (net) Wartsila natural gas-fired RICE generators into commercial operations at its Substation 12. This substation has a single transmission feed. The addition of this generation at the substation allows for back-up of critical community loads served from Substation 12 as well as provide additional generation resources to the system. Also in 2018, the City completed construction of four 18.5 MW (net) Wartsila natural gas-fired RICE generators located at its Hopkins Generating Station. Three of these units were placed into commercial operations in February 2019 and the fourth in March 2019. A fifth 18.5 MW RICE unit was placed into commercial operations in April 2020.

The RICE generators provide additional benefits including but not necessarily limited to:

- Multiple RICE generators provide greater dispatch flexibility.
- Additional RICE generators can be installed at either the City's Hopkins plant or Purdom plant.
- The RICE generators are more efficient than the units that were retired providing significant potential fuel savings.

- The RICE generators can be started and reach full load within 5-10 minutes. In addition, their output level can be changed very rapidly. This, coupled with the number and size of each unit, makes them excellent for responding to the changes in output from intermittent resources such as solar energy systems.
- The CO_2 emissions from the RICE generators are much lower than the units that have been retired.

3.2.4 Power Supply Diversity

Resource diversity, and particularly fuel diversity, 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 historical and current 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. Further, consideration must be given to the adequacy of resources' ability to provide ancillary services (voltage control, frequency response, regulating/operating/contingency reserves, etc.). Because of the high variability of load requirements at the National High Magnetic Field Laboratory (NHMFL) and the increasing penetration of intermittent, utility-scale solar PV projects, ensuring ancillary service adequacy is becoming increasingly important.

Currently, over 70% 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 replacement of older generating units has altered the number and sizes 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/criteria to its current load reserve margin criterion that may better balance resource and ancillary service adequacy 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 replaced with and/or supplemented by other criteria that takes these issues into consideration.

Purchase contracts can provide some of the diversity desired in the City's power supply resource portfolio. The City has evaluated both short and long-term purchased power options based on conventional sources as well as power offers based on renewable resources. The potential reliability and economic benefits of prospectively increasing the City's transmission import (and export) capabilities has also been evaluated. These evaluations 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 most of the time. Therefore, the cost of increasing the City's transmission import capability would not likely be offset by the potential economic benefit from increased power purchase/sale opportunities.

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 photovoltaics) improve the City's overall resource diversity. However, due to limited availability and uncertain performance, past studies have indicated that traditional DSM and solar projects would not improve resource adequacy (as measured by loss of load expectation (LOLE)) as much as the addition of conventional generation resources.

3.2.5 RENEWABLE RESOURCES

The City believes that offering clean, renewable energy 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. The City continues to seek suitable projects that utilize the renewable fuels available within the Florida Big Bend and panhandle regions. 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.

On July 24, 2016, the City executed a PPA for 20 MW_{ac} of solar PV with Origis Energy USA ("Origis"), doing business as FL Solar 1 (Solar Farm 1). The project is located adjacent to the Tallahassee International Airport and delivers power to a City-owned distribution facility. The City declared commercial operations of the project on December 13, 2017. In an effort to increase the use of renewables, the City entered into a PPA with Origis, doing business as FL Solar 4 (Solar Farm 4) for a second project with an output of 42 MW_{ac}. The Solar Farm 4 project is sited on additional property adjacent to the Tallahassee International Airport and connected to the City's 230 kV transmission system. The commercial operations date for Solar Farm 4 was December 26, 2019 bringing the City's total utility-scale solar capacity to 62 MW_{ac}.

The City has conducted analyses of the output of the Solar Farm 1 and Solar Farm 4 facilities that revealed that neither contribute to meeting the winter peaks but do contribute towards meeting the summer peaks. Based on these analyses, an average of approximately 50% of the facilities' total installed capacity has been available during summer peak and near peak hours. However, given the limited operational experience with these resources, the City has elected to utilize a more conservative initial estimate of 20% of the combined capacity of the facilities as firm capacity available for the summer peak. The City will continue to review and, if appropriate, revise the assumed firm contribution from its solar power supply resources as additional operational experience is gained.

One of the potential negatives of the having both projects located adjacent to each other is that both systems will likely experience cloud cover at the same time. The intermittent nature of solar PV coupled with the high variability of FSU's National High Magnetic Field Laboratory (NHMFL) load could at times present challenges to the provision of sufficient regulating reserves.

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. The "quick start" capability of the reciprocating engine/generators commissioned in 2019 and 2020 may help mitigate the intermittency of the solar resources the NHMFL load while contributing to the ongoing modernization of the City's generation fleet.

As of the end of calendar year 2022 the City has a portfolio of 223 kW_{ac} of solar PV operated and maintained by the Electric Utility and a cumulative total of 8,043 kW_{ac} 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 Sustainability 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.

The City commissioned a study to determine the impacts of additional intermittent renewable resources being added to the City's system. The study was completed in 2019 and determined that the maximum expected intermittent resource penetration the system can handle without adversely impacting the reliability of the system from both a bulk power and distribution perspective to be 60 MW_{ac}. In addition, the study identified potential system modifications that may be available to increase the amount of intermittent resources that can be reliably added to the system.

On February 20, 2019, the City Commission adopted a Clean Energy Plan (CEP) resolution. The CEP resolution outlined the City's continued commitment to sustainability and established the following specific goals:

- All City facilities to be 100% renewable no later than 2035.
- All City main line buses to be 100% electric no later than 2035.
- All City light duty vehicles to be 100% electric no later than 2035.
- All City medium and heavy duty vehicles converted to 100% electric as technology allows.

- No later than 2050, have the Tallahassee community at 100% renewable, including all forms of energy. This would include the electric utility, natural gas utility and transportation.

The City issued a Request for Proposals (RFP) for consulting services related to the Energy Integrated Resource Planning (EIRP) process and public engagement plan to identify the path forward to meet the 2050 100% clean, renewable energy goal. The City executed a contract with the top-ranked RFP respondent in June 2020. The preliminary findings of the EIRP were presented to the City Commission and community focus groups in 2022. The Final EIRP and resulting Clean Energy Plan will be available to the public in 2023.

3.2.6 FUTURE POWER SUPPLY RESOURCES

The City's 2023 Ten Year Site Plan identifies that no additional power supply resources will be needed through the 2032 horizon year.

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. 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 identified no planned capacity changes on Table 3.3 (Schedule 8). All existing 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 2023 through 2032.

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 [2]	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
2023	725	0	0	12	737	609	128	21	0	128	21
2024	725	0	0	12	737	612	125	20	0	125	20
2025	725	0	0	12	737	616	121	20	0	121	20
2026	725	0	0	12	737	618	119	19	0	119	19
2027	725	0	0	12	737	620	117	19	0	117	19
2028	725	0	0	12	737	619	118	19	0	118	19
2029	725	0	0	12	737	618	119	19	0	119	19
2030	725	0	0	12	737	617	120	19	0	120	19
2031	725	0	0	12	737	616	121	20	0	121	20
2032	725	0	0	12	737	615	122	20	0	122	20

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

[2] Approximately 20% of Solar Farms 1 and 4 combined rated AC summer capacity.

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
2023/24	795	0	0	0	795	563	232	41	0	232	41
2024/25	795	0	0	0	795	568	227	40	0	227	40
2025/26	795	0	0	0	795	573	222	39	0	222	39
2026/27	795	0	0	0	795	575	220	38	0	220	38
2027/28	795	0	0	0	795	578	217	37	0	217	37
2028/29	795	0	0	0	795	581	214	37	0	214	37
2029/30	795	0	0	0	795	584	211	36	0	211	36
2030/31	795	0	0	0	795	587	208	36	0	208	36
2031/32	795	0	0	0	795	589	206	35	0	206	35
2032/33	795	0	0	0	795	592	203	34	0	203	34

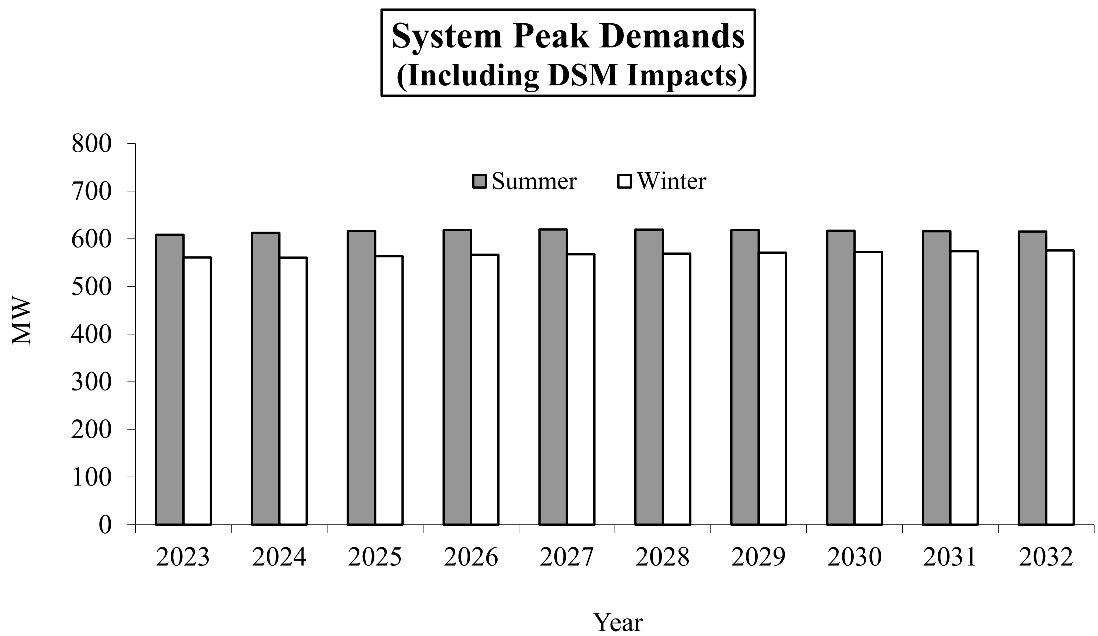
[1] All installed and firm import capacity changes are identified in the proposed generation expansion plan (Table 3.4).

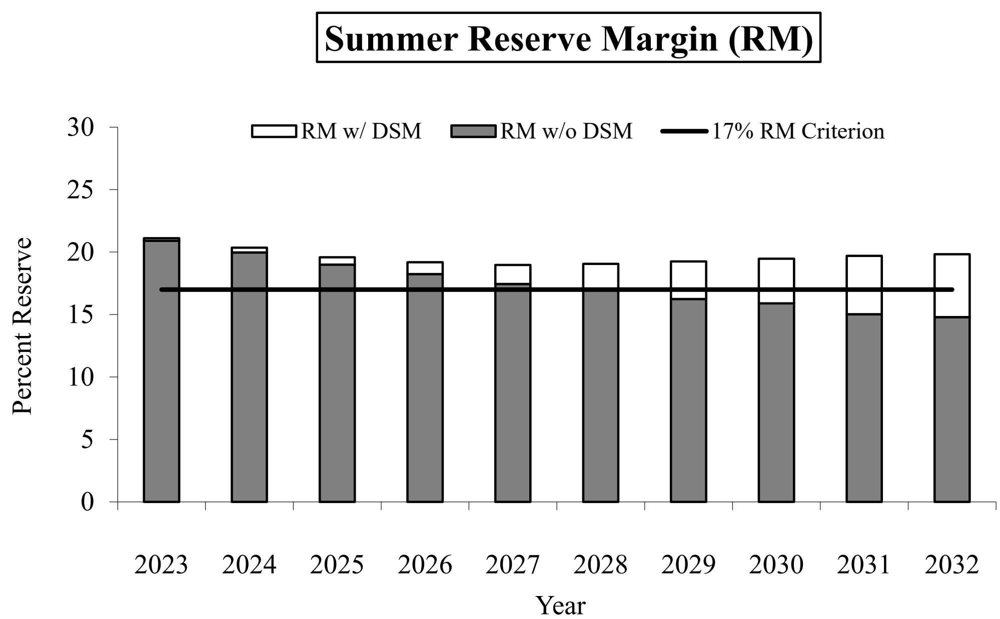
City Of Tallahassee

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 [1]		
	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

No Planned and Prospective Generating Facility Additions and Changes


System Peak Demands
(Including DSM Impacts)
Summer
Winter
MW
800
700
600
500
400
300
200
100
0
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
Year


Summer Reserve Margin (RM)
RM w/ DSM
RM w/o DSM
17% RM Criterion
Percent Reserve
30
25
20
15
10
5
0
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
Year

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 %
2023	610	1	609	737	0	0	0	737	21
2024	615	3	612	737	0	0	0	737	20
2025	620	4	616	737	0	0	0	737	20
2026	628	10	618	737	0	0	0	737	19
2027	635	15	620	737	0	0	0	737	19
2028	639	20	619	737	0	0	0	737	19
2029	643	25	618	737	0	0	0	737	19
2030	647	30	617	737	0	0	0	737	19
2031	648	32	616	737	0	0	0	737	20
2032	649	34	615	737	0	0	0	737	20

[1] Demand Side Management includes energy efficiency and demand response/control measures.

Chapter IV

Proposed Plant Sites and Transmission Lines

4.1 PROPOSED PLANT SITE

As discussed in Chapter 3, the City has determined that no power supply resource additions are required to meet system needs in the 2023-2032 planning period. The timing, site, type and size of any additional power supply resource requirements may vary as the nature of future needs become better defined.

4.2 TRANSMISSION LINE ADDITIONS/UPGRADES

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 by the expected configuration and use, both scheduled and unscheduled, of facilities in the panhandle region as well as in 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 have indicated that additional infrastructure projects may be needed to address improvements in capability to deliver power from the Purdom Plant to the load center under certain contingencies.

The City's current transmission expansion plan includes a 115 kV line reconductoring to ensure continued reliable service through this Ten Year Site Plan reporting period consistent with current and anticipated FERC and NERC requirements. Table 4.2 summarizes this proposed improvement identified in the City's transmission planning study.

The City's budget planning cycle for FY 2024 is currently ongoing, and any revisions to project budgets in the electric utility will not be finalized until the summer of 2023. If any planned improvements do not remain on schedule the City will prepare 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:	No Proposed Generating Facilities
(2)	Capacity a.) Summer: b.) Winter:	
(3)	Technology Type:	
(4)	Anticipated Construction Timing a.) Field Construction start - date: b.) Commercial in-service date:	
(5)	Fuel a.) Primary fuel: b.) Alternate fuel:	
(6)	Air Pollution Control Strategy:	
(7)	Cooling Status:	
(8)	Total Site Area:	
(9)	Construction Status:	
(10)	Certification Status:	
(11)	Status with Federal Agencies:	
(12)	Projected Unit Performance Data Planned Outage Factor (POF): Forced Outage Factor (FOF): Equivalent Availability Factor (EAF): Resulting Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	
(13)	Projected Unit Financial Data Book Life (Years) Total Installed Cost (In-Service Year $/kW) Direct Construction Cost ($/kW): AFUDC Amount ($/kW): Escalation ($/kW): Fixed O & M ($kW-Yr): Variable O & M ($/MWH): K Factor:	

City Of Tallahassee

Planned Transmission Projects, 2023-2032

		From Bus		To Bus		Expected		Line
Project Type	Project Name	Name	Number	Name	Number	In-Service Date	Voltage (kV)	Length (miles)
Reconductor / Rebuild	Line 20A	Sub 7	7507	Sub 16	7516	12/2025	115	3.03
Reconductor / Rebuild	Line 20B	Sub 16	7516	Bradfordville W (DEF)	3105	12/2025	115	3.08
Reconductor / Rebuild	Line 5	Hopkins Plant (115 KV)	7550	Sub 3	7503	12/2026	115	6.7
Reconductor / Rebuild	Line 6A	Hopkins Plant (115 KV)	7550	Sub 23	7523	12/2026	115	3.49

Figure D-1 – Hopkins Plant Site

Figure D-2 – Purdom Plant Site

This page intentionally left blank.