City of Tallahassee
Your Own Utilities℠

Electric & Gas Utility | 2602 Jackson Bluff Road, Tallahassee, FL 32304 | 850-891-4968

April 1, 2025

Greg Davis and Phillip Ellis
Division of Engineering
State of Florida Public Service Commission

The following pages contain the City of Tallahassee Electric & Gas Utilities' (TAL) Ten-Year Site Plan for the planning period of 2025-2034.

This PDF serves as the electronic copy required in question 1 of the DN 20250000-OT (Undocketed filings for 2025) Ten-Year Site Plan Review - Staff's Data Request #1 pursuant to the request received from Florida Public Service Commission (FPSC) staff member Ms. Patti Zellner. Please note that copies of all narrative and non-narrative responses have been separately provided to Greg Davis and Phillip Ellis in the FPSC's Division of Engineering via e-mail per Ms. Zellner's request.

If you should have any questions regarding this report, please feel free to contact me at (850) 891-3127 or by email Caleb.Crow@talgov.com.

Thank You,

Caleb Crow
Electric Utility Principal Planner
City of Tallahassee Utilities

City of Tallahassee
Your Own Utilities℠

CITY OF TALLAHASSEE
2025 TEN YEAR SITE PLAN

ELECTRICAL GENERATING FACILITIES
AND ASSOCIATED TRANSMISSION LINES

Planning Period: 2025-2034

Contents

Authors: Caleb Crow, Michael Ohlsen, Sydney Usatine, David Byrne, David Ging

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 124,000 customers located within a 221 square mile service territory (see Figure A). The Electric Utility operates three generating stations and purchases power from two solar farms with a total summer season net generating capacity of 737 megawatts (MW).

The City has three primarily natural gas fueled generating stations, with 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 2018.

The City contracted for 100% of the energy output from two solar farms through Power Purchase Agreements. Both solar farms are located on City property adjacent to the Tallahassee International Airport. Solar Farm 1 has been in operation since 2017, while Solar Farm 4 was brought online in 2019.

1.1 System Capability

The City maintains four points of interconnection with Duke Energy Florida ("Duke"); 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.

The solar farms consist of 62MW of total nameplate solar PV. Solar Farm 1 is 20MW of nameplate solar PV, while Solar Farm 4 has 42MW of nameplate solar PV. The City has conducted analyses of the output of the solar facilities and while an average of approximately 50% of the facilities' total rated capacity has been available during summer peak and near peak hours, the City has elected to utilize a conservative estimate of 20% of the rated capacity 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 of December 31, 2024 the City's total net summer capability is 737 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 other than its two solar farms.

On July 24, 2016, the City executed a PPA for 20 MWac 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 MWac 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 remain the world's largest airport-based solar facility.

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. Reciprocal service will continue to be provided to all Talquin customers currently 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 the territorial agreement between the City and Talquin.

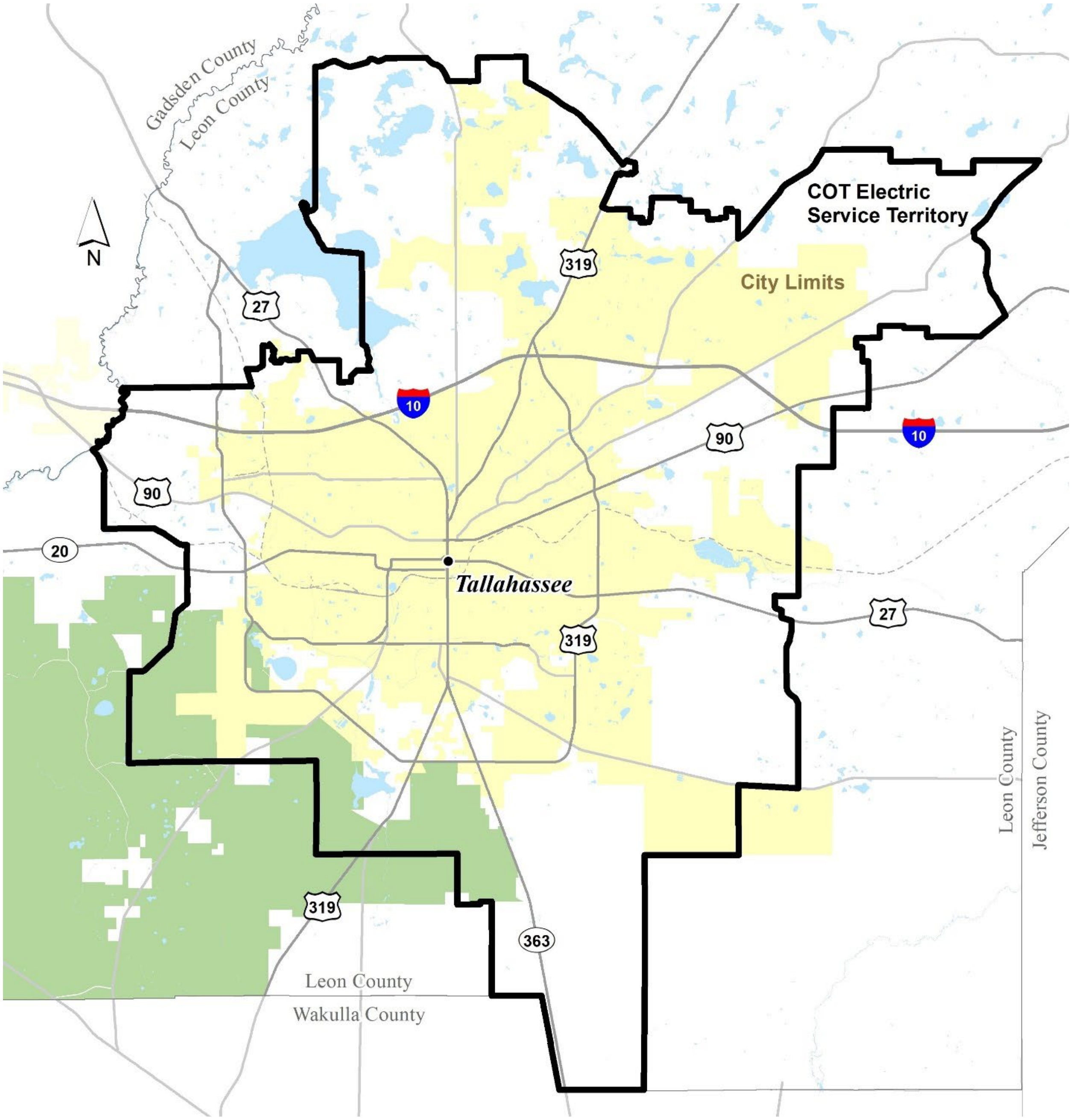


Figure 1: City of Tallahassee Utilities Electric Service Territory Map

City Of Tallahassee

Schedule 1
Existing Generating Facilities and Power Purchase Agreements
As of December 31, 2024

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
								Alt.				Net Capability		
	Unit		Unit	Fuel		Fuel Transport		Fuel Days	Commercial In-Service	Expected Retirement	Gen. Max. Nameplate	Summer	Winter	
Plant	No.	Location	Type	Primary	Alternate	Primary	Alternate	Use	Month/Year	Month/Year	(kW)	(MW)	(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	
Airport Solar	SF1	Leon	PV	Solar	NA	NA	NA	NA	12/17	12/58	20,000	4.0	0.0	
	SF4		PV	Solar	NA	NA	NA	NA	12/19	12/59	42,000	8.4	0.0	
									Total System Capacity as of December 31, 2023			**737**	**795**	

[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.

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 2025 and the horizon year of 2034. 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 2024-2026 period.

In 2022, the City implemented new customer management software, and the transition resulted in a lower running average of service points as some service points were consolidated or reclassified. This data anomaly most severely impacts the 2022-2023 average number of residential and commercial customers and the associated average consumption for these customer classes seen in Table 2.1. Data prior to 2022 was not reconciled to match the same counting and classification methodology as with half of 2022 and all of 2023, therefore the small reduction in customer count shown in 2023 does not indicate a demographic trend.

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 forecast. The forecast 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.

Summer and winter peak demands were developed using a weather normalized average weather year and basing demand growth from the balance of population with efficiency improvements. The resulting long-term forecast shows negative load growth in the base case. Severe weather cases were also created to model the unusual extremes for both summer and winter.

Incremental load increases from expansion at Florida State University (FSU), Florida A&M University (FAMU), Tallahassee Memorial Hospital (TMH), the State Capitol Center, and other new large businesses account for the majority of commercial load growth in the planning period. These incremental additions are highly dependent upon annual economic and budget constraints, which cause fluctuations in demand projections. Therefore, each entity submits their proposed incremental additions/reductions to the City and these modifications are included in the base load and energy forecast. High and Low economic models are then created to forecast faster or slower expansion of key accounts.

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 2025-2034 at an average annual growth rate (AAGR) of 0.75%. This growth rate is below that for the state of Florida (>1%) but is slightly higher than that for the United States (~0.7%).

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 offset the increased growth from population in residential and commercial customers. Additionally, the Clean Energy Plan (discussed in this chapter and further in Chapter III), which promotes accelerated installation of distributed solar PV and heightened energy efficiency investment through 2030 is also projected to offset increased load growth from emerging electrification efforts such as electric vehicle charging. The net effect is the average consumption for residential and commercial customers may be approaching its minimum and leveling out over time (Schedule 2.1). The long-term forecast includes data on electric vehicles and solar generation owned by utility customers, as it has since the 2022 forecast.

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 2025 base forecasts for annual total retail sales/net energy for load and seasonal peak demand forecasts that represent a slight decline in energy demand.

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 a 90% confidence interval, implying only a 5% 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. 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).

In order to evaluate preparedness regarding weather uncertainty, severe and mild forecast results were developed. In total, five forecasts, base case, high, low, severe, and mild, are considered to ensure the City's electric system is well positioned to serve all of its customers for the coming decade and into perpetuity.

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 base, low, and high 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
Information and Energy Audits	Demonstrations
Ceiling Insulation Grants	Information and Energy Audits
Low Income Ceiling Insulation Grants	Ceiling Insulation Grants
Low Income HVAC/Water Heater Repair Grants	Solar Water Heater Rebates
Low Income Duct Leak Repair Grants	Solar PV Net Metering
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	

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.

The total demand savings potential for the resources identified in the 2024 DSM Assessment Study appear to compare well with that identified in the 2023 Integrated Resource Planning (IRP) Study providing some assurance that the City’s ongoing and planned DSM and renewable efforts remain cost-effective. The latest projections in the TYSP reflect a positive outlook for DSM over the coming years guided by analysis from both studies.

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 2025-2034. Figure B4 displays the percentage of energy by fuel type in 2025 and 2034.

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. Additional renewable energy sources (solar) identified in the Clean Energy Plan are not shown in the tables.

The forecast of fuel requirements and energy sources are derived from a historical analysis of fuel consumption, the results of the Hitachi ABB Power Grids Portfolio Optimization production simulation model, and 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
2015	285,651	-	1,088	99,007		10,989	1,567	18,820		83,262
2016	288,972	-	1,080	100,003		10,800	1,560	19,002		82,097
2017	290,466	-	1,059	100,921		10,493	1,558	19,130		81,443
2018	292,700	-	1,123	102,395		10,967	1,552	19,282		80,490
2019	294,200	-	1,152	104,104		11,066	1,565	19,434		80,529
2020	293,800	-	1,149	105,829		10,857	1,432	19,648		72,883
2021	296,400	-	1,139	106,321		10,713	1,426	19,580		72,829
2022	297,130	-	1,149	107,358	[3]	10,703	1,474	19,830	[3]	74,332
2023	297,862	-	1,140	101,318	[3]	11,252	1,488	18,421	[3]	80,777
2024	302,197	-	1,189	105,267		11,295	1,575	18,974		83,008
2025	306,600	-	1,124	105,361		10,669	1,600	18,990		84,267
2026	308,720	-	1,132	106,169		10,663	1,634	19,116		85,471
2027	310,840	-	1,142	107,000		10,674	1,632	19,232		84,874
2028	312,960	-	1,152	107,839		10,684	1,631	19,346		84,303
2029	315,080	-	1,162	108,667		10,695	1,629	19,464		83,716
2030	317,200	-	1,173	109,497		10,715	1,629	19,585		83,191
2031	318,980	-	1,182	110,288		10,719	1,629	19,704		82,661
2032	320,760	-	1,192	111,046		10,737	1,629	19,821		82,162
2033	322,540	-	1,200	111,805		10,735	1,629	19,937		81,720
2034	324,320	-	1,209	112,545		10,745	1,630	20,053		81,298

[1] Population data represents Leon County population.
[2] Values include DSM impacts.
[3] Methodology change in Customer Count occurred in February of 2022, also impacting 2023 customer counts.

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 &	Other Sales	Total Sales
		Average			Highway	to Public	to Ultimate
		No. of	Average kWh	Railroads	Lighting	Authorities	Consumers
		Customers	Consumption	and Railways	(GWh)	(GWh)	(GWh)
Year	(GWh)	[1]	Per Customer	(GWh)	[2]	[3]	[4]
2015	-	-	-		0	1	2,656
2016	-	-	-		0	4	2,644
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	24	2,647
2023	-	-	-		0	24	2,652
2024	-	-	-		0	24	2,788
2025	-	-	-		0	24	2,748
2026	-	-	-		0	24	2,790
2027	-	-	-		0	24	2,798
2028	-	-	-		0	24	2,807
2029	-	-	-		0	24	2,816
2030	-	-	-		0	24	2,827
2031	-	-	-		0	24	2,835
2032	-	-	-		0	24	2,845
2033	-	-	-		0	24	2,854
2034	-	-	-		0	24	2,864

[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]
2015	0	121	2,777	0	117,827
2016	0	139	2,783	0	119,005
2017	0	124	2,758	0	120,051
2018	0	122	2,820	0	121,677
2019	0	112	2,851	0	123,538
2020	0	121	2,728	0	125,477
2021	0	115	2,705	0	125,901
2022	0	119	2,766	0	127,188
2023	0	59	2,711	0	119,739
2024	0	61	2,849	0	124,241
2025	0	51	2,799	0	124,351
2026	0	53	2,843	0	125,285
2027	0	53	2,851	0	126,232
2028	0	55	2,862	0	127,185
2029	0	52	2,868	0	128,131
2030	0	51	2,878	0	129,082
2031	0	55	2,890	0	129,992
2032	0	55	2,900	0	130,867
2033	0	56	2,910	0	131,742
2034	0	58	2,922	0	132,598

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

Figure B1: Energy Consumption by Customer Class Stacked Bar

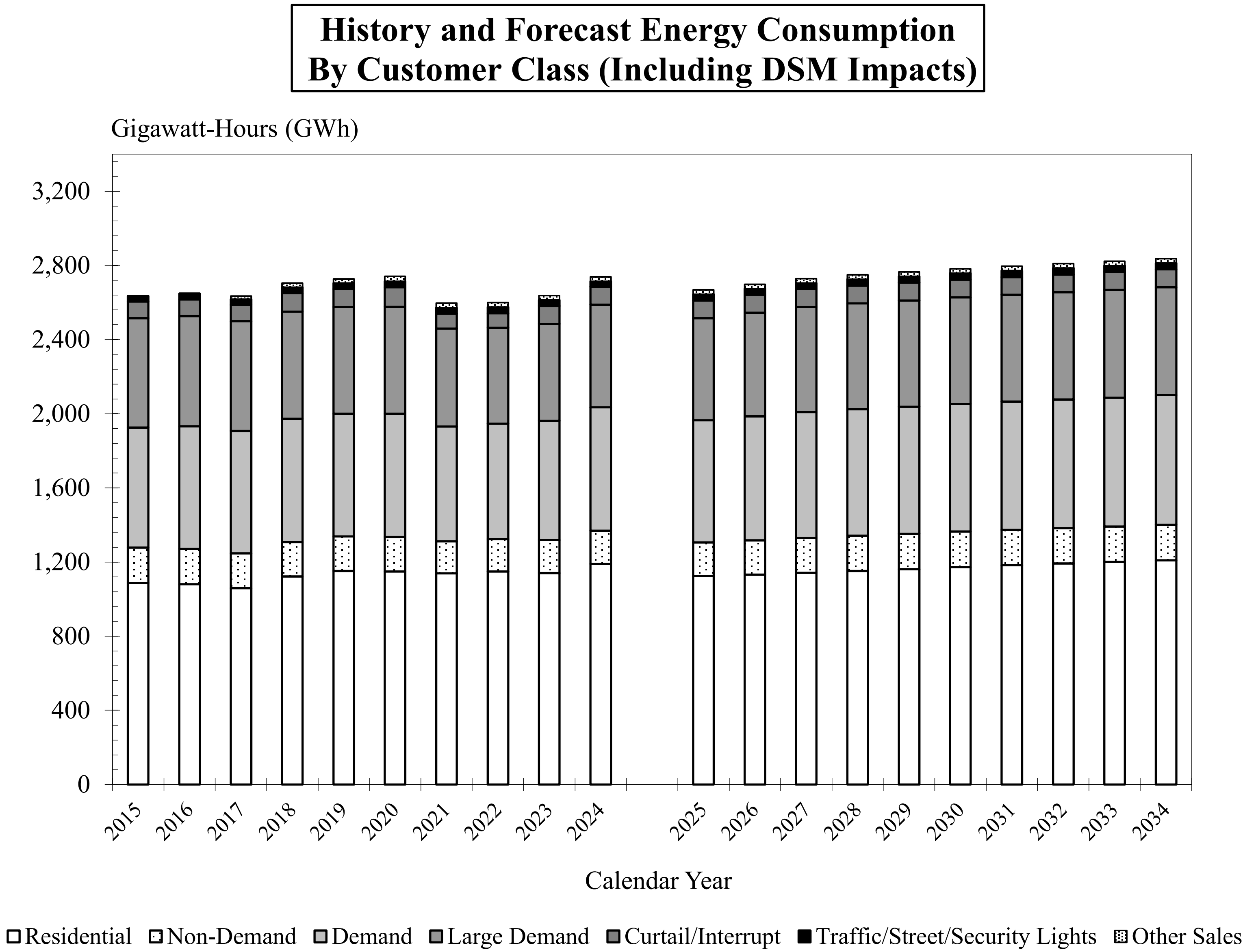
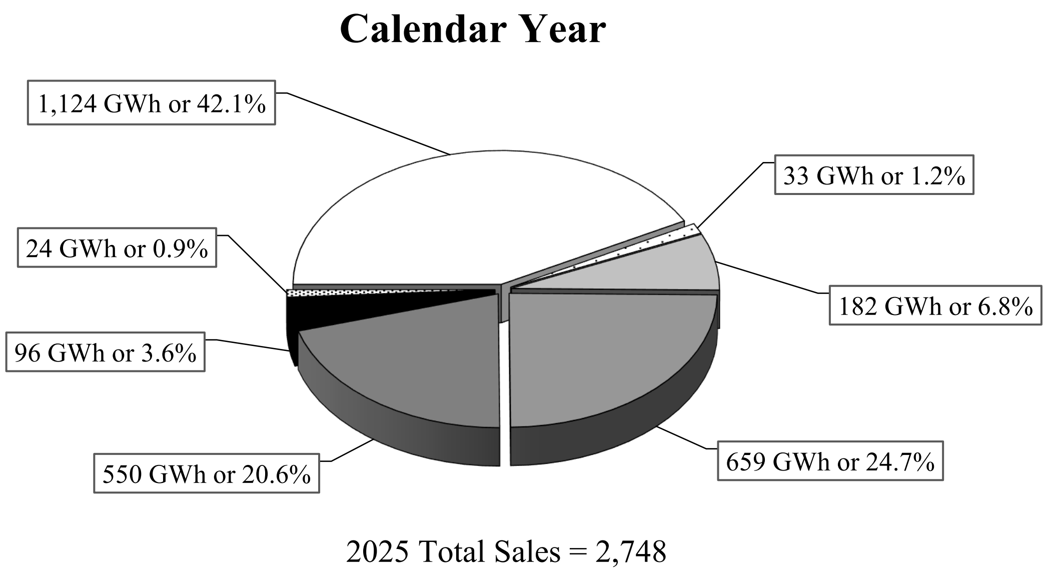
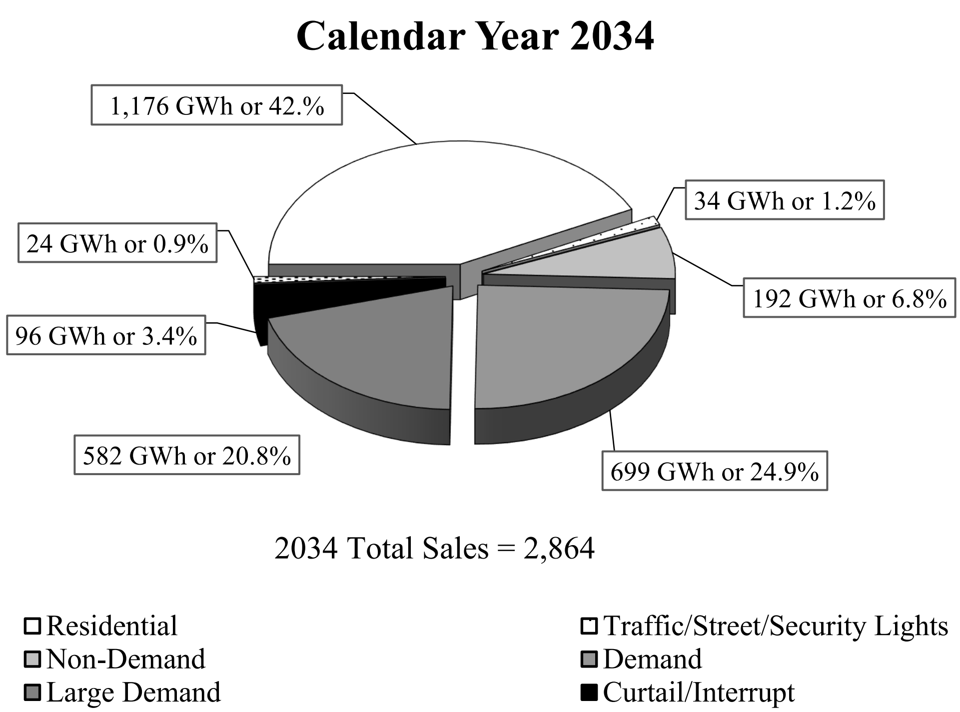


Figure B2: Energy Consumption by Customer Class

Energy Consumption By Customer Class (Excluding DSM Impacts)





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]
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						590
2023	615		615						615
2024	595		595		0	1	0	0	594
2025	614		614		0	2	0	0	612
2026	614		614		0	4	0	1	609
2027	614		614		0	6	0	2	606
2028	615		615		0	8	0	3	604
2029	616		616		0	10	0	4	602
2030	618		618		1	12	1	5	599
2031	619		619		3	13	1	6	596
2032	622		622		4	14	3	7	594
2033	623		623		5	15	4	8	591
2034	627		627		6	16	5	9	591

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2024 DSM is actual at peak.
[3] 2024 values reflect incremental increase from 2023.

City Of Tallahassee

Schedule 3.1.2
History and Forecast of Summer Peak Demand
High 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]
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						590
2023	615		615						615
2024	595		595		0	1	0	0	594
2025	648		648		0	2	0	0	646
2026	649		649		0	4	0	1	644
2027	650		650		0	6	0	2	642
2028	650		650		0	8	0	3	639
2029	651		651		0	10	0	4	637
2030	654		654		1	12	1	5	635
2031	655		655		3	13	1	6	632
2032	658		658		4	14	3	7	630
2033	659		659		5	15	4	8	627
2034	663		663		6	16	5	9	627

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2024 DSM is actual at peak.
[3] 2024 values reflect incremental increase from 2023.

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]
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						590
2023	615		615						615
2024	595		595		0	1	0	0	594
2025	596		596		0	2	0	0	594
2026	597		597		0	4	0	1	592
2027	597		597		0	6	0	2	589
2028	598		598		0	8	0	3	587
2029	599		599		0	10	0	4	585
2030	601		601		1	12	1	5	582
2031	603		603		3	13	1	6	580
2032	605		605		4	14	3	7	577
2033	607		607		5	15	4	8	575
2034	611		611		6	16	5	9	575

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2023 DSM is actual at peak.
[3] 2023 values reflect incremental increase from 2022.

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]
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	561		561						561
2023 -2024	591		591						591
2024 -2025	624		624		0	1	0	0	623
2025 -2026	537		537		0	2	0	0	535
2026 -2027	538		538		0	4	0	1	533
2027 -2028	540		540		0	6	0	2	532
2028 -2029	542		542		0	8	0	3	531
2029 -2030	544		544		0	10	0	4	530
2030 -2031	545		545		0	12	0	5	528
2031 -2032	546		546		0	13	0	6	527
2032 -2033	547		547		0	14	0	7	526
2033 -2034	549		549		0	15	0	8	526
2034 -2035	551		551		0	16	0	9	526

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2024-2025 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2024-2025 values reflect incremental increase from 2023-2024.

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]
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	561		561						561
2023 -2024	591		591						591
2024 -2025	624		624		0	1	0	0	623
2025 -2026	616		616		0	2	0	0	614
2026 -2027	618		618		0	4	0	1	613
2027 -2028	620		620		0	6	0	2	612
2028 -2029	621		621		0	8	0	3	610
2029 -2030	623		623		0	10	0	4	609
2030 -2031	625		625		0	12	0	5	608
2031 -2032	625		625		0	13	0	6	606
2032 -2033	626		626		0	14	0	7	605
2033 -2034	628		628		0	15	0	8	605
2034 -2035	631		631		0	16	0	9	606

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2024-2025 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2023-2024 values reflect incremental increase from 2022-2023.

City Of Tallahassee

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Wholesale	Retail	Interruptible	Residential Load Management [2], [3]	Residential Conservation [2], [4]	Comm./Ind Load Management [2], [3]	Comm./Ind Conservation [2], [4]	Net Firm Demand [1]
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	561		561						561
2023 -2024	591		591						591
2024 -2025	624		624		0	1	0	0	623
2025 -2026	512		512		0	2	0	0	510
2026 -2027	514		514		0	4	0	1	509
2027 -2028	515		515		0	6	0	2	507
2028 -2029	517		517		0	8	0	3	506
2029 -2030	518		518		0	10	0	4	504
2030 -2031	519		519		0	12	0	5	502
2031 -2032	520		520		0	13	0	6	501
2032 -2033	520		520		0	14	0	7	499
2033 -2034	522		522		0	15	0	8	499
2034 -2035	524		524		0	16	0	9	499

[1] Values include DSM Impacts.
[2] Reduction estimated at busbar. 2024-2025 DSM is actual at peak.
[3] Reflects no expected utilization of demand response (DR) resources in winter.
[4] 2024-2025 values reflect incremental increase from 2023-2024.

City Of Tallahassee

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

(1) Year	(2) Total Sales	(3) Residential Conservation [1]	(4) Comm./Ind Conservation [1]	(5) Retail Sales [2], [3]	(6) Other Retail [4]	(7) Utility Use & Losses	(8) Net Energy for Load [3], [5]	(9) Load Factor % [3]
2015	2,655			2,655	1	121	2,777	42
2016	2,640			2,640	4	139	2,783	42
2017	2,617			2,617	17	124	2,758	42
2018	2,675			2,675	23	122	2,820	43
2019	2,717			2,717	22	112	2,851	43
2020	2,581			2,581	26	121	2,728	41
2021	2,565			2,565	25	115	2,705	41
2022	2,623			2,623	24	119	2,766	42
2023	2,628			2,628	24	59	2,711	41
2024	2,768	4	0	2,764	24	61	2,849	43
2025	2,734	8	2	2,724	24	51	2,799	42
2026	2,785	14	5	2,766	24	53	2,843	43
2027	2,804	22	8	2,774	24	53	2,851	43
2028	2,824	30	11	2,783	24	55	2,862	43
2029	2,843	37	14	2,792	24	52	2,868	43
2030	2,864	44	17	2,803	24	51	2,878	43
2031	2,881	50	20	2,811	24	55	2,890	44
2032	2,900	56	23	2,821	24	55	2,900	44
2033	2,916	61	25	2,830	24	56	2,910	44
2034	2,931	64	27	2,840	24	58	2,922	44

[1] Reduction estimated at customer meter. 2024 DSM is actual incremental increase from 2023.
[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]
2015	2,655			2655	1	121	2,777	42
2016	2,640			2640	4	139	2,783	42
2017	2,617			2617	17	124	2,758	42
2018	2,675			2675	23	122	2,820	43
2019	2,717			2717	22	112	2,851	43
2020	2,581			2581	26	121	2,728	41
2021	2,565			2565	25	115	2,705	41
2022	2,623			2623	24	119	2,766	42
2023	2,628			2628	24	59	2,711	41
2024	2,768	4	0	2764	24	61	2,849	43
2025	2,889	8	2	2,879	25	51	2,955	45
2026	2,943	14	5	2,924	25	53	3,002	45
2027	2,962	22	8	2,932	25	53	3,010	45
2028	2,983	30	11	2,942	25	55	3,022	46
2029	3,002	37	14	2,951	25	52	3,029	46
2030	3,024	44	17	2,963	25	51	3,040	46
2031	3,043	50	20	2,973	25	55	3,053	46
2032	3,062	56	23	2,983	25	55	3,064	46
2033	3,079	61	25	2,993	25	56	3,075	46
2034	3,095	64	27	3,004	25	58	3,088	47

[1] Reduction estimated at customer meter. 2024 DSM is actual incremental increase from 2023.
[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]
2015	2,655			2655	1	121	2,777	42
2016	2,640			2640	4	139	2,783	42
2017	2,617			2617	17	124	2,758	42
2018	2,675			2675	23	122	2,820	43
2019	2,717			2717	22	112	2,851	43
2020	2,581			2581	26	121	2,728	41
2021	2,565			2565	25	115	2,705	41
2022	2,623			2623	24	119	2,766	42
2023	2,628			2628	24	59	2,711	41
2024	2,768	4	0	2764	24	61	2,849	43
2025	2,643	8	2	2,633	24	51	2,708	41
2026	2,693	14	5	2,674	24	53	2,751	42
2027	2,711	22	8	2,681	24	53	2,758	42
2028	2,730	30	11	2,689	24	55	2,768	42
2029	2,749	37	14	2,698	24	52	2,774	42
2030	2,769	44	17	2,708	24	51	2,783	42
2031	2,787	50	20	2,717	24	55	2,796	42
2032	2,804	56	23	2,725	24	55	2,804	42
2033	2,820	61	25	2,734	24	56	2,814	42
2034	2,835	64	27	2,744	24	58	2,826	43

[1] Reduction estimated at customer meter. 2024 DSM is actual incremental increase from 2023.
[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)
	2024 Actual		2025 Forecast [1][2][3]		2026 Forecast [1]	
Month	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)	Peak Demand (MW)	NEL (GWh)
January	591	236	620	216	535	219
February	456	197	539	204	534	208
March	358	196	472	212	467	215
April	446	204	459	204	454	208
May	512	241	486	213	482	217
June	577	279	559	246	558	250
July	560	290	604	267	601	272
August	594	300	612	275	609	279
September	576	257	593	273	591	277
October	464	225	550	243	548	246
November	440	209	480	229	478	233
December	503	215	443	217	443	219
TOTAL		2,849		2,799		2,843

[1] Peak Demand and NEL include DSM Impacts.
[2] Represents forecast values for 2025.
[3] Rounding may show +/- 1 GWh Total

City of Tallahassee, Florida

2025 Electric System Load Forecast
Key Explanatory Variables

	Forecast Model								
Explanatory Variable	RS Customers	RS Consumption	GSND Customers	GSND Consumption	GSD Customers	GSD Consumption	GSLD Consumption	System Losses	Monthly Load Factor [2]
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

[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 (°F); for summer peak CDD the base is 70°F.

[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.

Table 2.15: Data Sources

City of Tallahassee

2025 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

Figure B3: Summer Peak Load compared to Capacity Supply

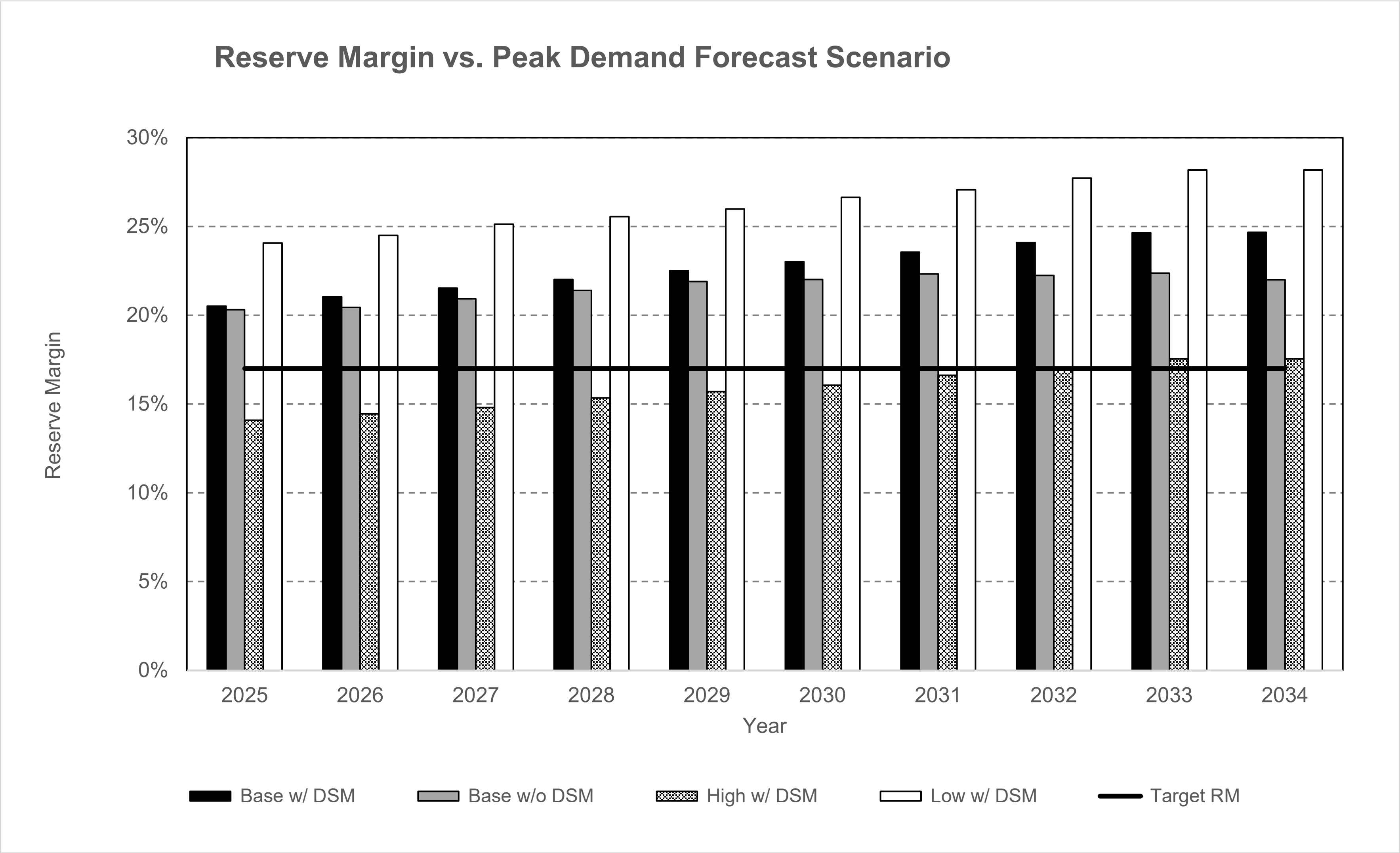


Table 2.16: Demand Side Management Impacts

<u>City Of Tallahassee</u>

2025 Electric System Load Forecast

Projected Demand Side Management
Energy Reductions [1]

Calendar Year	Residential Impact (GWh)	Commercial Impact (GWh)	Total Cumulative Impact (GWh)
2025	4	2	10
2026	6	3	19
2027	8	3	30
2028	8	3	41
2029	7	3	51
2030	7	3	61
2031	6	3	70
2032	6	3	79
2033	5	2	86
2034	3	2	91

[1] Reductions estimated at generator busbar.

City Of Tallahassee

2025 Electric System Load Forecast

Projected Demand Side Management
Seasonal Demand Reductions [1]

		Residential Energy Efficiency Impact		Commercial Energy Efficiency Impact		Residential Demand Response Impact		Commercial Demand Response Impact		Demand Side Management Total	
Year		Summer	Winter	Summer	Winter	Summer	Winter [2]	Summer	Winter [2]	Summer	Winter
Summer	Winter	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
2025	2025-2026	1	1	0	0	0	0	0	0	1	1
2026	2026-2027	2	1	0	1	0	0	0	0	2	2
2027	2027-2028	2	1	0	1	0	0	0	0	2	2
2028	2028-2029	2	1	0	1	0	0	0	0	2	2
2029	2029-2030	2	1	0	1	0	0	0	0	2	2
2030	2030-2031	2	1	1	1	1	0	1	0	5	2
2031	2031-2032	1	1	1	1	3	0	1	0	6	2
2032	2032-2033	1	1	3	1	4	0	3	0	11	2
2033	2033-2034	1	1	4	1	5	0	4	0	14	2
2034	2034-2035	1	0	5	0	6	0	5	0	17	0

[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 2023	Actual 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
(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	3	1	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	3	1	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	22,934	23,043	21,842	22,181	22,243	22,328	22,373	22,450	22,543	22,620	22,697	22,790
(14)		Steam	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
(15)		CC	1000 MCF	20,915	19,580	18,784	19,076	19,129	19,202	19,241	19,307	19,387	19,453	19,519	19,599
(16)		CT	1000 MCF	2,019	3,463	3,058	3,105	3,114	3,126	3,132	3,143	3,156	3,167	3,178	3,191
(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

Schedule 6.1: Energy Sources by GWh

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 2023	Actual 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
(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	2	0	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	2	0	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	3,053	2,985	2,704	2,754	2,765	2,781	2,786	2,796	2,807	2,818	2,829	2,846
(15)		Steam	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(16)		CC	GWh	2,839	2,586	2,352	2,396	2,406	2,419	2,424	2,433	2,442	2,452	2,461	2,476
(17)		CT	GWh	214	399	352	358	359	362	362	363	365	366	368	370
(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	(409)	(232)	(21)	(26)	(29)	(33)	(32)	(31)	(29)	(30)	(30)	(35)
(21)	Renewables		GWh	107	96	116	115	115	114	114	113	112	112	111	111
(22)	Net Energy for Load		GWh	2,753	2,849	2,799	2,843	2,851	2,862	2,868	2,878	2,890	2,900	2,910	2,922

[1] Negative values reflect power sales to address generator minimum load thresholds.

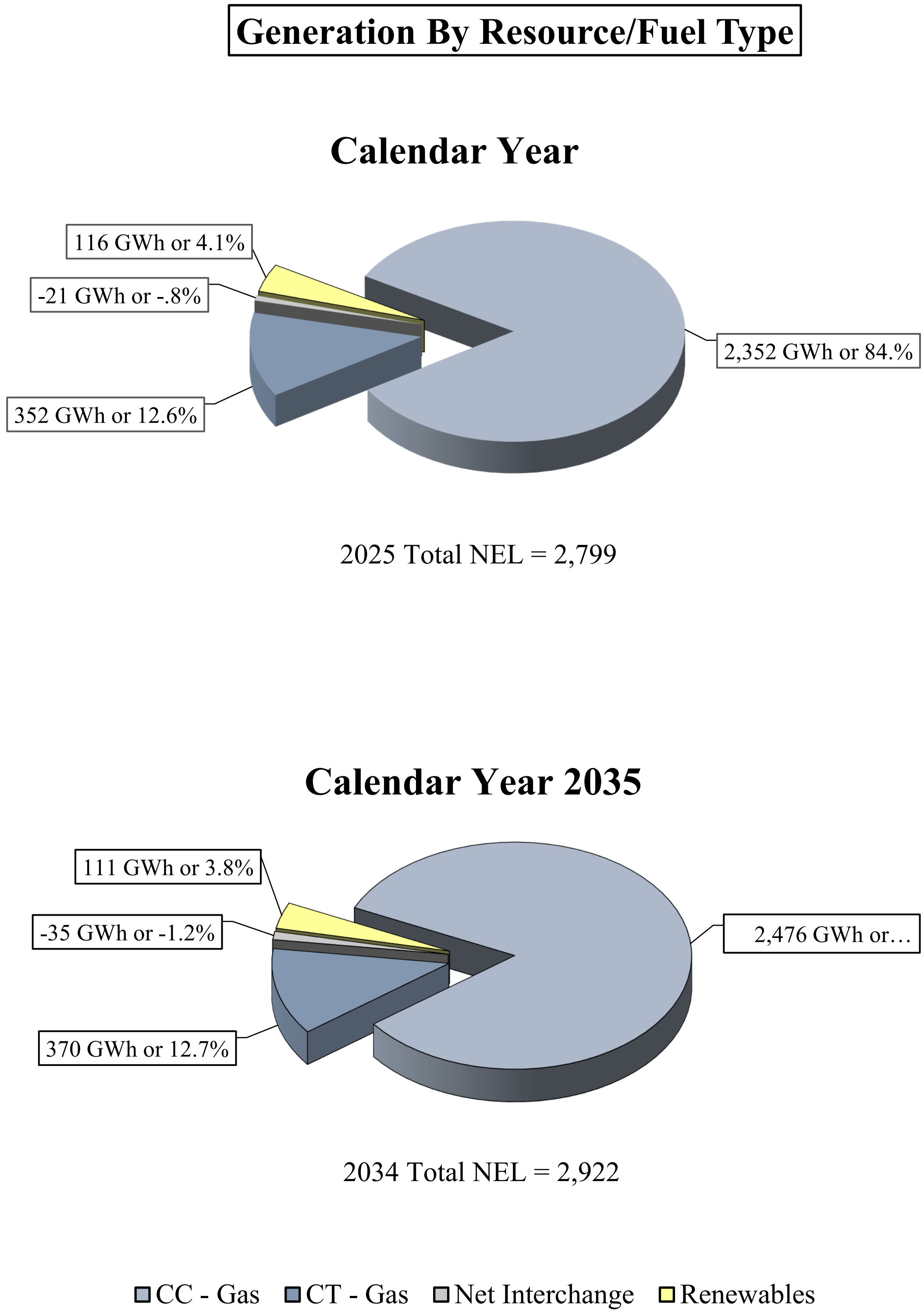
Schedule 6.2 Energy Sources by Percentage

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 2022	Actual 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
(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	0.0	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	0.0	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	%	110.9	104.8	96.6	96.9	97.0	97.2	97.1	97.2	97.1	97.2	97.2	97.4
(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	%	103.1	90.8	84.0	84.3	84.4	84.5	84.5	84.5	84.5	84.5	84.6	84.7
(17)		CT	%	7.8	14.0	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.7
(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		%	(14.9)	(8.1)	(0.8)	(0.9)	(1.0)	(1.2)	(1.1)	(1.1)	(1.0)	(1.0)	(1.0)	(1.2)
(21)	Renewables		%	3.9	3.4	4.1	4.0	4.0	4.0	4.0	3.9	3.9	3.9	3.8	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

Figure B4: Generation by Resource/Fuel Type



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, including the City's Clean Energy Plan (CEP) published in 2023. 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 Expected 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 is also 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 is 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.

Variability of load and fuel diversity concerns both suggest battery energy storage systems (BESS) to be a viable planning resource. The City anticipates the addition of BESS within the 10-yr planning horizon, which among other things will contribute to net summer peak capability and therefore reserve margin.

The City's power supply primarily 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). The City has evaluated supplemental probabilistic metrics 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 indicate that there are risks of potential load and resource misalignment during periods other than at the time of the system peak demand. Occasionally, overnight and mid-morning loads are too low for both combined cycle generators to remain on, while the daily peak exceeds what a single unit can provide. Therefore, the City takes this additional issue into consideration.

Purchase contracts could 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 Florida market 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 load and resource misalignment, planning staff investigated options for a significantly enhanced DSM portfolio to include an increase in load shifting or load shaping programs. As these programs rely on enrolling and sustaining significant customer participation, they carry some risk as a firm resource. Among other measures dispatchable battery energy storage is being evaluated to provide load shaping services for the overnight low load condition as well as peak day contribution in an N-1 event.

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 stated in Section 1.1, the City receives power from two solar farms under PPAs, the 20MW Solar Farm 1, and the 42MW Solar Farm 4, both located at the Tallahassee International Airport. One of the potential negatives of having both projects located adjacent to each other is lack of geographic diversity – with the potential that both systems will 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 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. Reciprocating engine generators were commissioned in 2019 and 2020 to help mitigate the intermittency while contributing to the ongoing modernization of the City's generation fleet and providing summer peak capacity.

The City commissioned a study to determine the impacts of additional utility-scale 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 MWac. 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. With the determined maximum amount of intermittent resources already installed on the system, the focus of the City will be on implementing battery energy storage to mitigate risks of current and near future expansions in the City's portfolio of solar PV.

On August 23, 2023, the City Commission adopted a Clean Energy Plan (CEP) to transition the community to 100% net, clean, renewable energy in both buildings and transportation. The CEP reflects the City's continued commitment to sustainability and established a number of interim goals, including adding 120-200 MWs of renewable supply capacity by 2030, along with increased DSM and electrification efforts throughout the community. Other notable goals include:

- 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.

As of the end of calendar year 2024 the City has a portfolio of 223 kWac of solar PV and a cumulative total of 14MWac of solar PV has been installed by customers. The City's Solar PV Net Metering program promotes customer investment in renewable energy generation by allowing residential and commercial customers to return excess generated power to the City at the full retail value.

3.2.6 Future Power Supply Resources

The City's 2025 Ten Year Site Plan identifies that no additional power supply resources will be needed to meet forecasted capacity and reserve needs through the 2034 horizon year; however, the City will continue to consider the addition of renewable supply resources to offset fossil fuel use consistent with its 2023 Clean Energy Plan goals.

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 for the sole sake of meeting forecasted capacity and reserve needs through 2034 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 2025 through 2034.

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
2025	725	0	0	12	737	612	125	21	0	125	21
2026	725	0	0	12	737	609	128	21	0	128	21
2027	725	0	0	12	737	606	131	22	0	131	22
2028	725	0	0	12	737	604	133	22	0	133	22
2029	725	0	0	12	737	602	135	23	0	135	23
2030	725	0	0	12	737	599	138	23	0	138	23
2031	725	0	0	12	737	596	141	24	0	141	24
2032	725	0	0	12	737	594	143	24	0	143	24
2033	725	0	0	12	737	591	146	25	0	146	25
2034	725	0	0	12	737	591	146	25	0	146	25

[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
2025/26	795	0	0	0	795	535	260	49	0	260	49
2026/27	795	0	0	0	795	533	262	49	0	262	49
2027/28	795	0	0	0	795	532	263	50	0	263	50
2028/29	795	0	0	0	795	531	264	50	0	264	50
2029/30	795	0	0	0	795	530	265	50	0	265	50
2030/31	795	0	0	0	795	528	267	50	0	267	50
2031/32	795	0	0	0	795	527	268	51	0	268	51
2032/33	795	0	0	0	795	526	269	51	0	269	51
2033/34	795	0	0	0	795	526	269	51	0	269	51
2034/35	795	0	0	0	795	526	269	51	0	269	51

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

Schedule 8: Planned and Prospective Generating Facility Additions or Changes

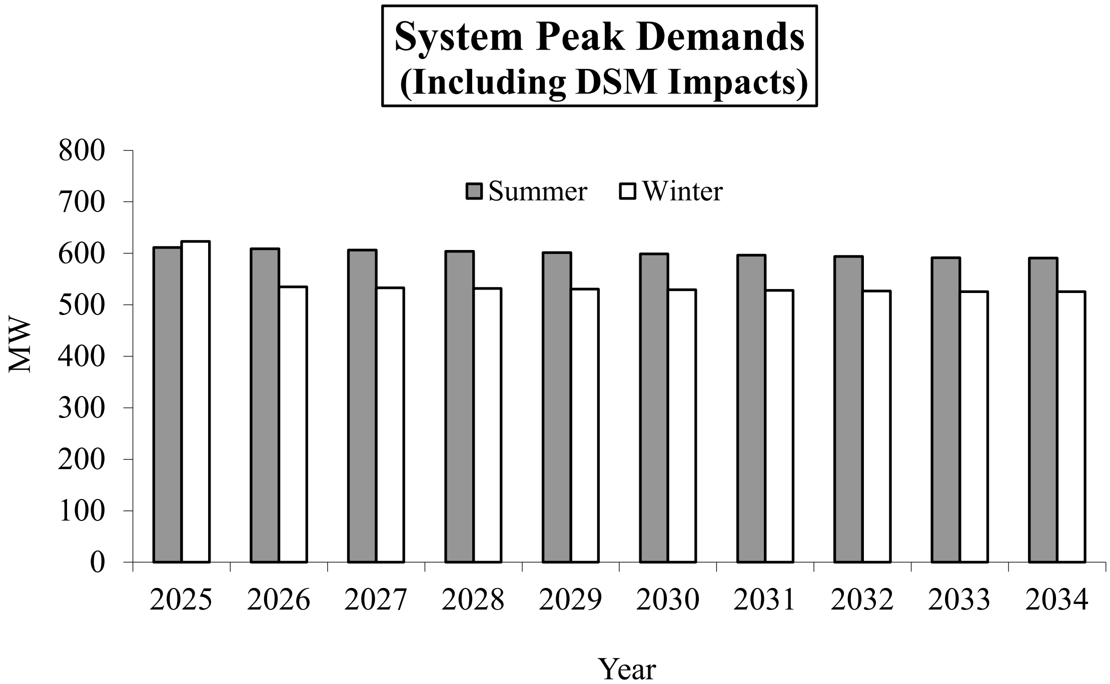
City Of Tallahassee

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

Figure C: Summer and Winter System Peak Demand Comparisons



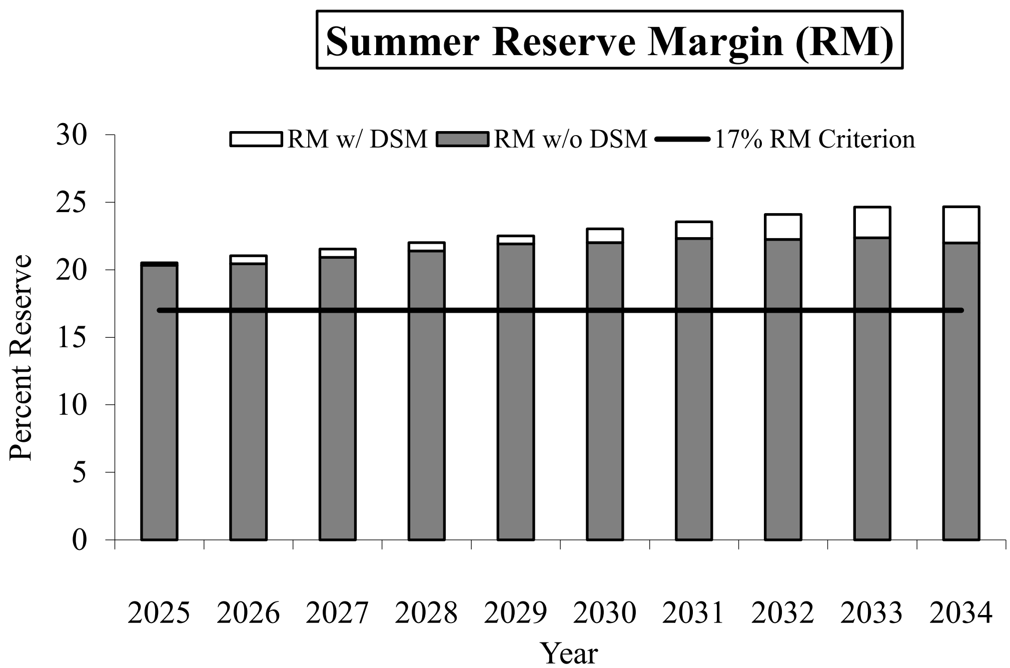


Table 3.4: Generation Expansion Plan

City Of Tallahassee

Generation Expansion Plan

Year	Load Forecast & Adjustments: 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 %
2024	613	1	612	737	0	0	0	737	21
2025	612	2	609	737	0	0	0	737	21
2026	609	2	606	737	0	0	0	737	22
2027	607	2	604	737	0	0	0	737	22
2028	605	2	602	737	0	0	0	737	23
2029	604	5	599	737	0	0	0	737	23
2030	602	6	596	737	0	0	0	737	24
2031	603	11	594	737	0	0	0	737	24
2032	602	14	591	737	0	0	0	737	25
2033	604	17	591	737	0	0	0	737	25

[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 2025-2034 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, including the renewable energy needs identified in the 2023 Clean Energy Plan.

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 2026 is currently ongoing, and any revisions to project budgets in the electric utility will not be finalized until the summer of 2025. 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.

Schedule 9: Specifications of Proposed Generating Facilities

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:	

Table 4.2: Planned Transmission Projects

City Of Tallahassee

Planned Transmission Projects, 2025-2034

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)
Reconductor / Rebuild	Line 20A	Sub 7	7507	Sub 16	7516	12/2030	115	3.03
Reconductor / Rebuild	Line 20B	Sub 16	7516	Bradfordville W (DEF)	3105	12/2030	115	3.08

Figure D1: Hopkins Plant Site

Figure D2: Purdom Plant Site