Legislative File # 170830

GAINESVILLE REGIONAL UTILITIES

UTILITY RATE STUDY

For the Electric, Water, Wastewater and Natural Gas Systems

JANUARY 2018 | FINAL REPORT

WILLDAN

This page intentionally left blank.

COST OF SERVICE AND UTILITY RATE STUDIES

For the Electric, Water, Wastewater
and Natural Gas Systems

Gainesville Regional Utilities

JANUARY 2018 | FINAL REPORT

WILLDAN
FINANCIAL SERVICES

This page intentionally left blank.

Table of Contents

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

Table of Tables

TABLE OF TABLES

TABLE OF TABLES

TABLE OF TABLES

Table of Figures

TABLE OF FIGURES

TABLE OF FIGURES

Appendices Content

APPENDICES CONTENT

APPENDIX A TABLES

Glossary

AADF	Annual average daily flow
APPA	American Public Power Association
Aquifer	Floridan Aquifer
AWWA	American Water Works Association
City	City of Gainesville
Clay	Clay Electric Cooperative, Inc.
Cogen	Cogeneration
COS	Cost of Service
CP	Coincident peak demand
Current Rates	Rates in effect as of October 1, 2017 for FY 2018
DHRGS	Deerhaven Renewable Generating Station—the biomass plant formerly known as GREC purchased by the City in November 2017
Duke	Duke Energy Florida, Inc.
ERU	Equivalent residential unit
FGT	Florida Gas Transmission Company, LLC
FPLC	Florida Power and Light Company
FY	Fiscal Year—October 1 through September 30
GREC	Gainesville Renewable Energy Center—biomass facility
GPD	Gallons per day
GRU	Gainesville Regional Utilities
GWh	Gigawatt hour—1,000,000 kWh
JEA	Jacksonville Electric Authority
Kanapaha	Kanapaha Water Reclamation Facility

kWh	Kilowatt hour—1,000 Wh
LOS	Level of service
LP	Liquid propane
Main Street	Main Street Water Reclamation Facility
Murphree	Murphree Water Treatment Plant
MGD	Million gallons per day
MGPRC	Manufactured Gas Plant Recovery Charge
MW	Megawatt
MWh	Megawatt hour—1,000 kWh
NCP	Non-coincident peak demand
NEFL	Net energy for load
PGA	Purchased gas adjustment
PVC	Polyvinyl chloride
Test Year	The future annualized period for which the revenue requirement, cost of service, and rates are evaluated. For this Study the Test Year was FY 2019.
Seminole	Seminole Electric Power Cooperative
Study	Cost of Service and Utility Rate Studies for the Electric, Water, Wastewater, and Natural Gas Systems of Gainesville Regional Utilities, January 2018.
TEA	The Energy Authority
UF	University of Florida
Wh	Watt hour
Willdan	Willdan Financial Services

John R. Kelly Generating Station

EXECUTIVE SUMMARY

In August of 2017, the city of Gainesville (City) retained Willdan Financial Services (Willdan) to conduct a Cost of Service (COS) and Utility Rate Study (the Study) for the following four systems of Gainesville Regional Utilities (GRU): Electric, Water, Wastewater and Natural Gas.[1] This report provides a description of the analysis, methodology, results, and recommendations of this Study (Report).

This Study provides a COS analysis and was performed in accordance with generally accepted industry practices and ratemaking principles for municipal utilities. In support of this Study, Willdan conducted the following primary tasks for each of the four utility systems:

- Reviewed system operational and financial data;
- Established a revenue requirement forecast for a representative Test Year—Fiscal Year (FY) 2019;

[1] GRUCom, the City's fiber optic utility system, was not part of this Study.

- Conducted a COS analysis to determine the cost to serve each customer class and how much each customer class was contributing, in terms of revenues at current rates, to its cost to serve; and
- Evaluated the ability of existing and COS-based rate designs by customer class to generate sufficient revenues to meet GRU's revenue requirement as well as policy goals and customer service goals for the Test Year.

In November 2017, the City purchased the **Deerhaven Renewable Generating Station**, formerly known as the Gainesville Renewable Energy Center, for $750 M, adding 102.5 MW of generating capacity to GRU-owned resources.

RESULTS

Table ES - 1 through Table ES - 4 summarize the revenue results by customer class for each utility system—Electric, Water, Wastewater, and Natural Gas—under current, COS, and proposed rates. Consolidated results for all four utilities follow in Table ES - 5.

Table ES - 1 Test Year Electric Revenues at Current, Cost of Service, and Proposed Rates ($000)

	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
CUSTOMER CLASS	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	PROPOSED v. CURRENT	
Residential	$113,443	$116,657	($3,214)	-2.8%	$104,830	($8,614)	-7.6%
Residential PV	$254	$235	$19	8.3%	$236	($18)	-7.1%
GS Non-Demand	$32,354	$24,912	$7,442	29.9%	$29,405	($2,949)	-9.1%
GS Non-Demand PV	$216	$141	$75	53.4%	$196	($20)	-9.4%
General Service Demand	$82,091	$64,684	$17,407	26.9%	$73,893	($8,199)	-10.0%
General Service Demand PV	$1,183	$891	$292	32.7%	$1,067	($116)	-9.8%
Large Power Service	$11,752	$9,129	$2,623	28.7%	$10,469	($1,282)	-10.9%
Large Power Service PV							
Large Power Service PV	$6,390	$4,951	$1,438	29.1%	$5,716	($674)	-10.5%
GS TOD, Non-Demand	$66	$53	$13	24.0%	$60	($6)	-9.5%
GS TOD, Demand	$44	$32	$12	38.7%	$42	($2)	-4.6%
GREC[2]	$606	$-	$606	0.0%	$509	($96)	-15.9%
Kanapaha	$1,375	$1,024	$351	34.3%	$1,219	($155)	-11.3%
Murphree	$2,073	$1,544	$529	34.3%	$1,839	($234)	-11.3%

[2] The biomass facility known as Gainesville Renewable Energy Center or GREC was purchased by the City in November 2017, and renamed the Deerhaven Renewable Generating Station or DHRGS.

CUSTOMER CLASS	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	PROPOSED v. CURRENT	
Lighting, Traffic	$9	$6	$4	66.6%	$9	($1)	-9.1%
Alachua	$8,259	$13,419	($5,160)	-38.5%	$8,259	$-	0.0%
Winter Park	$1,271	$1,833	($562)	-30.7%	$1,271	$-	0.0%
Wheeling – Seminole	$358	$290	$69	23.7%	$358	$-	0.0%
Sub Total	**$261,743**	**$239,799**	**$21,944**	**9.2%**	**$239,376**	**($22,367)**	**-8.5%**
Rental and Street Lighting	7,805	7,805	-	0.0%	7,805	-	0.0%
TOTAL RATE REVENUE	***269,549***	***247,605***	***21,944***	***8.9%***	***247,181***	***(22,367)***	***-8.3%***
Net Total Cost to Serve	247,880	247,880	21,944	0.0%	247,880	-	0.0%
Surplus/(Deficiency)	21,669	(275)	43,888	-7967.9%	(699)	(22,367)	-103.2%
OTHER REVENUES							
Surcharge Revenues	3,457	4,695	(1,238)	-26.4%	4,832	1,375	39.8%
Other Revenues	34,347	34,347	-	0.0%	34,347	-	0.0%
Total Other Revenues	*$37,804*	*$39,039*	*($1,234)*	*-3.2%*			
TOTAL REVENUES	**$307,353**	**$286,647**	**$20,706**	**7.2%**	**$286,361**	**(20,992)**	**-6.8%**
Net Revenue Requirement	*$285,684*	*$285,684*	*$-*	*0.0%*	*$285,684*	*-*	*0.0%*
Total Surplus/(Deficiency)	$21,669	$962	20,706	2151.4%	$677	(20,992)	-96.9%

Table ES - 2 Test Year Water Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS	TEST YEAR WATER REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$19,298	$16,270	$3,029	19%	$19,346	$47	0%
Multifamily	3,399	3,762	(364)	-10%	3,480	81	2%
Residential - Irrigation	1,043	1,882	(839)	-45%	1,049	6	1%
Nonresidential	7,660	6,876	785	11%	7,864	204	3%
Nonresidential - Irrigation	1,634	1,803	(169)	-9%	1,658	24	1%
City of Alachua	12	28	(16)	-58%	13	2	13%
UF On Campus	2,292	2,166	127	6%	2,318	26	1%
UF Off Campus	48	47	1	2%	54	6	12%
TOTAL REVENUES	**$35,387**	**$32,834**	**$2,553**	**8%**	**$35,783**	**$396**	**1%**
Net Revenue Requirement	*$32,834*	*$32,834*	*$0*	*0%*	*$32,834*	*$0*	*0%*
Total Surplus/(Deficiency)	$2,553	$0	$2,553	-	$2,949	$396	15%

Table ES - 3 Test Year Wastewater Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS	TEST YEAR WASTEWATER REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$23,431	$21,653	$1,778	8%	$24,164	$733	3%
Multi-Family	5,252	5,919	(667)	-11%	5,579	327	6%
Residential - Irrigation	391	151	240	159%	405	14	4%
Flat Fee	30	29	1	3%	31	1	3%
Residential Reclaimed	297	1,362	(1,064)	-78%	308	10	3%
Nonresidential	9,934	11,021	(1,087)	-10%	10,605	671	7%
Nonresidential Reclaimed	95	584	(489)	-84%	112	17	18%
Waldo Force Main	144	103	41	40%	149	4	3%
TOTAL REVENUES	$39,574	$40,823	($1,249)	-3%	$41,351	$1,777	4%
Net Revenue Requirement	$40,823	$40,823	$0	0%	$40,823	$0	0%
Total Surplus/(Deficiency)	($1,249)	($0)	($1,249)		$528	$1,777	-142%

Table ES - 4 Test Year Natural Gas Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS	TEST YEAR NATURAL GAS REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$11,715	$9,251	$2,465	27%	$11,715	$0	0%
Residential - Liquid Propane	122	135	($13)	-10%	122	0	0%
General Service Small Commercial	197	121	$76	63%	197	0	0%
General Service Regular – Firm	6,671	6,937	($266)	-4%	6,671	0	0%
Large Volume Service Interruptible	2,495	3,510	($1,016)	-29%	2,495	0	0%
Regular Service Interruptible	346	302	$43	14%	346	0	0%
University of Florida Cogen	324	1,088	($765)	-70%	324	0	0%
Deerhaven Renewable Generating Station[3]	36	113	($77)	-68%	36	0	0%
TOTAL REVENUES	$21,905	$21,458	$447	2%	$21,905	0	0%
Net Revenue Requirement	$21,458	$21,458	$0	0%	$21,457.80	0	0%
Total Surplus/(Deficiency)	$447	$0	$447		$447	$0	0%

[3] Ibid.

Figure ES - 1 presents consolidated Test Year revenues for all four utility systems at current, COS, and proposed rates by residential and non-residential source. **Table ES - 5** presents this same data compared to the Test Year revenue requirement of $381 million.

Figure ES - 1 Test Year Consolidated Revenues at Current, Cost of Service and Proposed Rates

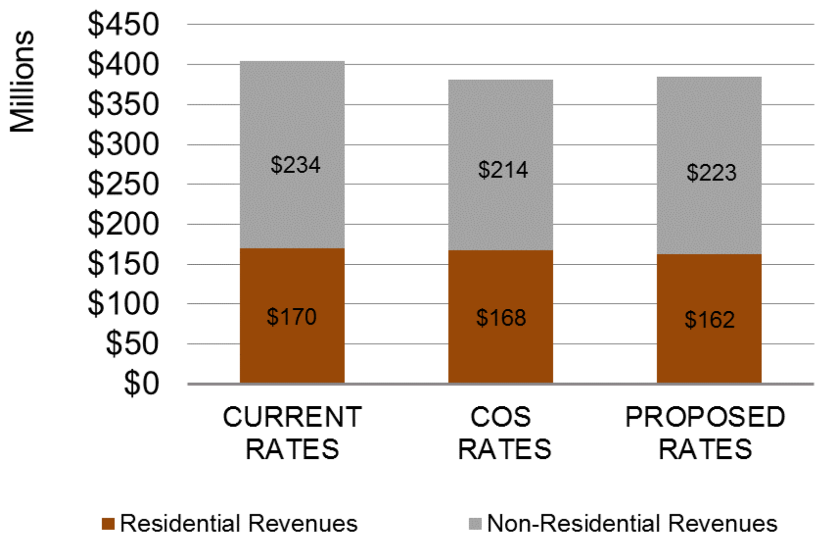


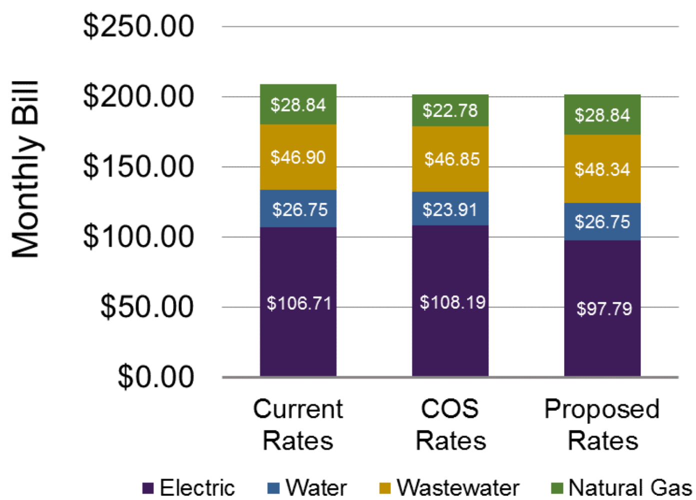
Table ES - 5 Test Year Consolidated Utility Revenues at Current, Cost of Service, and Proposed Rates ($000)

	TEST YEAR CONSOLIDATED REVENUES BY RATE ASSUMPTION ($000)						
COMPONENT	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential Revenues	$169,994	$167,596	$2,398	1.43%	$162,175	($7,819)	-4.60%
Non-Residential Revenues	$234,225	$214,166	$20,059	9.37%	$223,225	($11,000)	-4.70%
TOTAL REVENUES	$404,219	$381,762	$22,457	5.88%	$385,400	($18,819)	-4.66%
Net Revenue Requirement	$380,799	$380,799	$0	0.00%	$380,799	($0)	0.00%
Total Surplus/(Deficiency)	$23,420	$963	$22,457	2331.98%	$4,601	($18,819)	-80.35%

OVERALL BILL IMPACTS

This section presents total monthly bill impacts at average customer usage for Residential, Small Commercial, and Large Customers. **Figure ES - 2** presents the total monthly Residential bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a residential customer's monthly bill would be 3.6% lower than under current rates.

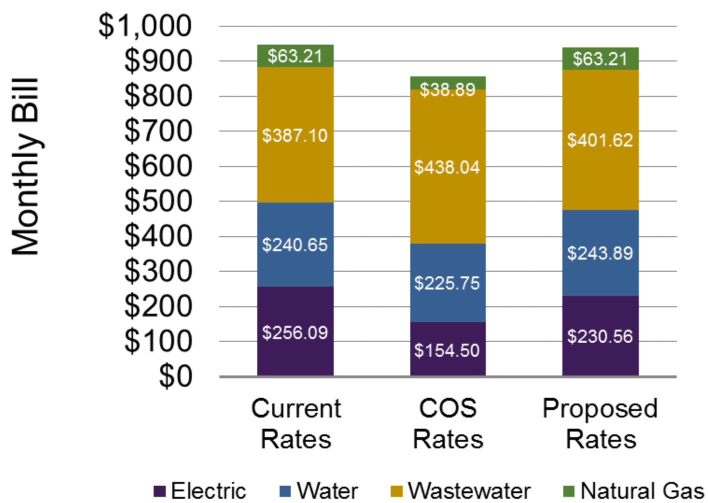
Figure ES - 2 Residential Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 3.6% lower than current rates.

Figure ES - 3 presents the total monthly Small Commercial bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a small commercial customer's monthly bill would be 0.8% lower than under current rates.

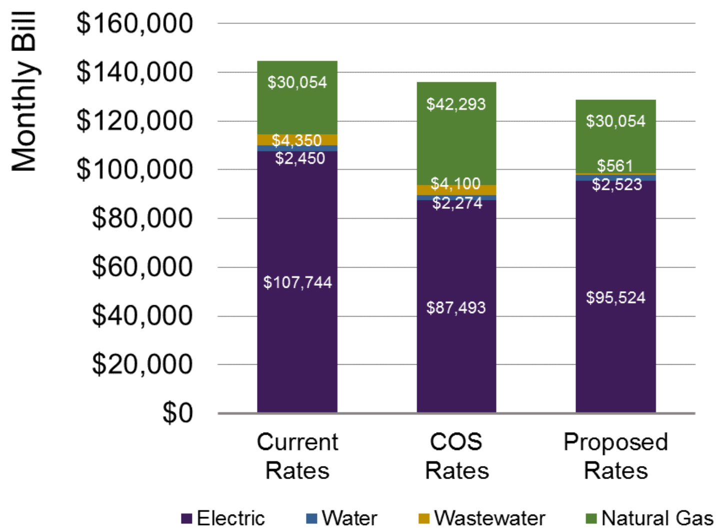
Figure ES - 3 Small Commercial Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 0.8% lower than current rates.

Figure ES - 4 presents the total monthly Large Customer bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a large customer's monthly bill would be 11% lower than under current rates.

Figure ES - 4 Large Customer Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 11% lower than current rates.

RECOMMENDATIONS

A summary of Study recommendations for each of the four utility systems follows.

ELECTRIC SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Electric Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over time to the extent possible.

2. Change the applicability of the Primary Metering Discount to only the energy portion of the bill (rather than energy plus demand).

3. If additional incentives for conservation and energy efficiency are desired, lower the consumption setpoint for Tier 1 energy for both its Residential and General Service Non-Demand customer classes, with commensurate rate changes to avoid over-collection.

4. Maintain competitive wholesale rates to provide systemwide benefits.

5. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

WATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Water Utility System for GRU's consideration:

1. Adopt the proposed water rates and connection charges presented in this Study.

2. Enact the proposed rates to become effective as of October 1, 2018.

3. Phase up the monthly base charge based American Water Works Association meter equivalency factors.

4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

WASTEWATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Wastewater Utility System for GRU's consideration:

1. Adopt the proposed wastewater rates and connection charges presented in this Study.

2. Enact the proposed rates to become effective as of October 1, 2018.

3. Phase up the monthly base charge based American Water Works Association meter equivalency factors.

4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

NATURAL GAS SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Natural Gas Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over time to the extent possible.

2. Maintain competitive rates to provide systemwide benefits.

3. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

This page intentionally left blank.

Gainesville Regional Utilities Administration Building

I. INTRODUCTION AND SUMMARY

In August of 2017, the city of Gainesville (City) retained Willdan Financial Services (Willdan) to conduct a Cost of Service (COS) and Utility Rate Study (the Study) for four systems of Gainesville Regional Utilities (GRU): Electric, Water, Wastewater and Natural Gas.[4] This report provides a description of the analysis, methodology, results, and recommendations of this Study (Report). Unless otherwise noted, GRU staff provided the system-specific data used for this Study. In certain cases, where information was not available, Willdan developed estimates based on industry expertise, and publicly available information.

The Study is organized as follows. Section II presents the Electric System Study. Section III presents the Water System Study. Section IV presents the Wastewater System Study. Section V presents the Natural Gas System Study. Section VI presents consolidated system results for the four utility systems.

Photographs used in this Study were provided by and are the property of GRU.

[4] GRUCom, the City's fiber optic utility system, was not part of this Study.

A. INTRODUCTION

For a ***natural monopoly***, the entire demand within the relevant market can be satisfied at the lowest cost by one firm rather than by two or more, regardless of the actual number of firms.

GRU's four utility systems are natural monopolies, with limited exceptions including certain wholesale electric and natural gas transportation arrangements. Unlike regular monopolies that are defined by a market with one seller, natural monopolies are not based on the actual number of sellers in a market. For a natural monopoly, the relationship between demand and the technology of supply renders competition infeasible. Competition in such cases is short lived, produces inefficient results, and/or consumes more resources than necessary.

For such natural monopolies, competitive market forces do not exist for price setting. Therefore, the prices charged for such services must adhere to principles that protect ratepayers from abuse of market power. In general, price setting rules for public utility monopolies dictate charging the cost to serve the customer plus a reasonable return or margin. A COS analysis is the accepted industry approach to determine the actual cost to serve each customer class. In practice, the ultimate rates charged to customers reflect myriad political, social, economic, and regulatory forces and rarely equate to full COS-based rates. However, understanding the true cost to serve each customer class and assessing actual rates against such costs provides customers, regulators, and stakeholders important information upon which to base decisions.

This Study provides a COS analysis and was performed in accordance with generally accepted industry practices and ratemaking principles for municipal utilities. In support of this Study, Willdan conducted the following primary tasks for each of the four utility systems:

- Reviewed system operational and financial data;
- Established a revenue requirement forecast for a representative Test Year—Fiscal Year (FY) 2019;[5]
- Conducted a COS analysis; and
- Evaluated the ability of existing rate designs by customer class to generate sufficient revenues to meet GRU's revenue requirement, policy and customer service goals.

[5] GRU's fiscal year commences on October 1st and ends on September 30th.

Figure 1 illustrates the steps conducted in support of this Study, described in the sections below.

Figure 1 Study Overview

- STEP 1: Data Collection & Review
- STEP 2: Establish Revenue Requirement
- STEP 3: Conduct COS
  - Functionalize
  - Classify
  - Allocate
- STEP 4: Evaluate Revenue Sufficiency & Rate Designs

1. DATA REVIEW

Willdan conducted a thorough review of GRU system and financial data for each utility system, including, as applicable, retail and wholesale customer characteristics and billings, energy supply costs, generation costs, treatment costs, transmission and distribution costs, and customer service costs to establish the revenue requirements and cost of service by customer class.

2. REVENUE REQUIREMENT DEVELOPMENT

For each utility system, the revenue requirement reflects the amount of money that GRU must collect through rates to serve its customers, maintain its debt service obligations, invest in its system, and provide additional funds required by governing bodies, as appropriate. The revenue requirement is forecast for a Test Year, FY 2019 for this Study, based on recent audited financials adjusted for ***known and measurable changes*** that are expected to occur over the planning horizon. Known and measurable changes are based on quantifiable financial and/or operating adjustments that have occurred or are expected to occur in the near future. For example, if the budget on which the Test Year is based includes a one-time expense that will not occur going forward, such amount would be removed from the Test Year revenue requirement. Similarly, if a new expense will occur in the future planning horizon, for example a new regulatory compliance charge, the Test Year budget would be increased to account for this new expenditure. Typically for inclusion in the revenue requirement, assets and

> **TEST YEAR**
>
> The future annualized period for which the revenue requirement, cost of service, and rates are evaluated. The Test Year is typically based on recent audited financials adjusted for ***known and measurable*** changes that will occur during the forecast horizon.

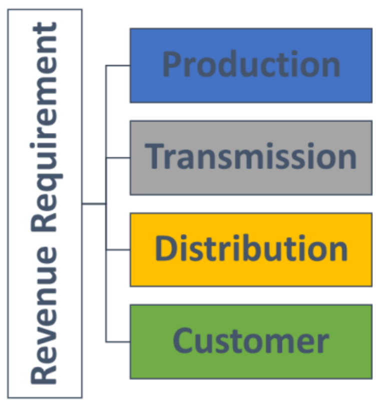
expenditures must be ***used***—placed in service—and ***useful***—prudently incurred, respectively. The revenue requirement is the offset by other (non-rate) revenues and inflows.

3. COST OF SERVICE ANALYSIS

The COS analysis provides the cost to serve each customer class and quantifies how much each customer class should contribute to the revenue requirement. The COS analysis consists of assigning costs to customer classes by performing three activities:

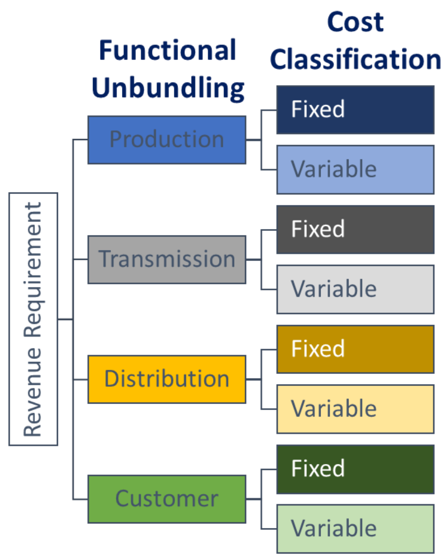
- **Functional unbundling**: dividing the utility system revenue requirement between the major business units or functions as illustrated in Figure 2.

Figure 2 Functional Unbundling Illustration for Electric System



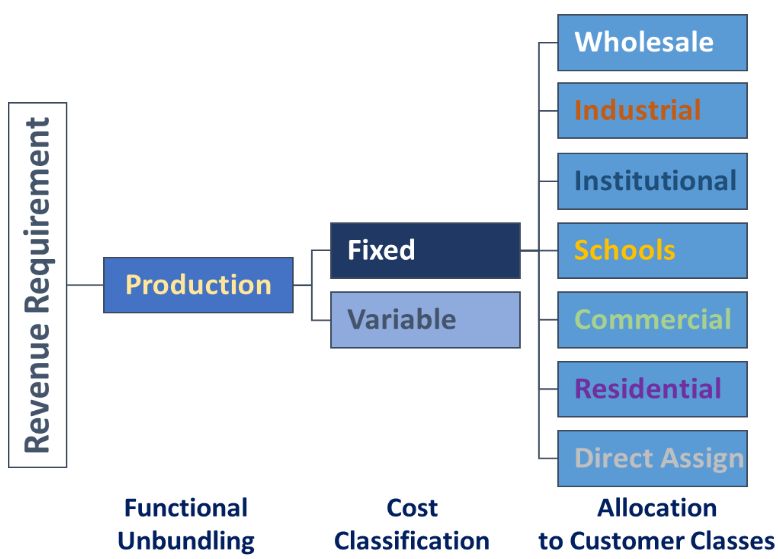
- **Classification**: separating the functionally unbundled costs into variable and fixed components based on cost drivers. Drivers of cost include system demand, energy consumption, and the number of customers being served, among other things. In some cases, costs can be allocated directly to the activity or class creating the cost as in the case of water production or lighting. Figure 3 illustrates how the functionally unbundled revenue requirement is classified.

Figure 3 Cost Classification Illustration for Electric System



- **Allocation**: Assigning costs to customer classes based on cost to serve principles such as consumption, and number of customers, for example, as illustrated in Figure 4.

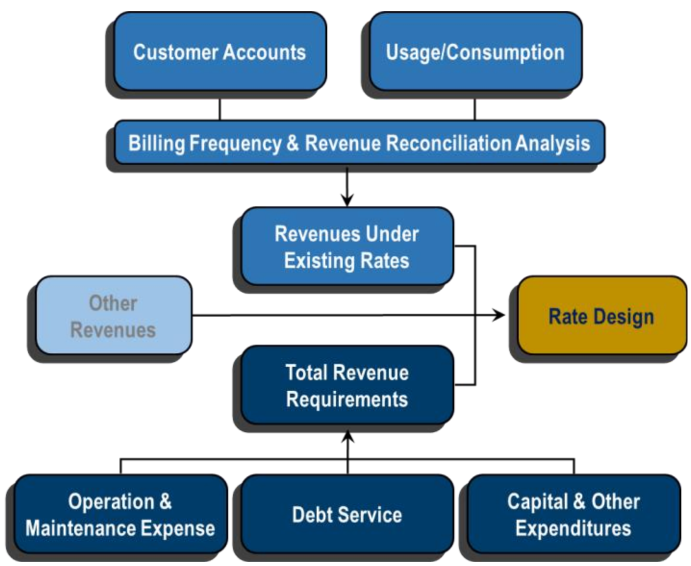
Figure 4 Illustration of Electric System Customer Class Cost Allocation



4. REVENUE SUFFICIENCY AND RATE DESIGN ANALYSES

For each utility system, Willdan evaluated the ability of existing rate designs by customer class to generate sufficient revenues to meet GRU's revenue requirement, policy, and customer service goals. Willdan analyzed historic end-user load and consumption projections and created forecasts for the Test Year based on GRU projections. Willdan compared historical growth trends in GRU's customer base, by customer class, and average use per customer to GRU's forecasts and industry knowledge. Willdan worked with GRU to identify any significant existing, planned, or terminated commercial or industrial loads to ensure the validity of future usage projections. Willdan performed a billing analysis for each system and customer class using the customer statistics (consumption, customers, etc.) by rate class for the Test Year based on the detailed historical database, known and measurable changes in the customer database, and impacts of load management/conservation, among other factors, on the load projection. Existing rates levels, social and economic factors in the community, and expenses incurred by GRU in providing services to its customers were included in the revenue adequacy test performed for each system. Based on this assessment, Willdan forecasted the level of rate revenue generated and compared these amounts to GRU's forecasted revenue. This analysis included comparison of revenues generated from fixed and variable charges to GRU's fixed and variable costs for each utility system and customer class. Figure 5 illustrates the overall Cost of Service rate design process.

Figure 5 Overview of the Revenue Adequacy and Rate Design Process



James C. Bonbright's seminal resource on public utility ratemaking sets forth eight guidelines for desirable rate structures:

1. Practical—simple, understandable, publicly accepted, and feasible to implement;
2. Uncontroversial as to interpretation;
3. Effective in meeting revenue requirements—generate sufficient revenues;

4. Stable from a revenue perspective—generate consistent revenues;
5. Stable from a rate perspective—protect customers from volatility and unpredictability;
6. Fair in apportionment of costs among customer classes;
7. Avoid undue discrimination among rate classes; and
8. Economically efficient—discourage wasteful use of services and promote optimal offerings of services.[6]

All rate designs represent tradeoffs among these eight criteria, some of which are mutually exclusive. For example, contractual obligations may limit the ability to achieve fairness in cost allocation among classes. Similarly, accuracy in cost allocation may result in overly complex rate design or rate designs that are too difficult to implement. Other factors impacting rate design may include:

- Policy directives such as resource conservation
- Social engineering
- Low income customers
- Special rate classes

Willdan's rate design objective was to simplify rate structures and allow GRU to move each customer class toward its respective cost of service (as appropriate). Additionally, Willdan evaluated new or alternative rate structures to meet technological and customer demands while complying with GRU directives for each utility system and customer class, such as tiered rate structures, future projects, demand billing, and time-of-use rates. Rate design considerations included fair and equitable distribution of costs, simplicity, encouraging conservation and the efficient use of the system resources, administrative ease, competitive rates, and avoidance of rate shock for particular customer classes or customers with certain load characteristics.

All rate design recommendations adhered to industry practices such as those established by the American Public Power Association (APPA) and the American Water Works Association (AWWA). Willdan provided recommendations for moving customer classes to COS-based rate levels.

[6] Bonbright, James C. *Principles of Public Utility Rates,* 290-291. New York: Colombia University Press, 1961. Print.

5. LIMITATIONS

This report has been prepared for the use of GRU for the specific purposes identified in the report. The conclusions, observations, and recommendations contained herein attributed to Willdan constitute the opinions of Willdan. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, Willdan has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. Willdan makes no certification and gives no assurances except as explicitly set forth in this Report.

Willdan's contracted Scope of Work included analysis for the Test Year 2019. Information for four additional years has been included for informational purposes.

B. SYSTEM OVERVIEW

The City operates four utility systems[7] collectively known as GRU: Electric, Water, Wastewater and Natural Gas, serving the City, unincorporated Alachua County, and the Cities of Alachua, Hawthorne, High Springs, and Newberry as shown in Figure 6.

Figure 6 Service Territory by Utility System

TERRITORY	ELECTRIC	WATER	WASTEWATER	NATURAL GAS
Gainesville	X	X	X	X
Alachua	X	X		X
Hawthorne				X
High Springs				X
Newberry				X
Unincorporated Alachua County	X	X	X	X

[7] GRUCom, the City's fiber optic utility system, was not part of this Study.

INTRODUCTION AND SUMMARY

1. ELECTRIC SYSTEM

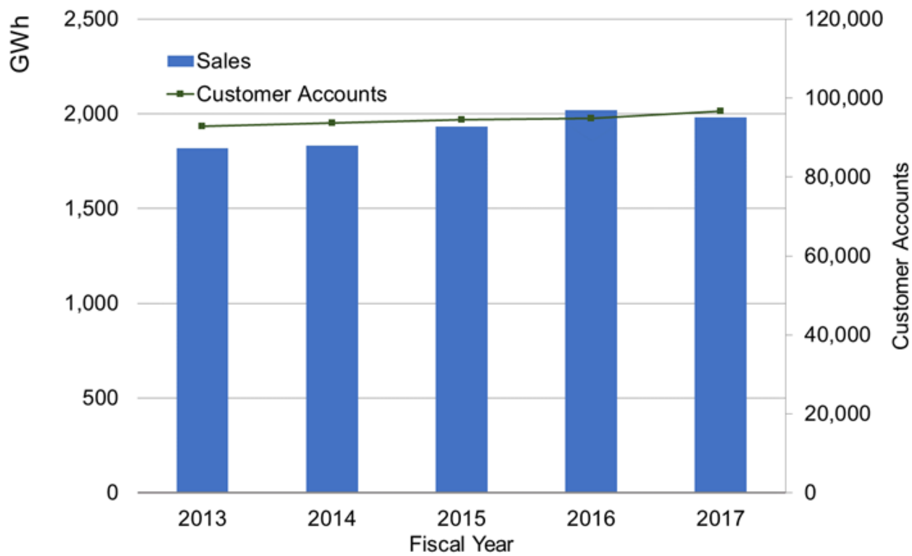
GRU has provided electric service to customers since 1912. GRU's electric system serves retail residential and small, medium, and large business, governmental, and organizational customers. In FY 2017, GRU's retail electric sales were approximately 1,983,038 megawatt hours (MWh) of electricity. The maximum System demand was 437 MW in September 2017. Prior to November 2017, GRU owned and operated one combined cycle combustion turbine, one combined heat and power unit, two simple cycle steam turbines, and five combustion turbines for a total net generation capacity of 549.5 MW in winter months and 520.5 in summer months. In November 2017, the City purchased the biomass facility formerly known as the Gainesville Renewable Energy Center (GREC) for $750 million and renamed it the Deerhaven Renewable Generating Station (DHRGS). The purchase of this facility added 102.5 MW of generating capacity to GRU's system, bringing total owned capacity to 652 MW in winter and 623 in summer.

> In November 2017, the City purchased the **Deerhaven Renewable Generating Station**, formerly known as the Gainesville Renewable Energy Center, for $750 M, adding 102.5 MW of generating capacity to GRU-owned resources.

Most of GRU's 120-circuit-mile bulk transmission network, all but 2.53 miles, is operated at 138 kV with the remainder operated at 230 kV. GRU's electric distribution system is comprised of approximately 1,277 miles of overhead and 1,687 of underground lines, and ten distribution substations including seven loop-fed connections to the 138 kV bulk power network and three served by a single tap to the 138 kV network.

In FY 2017, GRU's retail electric sales were approximately 1,983 gigawatt hours (GWh) of electricity. The maximum System demand was 437 MW in September 2017. Figure 7 provides the historical number of customers and annual retail sales (MWh)[8] for the period FY 2013 to FY 2017.

Figure 7 Electric System Sales and Customers FY 2013-2017



2. WATER SYSTEM

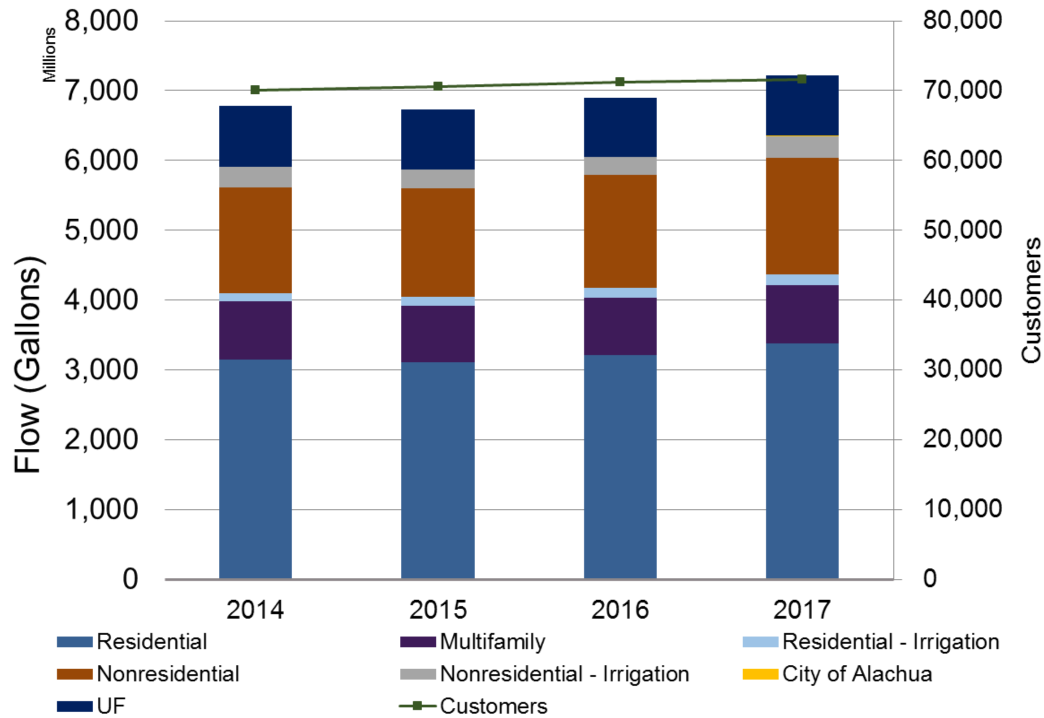
The GRU water system consists of approximately 118 square miles supplied by the Floridan Aquifer (Aquifer) and includes 16 deep wells, vertical turbine pumps, and 18.5 million gallons of storage capacity comprised of pumped ground storage and elevated tanks. The water system currently includes approximately 1,170 miles of lines throughout the Gainesville urban area, including approximately 258 miles of transmission and 912 miles of distribution.[9] The Murphree Water Treatment Plant (Murphree) has a peak day capacity of 54 million gallons per day (GPD) and treats groundwater prior to distribution and eventual use. Murphree's high service pumps, the Santa Fe Repump station, and two elevated storage tanks provide water flow and pressure stabilization throughout the service area.

8 Includes Wholesale sales.

9 Based on information provided by GRU FMIS system. Based on GRU's GIS system data, these amounts are: 1,099 total miles of line, of which 849 miles are distribution, and 250 transmission.

In FY 2017, the water system served an average of 71,661 customers with total flows of approximately 7,224 million gallons as illustrated in **Figure 8**.

Figure 8 Water Flows and Customers FY 2013-2017



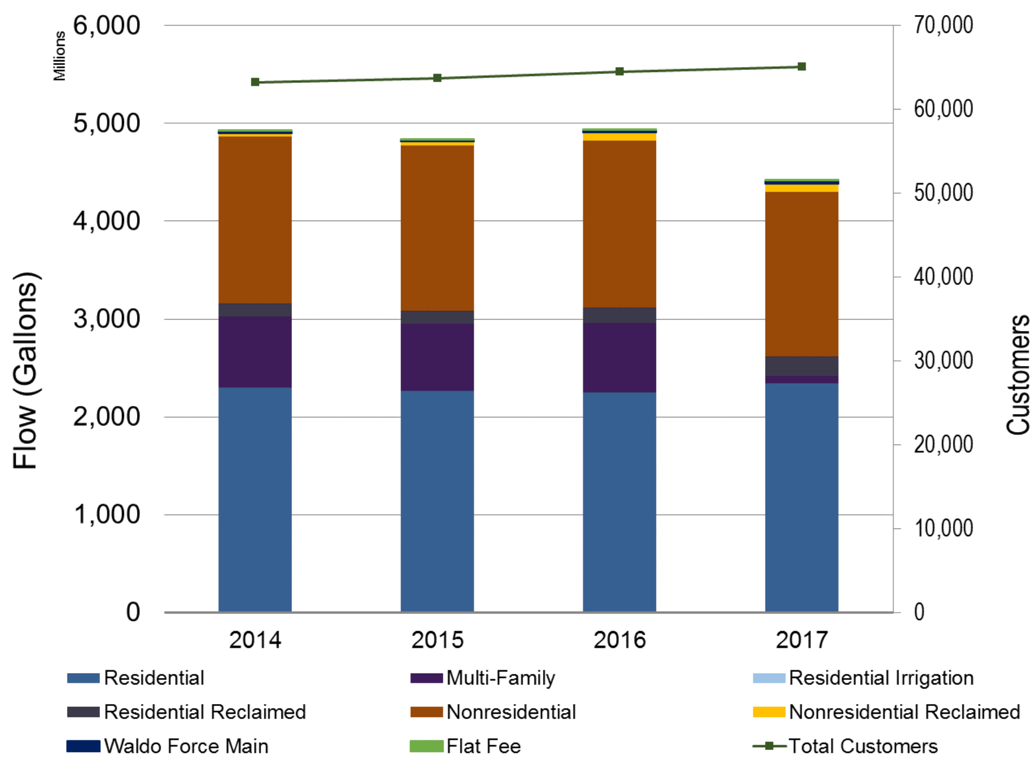
3. WASTEWATER SYSTEM

GRU's wastewater collection system consists of: approximately 629 miles of gravity sewer lines, including 14,991 manholes; and a force main system of 168 pump stations and 139 miles of pipe that route flow to the treatment plant.

GRU's wastewater treatment system includes two major facilities: the Main Street Water Reclamation Facility (Main Street) and the Kanapaha Water Reclamation Facility (Kanapaha). The combined capacity of these plants is 22.4 MGD, on an annual average daily flow (AADF) basis.

In FY 2017, the wastewater system served 65,078 customers with billable treatment flows of 4,418 million gallons, including City of Waldo wholesale volumes, as illustrated in **Figure 9**.

Figure 9 Wastewater Flows and Customers FY 2013-2017



4. NATURAL GAS SYSTEM

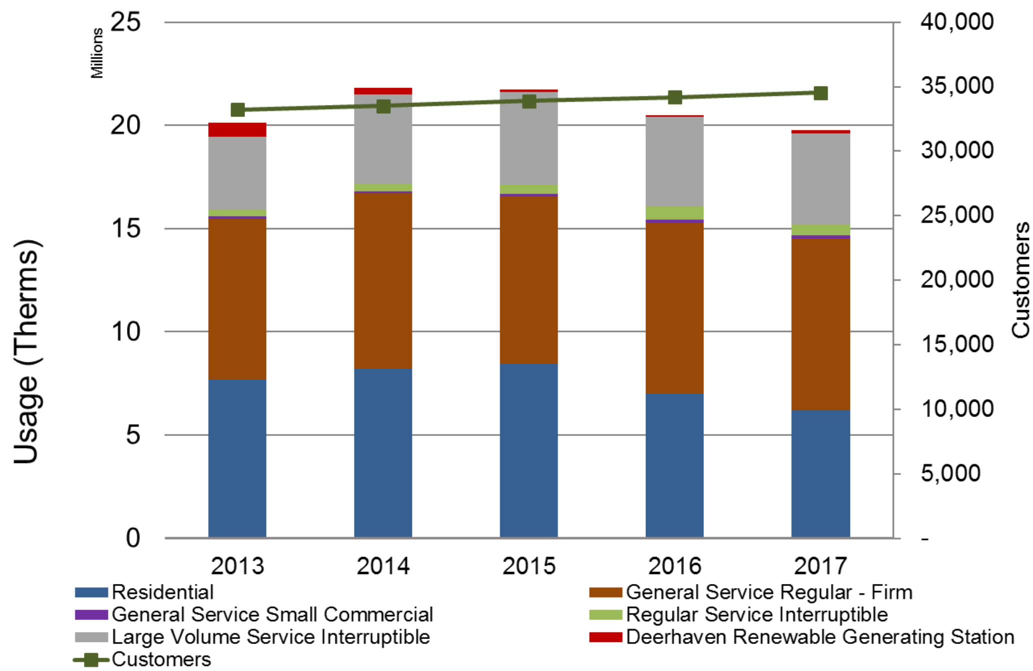
The City acquired the 115-square-mile natural gas system in January 1990. GRU's natural gas system consists of underground gas distribution lines, metering and monitoring equipment, odorant injection systems, liquid propane (LP) systems, and six gate stations at delivery interconnection points with the Florida Gas Transmission Company, LLC (FGT). Liquid propane is used to expand GRU's service territory until natural gas system extensions can be made.

GRU's natural gas supply is managed by the Energy Authority (TEA), who purchases, administers entitlements, and executes physical and financial hedging strategies. The natural gas system peaks in the winter, unlike the electric system, creating opportunities to optimize performance and reliability. Purchased gas is transported by FGT's interstate pipeline.

GRU's natural gas distribution system consists of 741 miles of mains, of which 72% are polyethylene, and 26% are coated steel. The remaining 2% of mains are uncoated steel, cast iron, or black plastic and are steadily being replaced.

Figure 10 provides historic natural gas system usage and customers for FY 2013-2017. The natural gas system served approximately 34,549 customers in FY 2017, including 196 LP customers, with a consumption of 19.8 million therms and 42,422 gallons of LP. The University of Florida (UF) transports natural gas to a cogeneration (cogen) facility over GRU's system. Between FY 2013 and FY 2017, an annual average of 37.6 million therms of third party natural gas were transported by GRU for the UF cogen plant. Approximately 200 LP customers were served in FY 2017. These customers used an annual average of 43,000 gallons of LP between FY 2013 and 2017.

Figure 10 Natural Gas System Usage and Customers FY 2013-2017



C. SUMMARY OF RESULTS

This section presents brief results for each utility system for Test Year 2019.

1. ELECTRIC SYSTEM

Based on Study results for the Test Year 2019, at current rates:

- An overall base rate revenue increase (excluding embedded fuel) of 33% would be required to cover non-fuel, non-purchased power costs, primarily driven by the increased debt service for DHRGS.
- An overall fuel adjustment revenue decrease (including embedded fuel) of 44% would be required to match fuel and purchased power expenditures, primarily driven by the reduction in purchased power costs due to the acquisition of the DHRGS.
- An overall decrease of 7.9% in total rate revenue (base plus fuel adjustment) would be required to match revenue requirements with revenues.

Table 1 shows Test Year (FY 2019) electric system revenues at current, COS, and GRU's proposed (effective February 1, 2018) rates. Test Year revenues at current rates less total revenue requirement yields a surplus of $21.7 million, after incorporating non-rate revenues, surcharge revenues, and other inflows. This amount primarily consists of over collection of fuel adjustment and purchased power costs, approximately $63.6 million, and under collection of revenues associated with all other costs of approximately $42 million. Both components are driven primarily by the DHRGS transaction which moved costs from purchased power to debt service. However, this surplus is reduced to $677,000 based on proposed rates effective February 1, 2018. Proposed rates are discussed in Section II.D.

Table 1 Test Year Electric Revenues at Current, Cost of Service, and Proposed Rates ($000)

	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
CUSTOMER CLASS[10]	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	PROPOSED v. CURRENT	
Residential	$113,443	$116,657	($3,214)	-2.8%	$104,830	($8,614)	-7.6%
Residential PV	$254	$235	$19	8.3%	$236	($18)	-7.1%

[10] For specific information on customer classes refer to Table 17 on page 49; for information on charges refer to Table 18 on page 55.

CUSTOMER CLASS[10]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	PROPOSED v. CURRENT	
GS Non-Demand	$32,354	$24,912	$7,442	29.9%	$29,405	($2,949)	-9.1%
GS Non-Demand PV	$216	$141	$75	53.4%	$196	($20)	-9.4%
General Service Demand	$82,091	$64,684	$17,407	26.9%	$73,893	($8,199)	-10.0%
General Service Demand PV	$1,183	$891	$292	32.7%	$1,067	($116)	-9.8%
Large Power Service	$11,752	$9,129	$2,623	28.7%	$10,469	($1,282)	-10.9%
Large Power Service PV							
Large Power Service PV	$6,390	$4,951	$1,438	29.1%	$5,716	($674)	-10.5%
GS TOD, Non-Demand	$66	$53	$13	24.0%	$60	($6)	-9.5%
GS TOD, Demand	$44	$32	$12	38.7%	$42	($2)	-4.6%
GREC	$606	$-	$606	0.0%	$509	($96)	-15.9%
Kanapaha	$1,375	$1,024	$351	34.3%	$1,219	($155)	-11.3%
Murphree	$2,073	$1,544	$529	34.3%	$1,839	($234)	-11.3%
Lighting, Traffic	$9	$6	$4	66.6%	$9	($1)	-9.1%
Alachua	$8,259	$13,419	($5,160)	-38.5%	$8,259	$-	0.0%
Winter Park	$1,271	$1,833	($562)	-30.7%	$1,271	$-	0.0%
Wheeling – Seminole	$358	$290	$69	23.7%	$358	$-	0.0%
Sub Total	**$261,743**	**$239,799**	**$21,944**	**9.2%**	**$239,376**	**($22,367)**	**-8.5%**
Rental and Street Lighting	7,805	7,805	-	0.0%	7,805	-	0.0%
TOTAL RATE REVENUE	***269,549***	***247,605***	***21,944***	***8.9%***	***247,181***	***(22,367)***	***-8.3%***
Net Total Cost to Serve	247,880	247,880	21,944	0.0%	247,880	-	0.0%
Surplus/(Deficiency)	21,669	(275)	43,888	-7967.9%	(699)	(22,367)	-103.2%
OTHER REVENUES							
Surcharge Revenues	3,457	4,695	(1,238)	-26.4%	4,832	1,375	39.8%
Other Revenues	34,347	34,347	-	0.0%	34,347	-	0.0%
Total Other Revenues	*$37,804*	*$39,039*	*($1,234)*	*-3.2%*			
TOTAL REVENUES	**$307,353**	**$286,647**	**$20,706**	**7.2%**	**$286,361**	**(20,992)**	**-6.8%**
Net Revenue Requirement	*$285,684*	*$285,684*	*$-*	*0.0%*	*$285,684*	*-*	*0.0%*
Total Surplus/(Deficiency)	$21,669	$962	20,706	2151.4%	$677	(20,992)	-96.9%

2. WATER SYSTEM

Based on Study results for the Test Year 2019, at current rates:

- An overall decrease of 7.2% in total rate revenue would be required to match revenue requirements with revenues, however, Willdan recommends no revenue decrease at this time.

Table 2 shows water system revenues for the Test Year, FY 2019, by class at current, COS, and proposed rates. GRU's Test Year revenues at current rates less its total revenue requirement yields a surplus of approximately $2.6 million, after incorporating non-rate revenues, such as surcharge revenues. Proposed rates are discussed in Section III.D.

Table 2 Test Year Water Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS[11]	TEST YEAR WATER REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$19,298	$16,270	$3,029	19%	$19,346	$47	0%
Multifamily	3,399	3,762	(364)	-10%	3,480	81	2%
Residential - Irrigation	1,043	1,882	(839)	-45%	1,049	6	1%
Nonresidential	7,660	6,876	785	11%	7,864	204	3%
Nonresidential - Irrigation	1,634	1,803	(169)	-9%	1,658	24	1%
City of Alachua	12	28	(16)	-58%	13	2	13%
UF On Campus	2,292	2,166	127	6%	2,318	26	1%
UF Off Campus	48	47	1	2%	54	6	12%
TOTAL REVENUES	**$35,387**	**$32,834**	**$2,553**	**8%**	**$35,783**	**$396**	**1%**
Net Revenue Requirement	*$32,834*	*$32,834*	*$0*	*0%*	*$32,834*	*$0*	*0%*
Total Surplus/(Deficiency)	$2,553	$0	$2,553	-	$2,949	$396	15%

3. WASTEWATER SYSTEM

Based on Study results for the Test Year 2019, at current rates:

- An overall increase of 3.2% in total rate revenue would be required to match revenue requirements with revenues.

Table 3 shows revenues at current rates versus revenues at COS rates for the Test Year 2019 by class (based on FY 2019 billing determinants), as well as revenues at Willdan's proposed rates recommended to go into effect October 1, 2018. GRU's Test Year FY 2019 total revenues at current rates less its total revenue requirement yields a deficit of approximately $1.2 million, after incorporating non-rate revenues, such as surcharge revenues. Proposed rates are discussed in Section IV.D.

[11] For information on charges refer to Table 37 on page 94.

Table 3 Test Year Wastewater Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS[12]	TEST YEAR WASTEWATER REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$23,431	$21,653	$1,778	8%	$24,164	$733	3%
Multi-Family	5,252	5,919	(667)	-11%	5,579	327	6%
Residential - Irrigation	391	151	240	159%	405	14	4%
Flat Fee	30	29	1	3%	31	1	3%
Residential Reclaimed	297	1,362	(1,064)	-78%	308	10	3%
Nonresidential	9,934	11,021	(1,087)	-10%	10,605	671	7%
Nonresidential Reclaimed	95	584	(489)	-84%	112	17	18%
Waldo Force Main	144	103	41	40%	149	4	3%
TOTAL REVENUES	$39,574	$40,823	($1,249)	-3%	$41,351	$1,777	4%
Net Revenue Requirement	$40,823	$40,823	$0	0%	$40,823	$0	0%
Total Surplus/(Deficiency)	($1,249)	($0)	($1,249)		$528	$1,777	-142%

4. NATURAL GAS SYSTEM

Based on Study results for the Test Year 2019, at current rates:

- An overall decrease of 2.0% in total rate revenue would be required to match revenue requirements with revenues; Willdan does not recommend a rate decrease.

Table 4 shows revenues at current rates versus revenues at COS rates for the Test Year 2019 by class (based on FY 2019 billing determinants), as well as revenues at Willdan's proposed rates, that equal current rates. GRU's Test Year FY 2019 total revenues at current rates less its total revenue requirement yields a surplus of $447,357, after incorporating non-rate revenues, such as surcharge revenues. Proposed rates are discussed in Section V.D.

[12] For information on charges refer to Table 53 on page 120.

Table 4 Test Year Natural Gas Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS[13]	TEST YEAR NATURAL GAS REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$11,715	$9,251	$2,465	27%	$11,715	$0	0%
Residential - Liquid Propane	122	135	($13)	-10%	122	0	0%
General Service Small Commercial	197	121	$76	63%	197	0	0%
General Service Regular – Firm	6,671	6,937	($266)	-4%	6,671	0	0%
Large Volume Service Interruptible	2,495	3,510	($1,016)	-29%	2,495	0	0%
Regular Service Interruptible	346	302	$43	14%	346	0	0%
UF Cogen	324	1,088	($765)	-70%	324	0	0%
Deerhaven Renewable Generating Station	36	113	($77)	-68%	36	0	0%
TOTAL REVENUES	$21,905	$21,458	$447	2%	$21,905	0	0%
Net Revenue Requirement	$21,458	$21,458	$0	0%	$21,457.80	0	0%
Total Surplus/(Deficiency)	$447	$0	$447		$447	$0	0%

5. CONSOLIDATED SYSTEM

Based on Study results for the Test Year 2019, at current rates:

- An overall decrease of 5.9% in total rate revenue would be required to match revenue requirements with revenues.

Figure 11 presents consolidated Test Year revenues for all four utility systems at current, COS, and proposed rates by residential and non-residential source. **Table 5** summarize the consolidated results for all four utility systems, showing revenues under current, COS, and proposed rates. GRU's Test Year FY 2019 total revenues at current rates less its total revenue requirement yields a surplus of $23.4 million, after incorporating non-rate revenues, surcharge revenues, and other inflows. This amount primarily consists of over collection of revenues within the Electric system of $21.7 million, driven primarily by the DHRGS transaction.

[13] For information on charges refer to Table 68 on page 149.

Figure 11 Test Year Consolidated Revenues at Current, Cost of Service and Proposed Rates

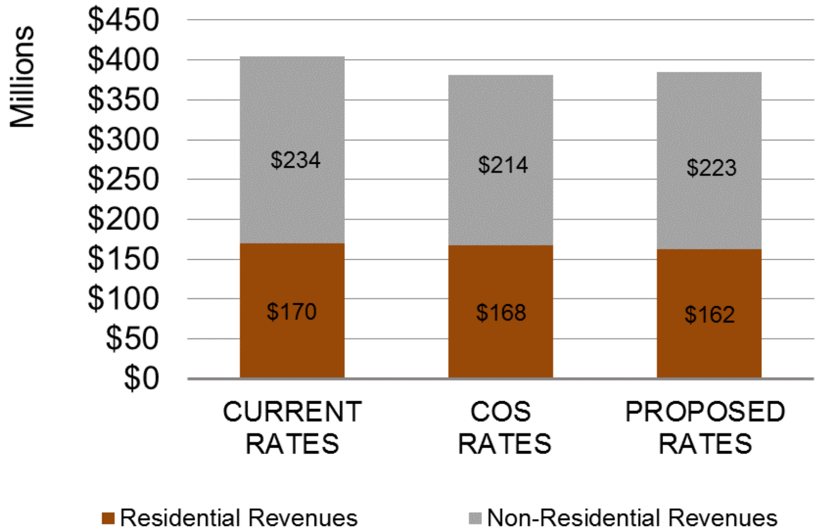


Table 5 Test Year Consolidated Utility Revenues at Current, Cost of Service, and Proposed Rates ($000)

CONSOLIDATED ITEM	TEST YEAR CONSOLIDATED REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential Revenues	$169,994	$167,596	$2,398	1.43%	$162,175	($7,819)	-4.60%
Non-Residential Revenues	$234,225	$214,166	$20,059	9.37%	$223,225	($11,000)	-4.70%
TOTAL REVENUES	$404,219	$381,762	$22,457	5.88%	$385,400	($18,819)	-4.66%
Net Revenue Requirement	***$380,799***	***$380,799***	***$0***	***0.00%***	***$380,799***	***($0)***	***0.00%***
Total Surplus/(Deficiency)	*$23,420*	*$963*	*$22,457*	*2331.98%*	*$4,601*	*($18,819)*	*-80.35%*

D. SUMMARY OF RECOMMENDATIONS

Study recommendations for each utility system follow.

1. ELECTRIC SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Electric Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over time to the extent possible.
2. Change the applicability of the Primary Metering Discount to only the energy portion of the bill (rather than energy plus demand).
3. If additional incentives for conservation and energy efficiency are desired, lower the consumption setpoint for Tier 1 energy for both its Residential and General Service Non-Demand customer classes, with commensurate rate changes to avoid over-collection.
4. Maintain competitive wholesale rates to provide systemwide benefits.
5. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

2. WATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Water Utility System for GRU's consideration:

1. Adopt the proposed water rates and connection charges presented in this Study.
2. Enact the proposed rates to become effective as of October 1, 2018.
3. Phase up the monthly base charge based AWWA meter equivalency factors.
4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

3. WASTEWATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Wastewater Utility System for GRU's consideration:

1. Adopt the proposed water rates and connection charges presented in this Study.
2. Enact the proposed rates to become effective as of October 1, 2018.
3. Phase up the monthly base charge based AWWA meter equivalency factors.
4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

4. NATURAL GAS SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Natural Gas Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over time to the extent possible.
2. Maintain competitive rates to provide systemwide benefits.
3. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

This page intentionally left blank.

Deerhaven at Night

II. ELECTRIC SYSTEM

This Section of the Report presents Study results for GRU's Electric System and is organized as follows. Section A presents system information. Section B presents the COS analysis. Section C presents the rate design. Section D presents results and recommendations.

A. ELECTRIC SYSTEM INFORMATION

This Section of the report provides electric system information including: general, power supply, transmission, distribution, peak demands, and usage characteristics by customer class.

1. GENERAL INFORMATION

GRU has provided electric service to customers since 1912. GRU's electric system serves retail residential and small, medium, and large business, governmental, and organizational customers in the Cities of Gainesville and Alachua and in unincorporated Alachua County. GRU provides electric service to the entire City, except for the UF campus which is served by Duke Energy Florida, Inc. (Duke). The unincorporated areas of Alachua County are also served by Duke, Clay Electric Cooperative, Inc. (Clay), Florida Power and Light Company (FPLC), and Central Florida Electric Cooperative, Inc.

GRU ELECTRIC SYSTEM SERVICE TERRITORY
Gainesville
Alachua
Unincorporated Alachua County

In FY 2017, GRU's retail electric sales were approximately 1,983,038 MWh of electricity. The maximum System demand was 437 MW in summer 2017. Figure 12 provides the historical number of customers and annual retail sales (MWh)[14] for the period FY 2013 to FY 2017, with GRU's projections for FY 2018 through FY 2023.

Figure 12 Electric Customer Accounts and Sales

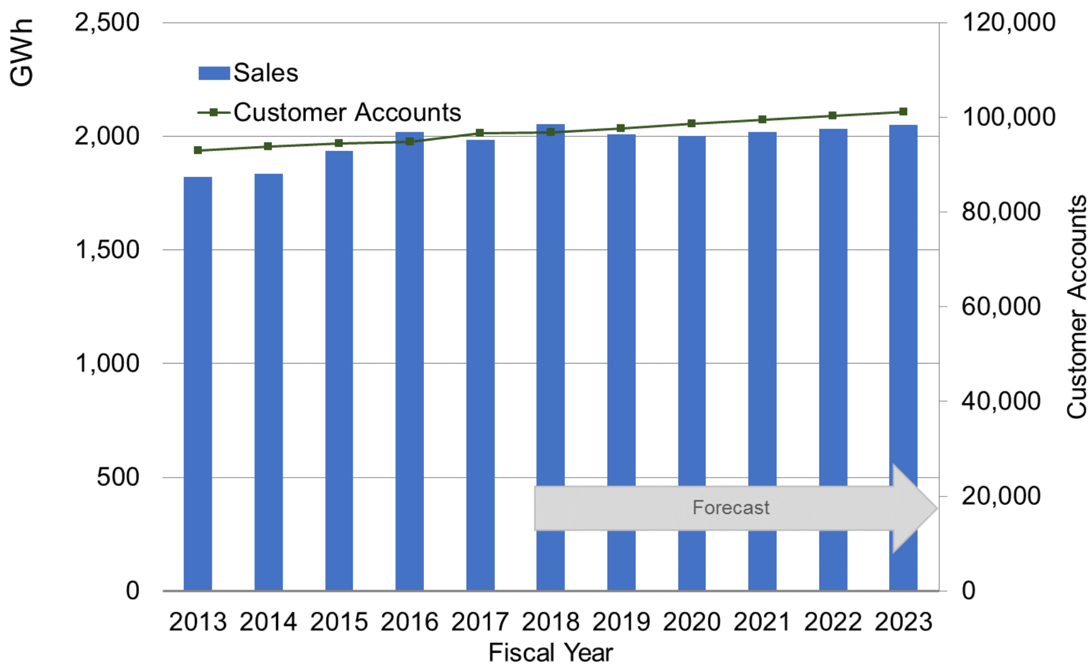
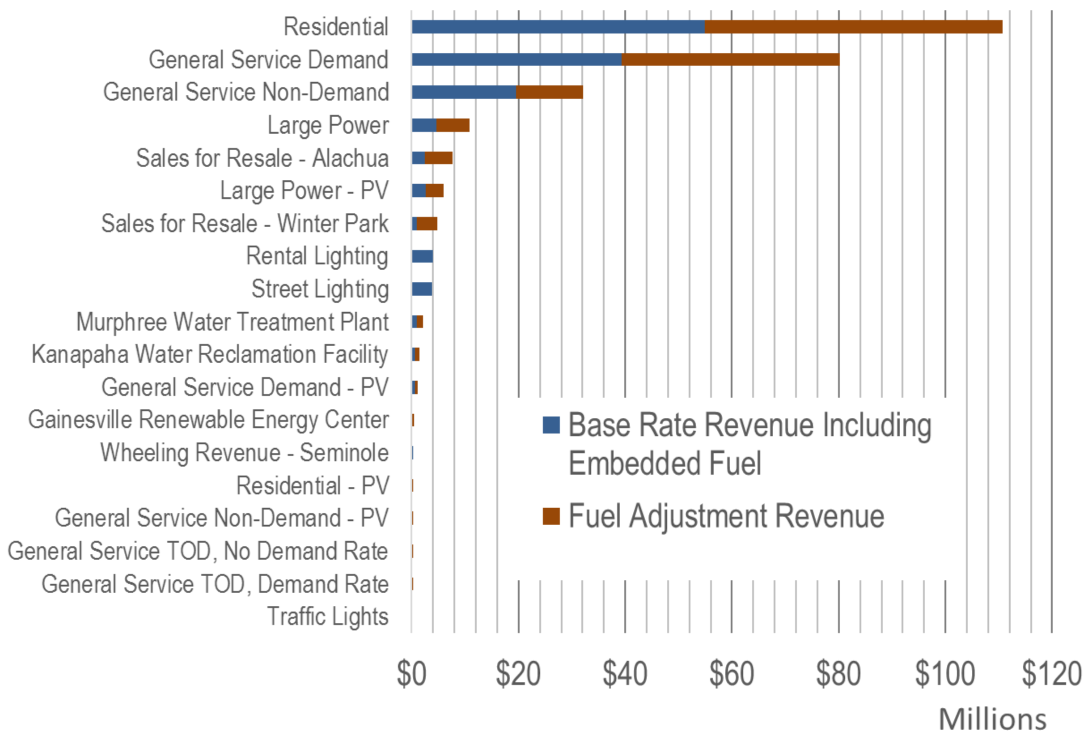


Figure 13 provides GRU's electric operating revenue by customer class, including wholesale customers, for FY 2017. Customers with photovoltaic (PV) distributed solar generation systems are denoted with "PV." Section II(A)(6) on page 30 provides information on customer classes.

14 Includes Wholesale sales.

Figure 13 Electric Revenues by Customer Class FY 2017



2. POWER SUPPLY

Prior to November 2017, GRU owned and operated one combined cycle combustion turbine, one combined heat and power unit, two simple cycle steam turbines, and five combustion turbines for a total net generation capacity of 549.5 MW in winter months and 520.5 in summer months. The $750 million purchase of the GREC facility in November 2017, added 102.5 MW of capacity, increasing GRU's total capacity to 652 MW in winter and 623 in summer. Prior to November 2017, GREC supplied energy to GRU under a long-term power purchase agreement. GRU has re-named the biomass plant DHRGS.

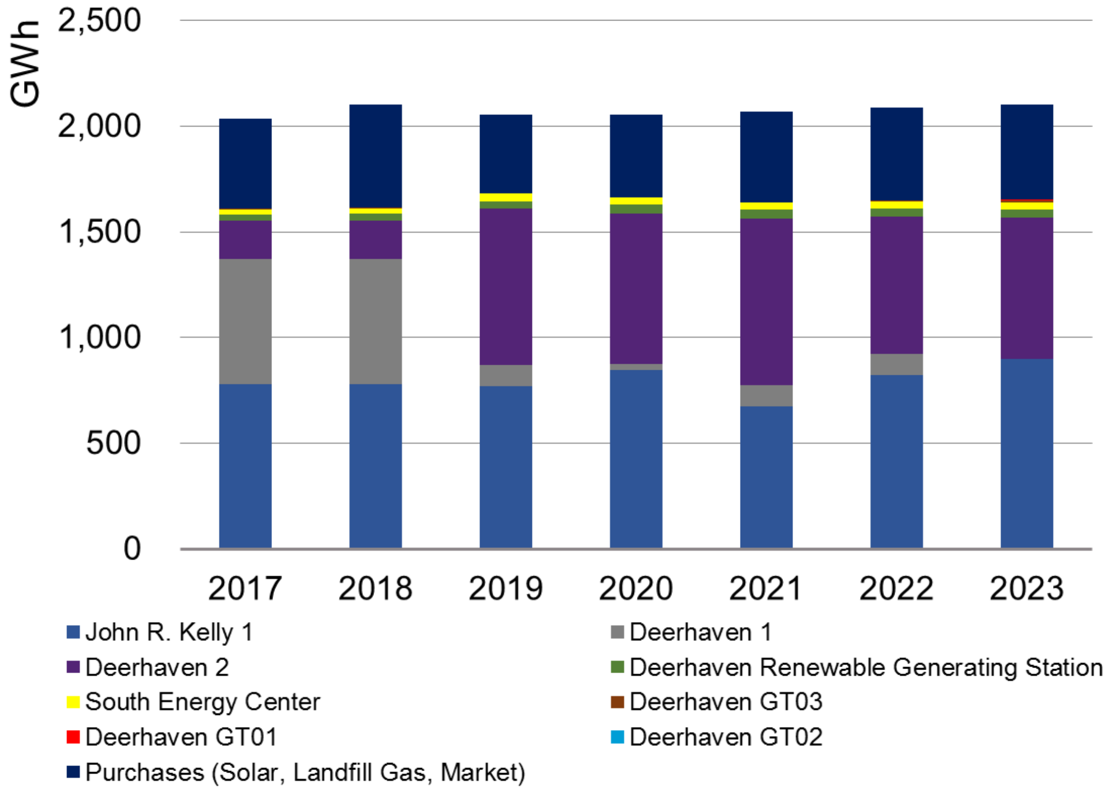
In November 2017, the City purchased the **Deerhaven Renewable Generating Station**, formerly known as the Gainesville Renewable Energy Center, for $750 million. This purchase added 102.5 MW of owned generation capacity to GRU's system.

GRU's natural gas combined cycle unit (a combustion turbine and associated waste heat steam turbine) is located at the J. R. Kelly plant site in downtown Gainesville (referred to here as John R. Kelly 1). The combined heat and power unit is located at the South Energy Center and serves the UF teaching hospital, trauma center, and clinics (referred to as South Energy Center). The Deerhaven generating station located six miles northwest of Gainesville includes two steam turbines, one fueled by bituminous coal (referred to as Deerhaven 1) and one by natural gas (referred to as Deerhaven 2 and expected to be retired in 2022), and three natural gas turbines (referred to as Deerhaven GT01, 02, and 03, respectively).

GRU also purchases energy through: a wholesale power supply contract with TEA; feed-in tariffs; and a contract with a landfill gas facility, representing approximately 14%, 1%, and 1% of FY 2019 forecasted load, respectively.

Figure 14 and Table 6 present the historical (FY 2017) and forecast (FY 2018-FY 2023) energy supply by source for the FY 2017 through FY 2023 period.

Figure 14 Energy Supply by Source (FY 2017-2023)[15]



[15] Deerhaven Renewable Generating Station was purchased by the City in November 2017, prior to which the biomass facility was known as Gainesville Renewable Energy Center or GREC. Deerhaven 1 is expected to be retired in 2022.

Table 6 Energy Supply by Source FY 2017-2023 (MWh)

ELECTRIC SUPPLY SOURCE	2017	2018	2019	2020	2021	2022	2023
John R. Kelly 1	780,131	780,131	771,730	844,341	675,650	822,854	900,467
Deerhaven 1	590,289	590,289	98,551	32,032	100,321	100,359	0
Deerhaven 2	182,695	182,695	741,415	710,536	788,925	649,309	665,206
Deerhaven Renewable Generating Station[16]	28,941	34,000	33,000	41,000	40,000	36,000	40,000
South Energy Center	22,842	22,842	35,040	35,136	35,040	35,040	35,040
Deerhaven GT03	3,542	3,542	625	-	-	2,702	8,943
Deerhaven GT01	962	962	376	99	128	754	1,958
Deerhaven GT02	962	962	210	117	182	570	1,408
Purchases (Solar, Landfill Gas, Market)	423,813	488,428	375,637	390,354	429,618	438,603	449,317
Total	**2,034,177**	**2,103,851**	**2,056,584**	**2,053,615**	**2,069,864**	**2,086,191**	**2,102,339**

3. TRANSMISSION

Of GRU's 120-circuit-mile bulk transmission network, all but 2.53 miles is operated at 138 kV with the remainder operated at 230 kV. The system includes a 138 kV loop connecting GRU's generation facilities, ten distribution substations, three interties with Duke—one 230 kV and two 138 kV—a 138 kV intertie with FPLC, a radial interconnection at Clay's Farnsworth substation, and a loop-fed interconnection with the City of Alachua at Alachua No. 1 substation. Parker Road is GRU's only 230 kV transmission voltage substation.

[16] Ibid.

4. DISTRIBUTION

GRU's electric distribution system is comprised of approximately 1,277 miles of overhead and 1,687 of underground lines (approximately 57% of the total circuit miles including service drops), as shown in Table 7. GRU's ten distribution substations consist of seven loop-fed connections to the 138 kV bulk power network and three served by a single tap to the 138 kV network. GRU's distribution network serves retail customers at 12.47 kV.

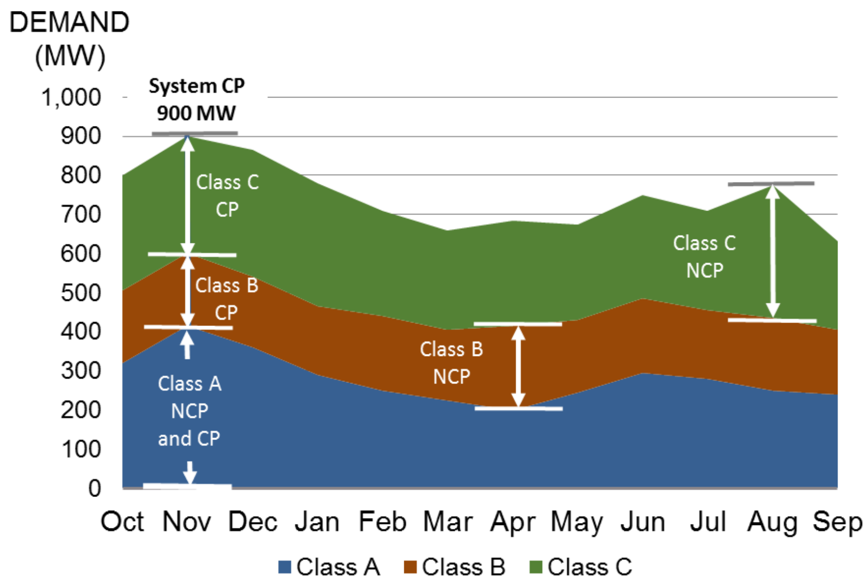
Table 7 Electric Distribution System Circuit Miles

LINE TYPE	CIRCUIT MILES	PORTION OF LINE TYPE	PORTION OF TOTAL SYSTEM
OVERHEAD			
Primary	558	44%	19%
Secondary	479	37%	16%
Service	241	19%	8%
TOTAL OVERHEAD	**1,278**	**100%**	**43%**
UNDERGROUND			
Primary	871	52%	29%
Secondary	432	26%	15%
Service	385	23%	13%
TOTAL UNDERGROUND	**1,687**	**100%**	**57%**
TOTAL SYSTEM	**2,966**		**100%**

5. COINCIDENT AND NON-COINCIDENT PEAK DEMANDS

Coincident peak (CP) and non-coincident (NCP) demand are measures of how each customer class uses the electric system during periods of maximum use. CP demands reflect the contribution of each customer class to the total system maximum demand. All CPs occur at the one time: the time of the total system peak. Non-coincident peak demands reflect the sum of peak demands across all customer class, when each class peak occurs. Therefore, customer class NCP may or may not coincide with the overall system peak demand, as illustrated in Figure 15.

Figure 15 Illustration of Coincident Peak and Non-Coincident Peak Demand



Willdan has estimated CP and NCP demand by customer class using billing and consumption data for FY 2013 through FY 2017. Figure 16 shows how the FY 2017 system CP of 436.8 MW is divided between customer classes.

Figure 16 Coincident Peak by Customer Class FY 2017 (MW)

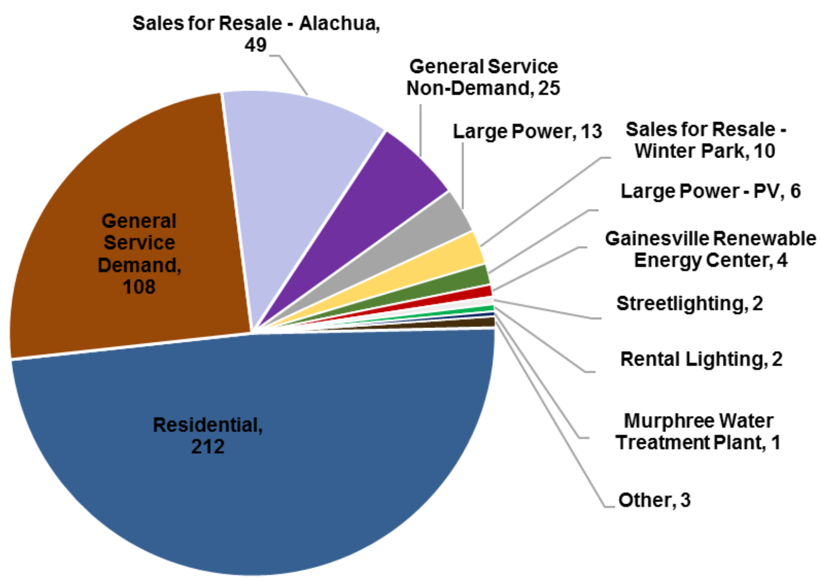


Table 8 shows the historical FY 2017 estimated coincident and non-coincident peaks and load factor for each customer class.

Table 8 FY 2017 Coincident and Non-Coincident Peak and Load Factors

SERVICE CLASS	COINCIDENT PEAK		NON-COINCIDENT PEAK		LOAD FACTOR
	(MW)	%	(MW)	%	%
Residential	212.4	49%	233.4	45%	39%
General Service Demand	108.0	25%	146.3	28%	46%
General Service Non-Demand	49.3	11%	57.6	11%	36%
Sales for Resale - Alachua	25.3	6%	27.9	5%	54%
Large Power	13.2	3%	16.9	3%	60%
Sales for Resale - Winter Park	10.0	2%	10.0	2%	100%
Large Power - PV	6.2	1%	9.4	2%	58%
Gainesville Renewable Energy Center[17]	3.5	1%	8.4	2%	7%
Streetlighting	2.2	1%	3.5	1%	43%
Rental Lighting	2.0	0%	3.2	1%	43%
Murphree Water Treatment Plant	1.4	0%	2.5	0%	79%
General Service Demand - PV	1.5	0%	2.2	0%	44%
Kanapaha Water Reclamation Facility	1.2	0%	1.8	0%	75%
General Service Non-Demand - PV	0.2	0%	0.4	0%	34%
Residential - PV	0.4	0%	0.5	0%	38%
General Service Time of Demand, No Demand Rate	0.1	0%	0.3	0%	15%
General Service Time of Demand, Demand Rate	0.0	0%	0.1	0%	20%
Traffic Lights	0.0	0%	0.0	0%	85%
TOTAL SYSTEM	**436.8**	**100%**	**524.4**	**100%**	**52%**

6. USAGE CHARACTERISTICS BY CLASS

GRU's main customer classes include:

- Residential
- General Service Non-Demand (customers with less than 50kW of demand)
- General Service Demand (customers with between 50 and 1,000 kW of demand)
- Large Power Service (customers with greater than 1,000 kW of demand)

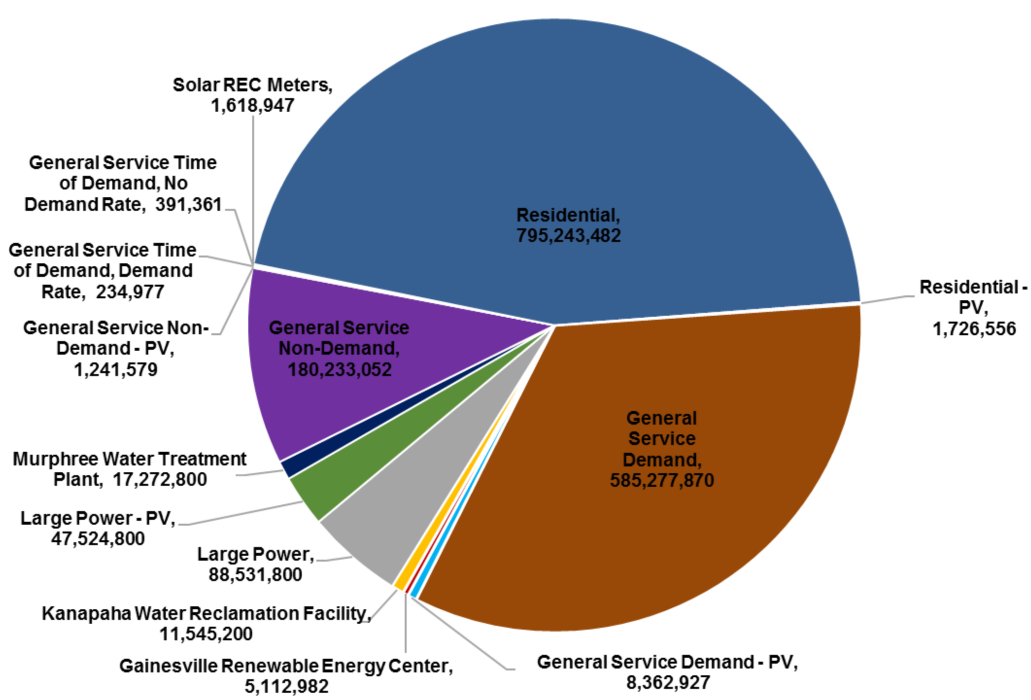
[17] Ibid.

Special rate classes include: GRU's Murphree Water Treatment Plant and Kanapaha Water Reclamation Facility which receive service at Large Power rates plus a curtailment discount; and DHRGS[18] which receives backup and standby power.

GRU offers a time of use rate for the General Service and Large Power Service customer classes, although no customer currently participates in these programs. GRU also has special rate classes for customers with PV solar systems. Throughout this report, these customers are distinguished with a "PV" at the end of the customer class name.

Figure 17 shows energy usage by customer class for FY 2017.[19] Table 9 provides average monthly consumption and number of accounts by customer class for FY 2017.

Figure 17 FY 2017 Energy Usage by Customer Class (kWh)



[18] Additional information on the Deerhaven Renewable Generating Station, formerly known as the Gainesville Renewable Energy Center or GREC, is found in Section II.A.2 on page 25.

[19] The biomass facility known as Gainesville Renewable Energy Center or GREC was purchased by the City in November 2017, and renamed the Deerhaven Renewable Generating Station or DHRGS.

Table 9 FY 2017 Average Monthly Usage per Customer and Accounts

CUSTOMER CLASS	AVERAGE MONTHLY KWH PER CUSTOMER	AVERAGE CUSTOMER ACCOUNTS
General Service Demand	41,493	1,176
General Service Demand - PV	39,320	18
Gainesville Renewable Energy Center[20]	426,082	1
Kanapaha Water Reclamation Facility	962,100	1
Large Power	836,302	9
Large Power - PV	2,027,600	2
Murphree Water Treatment Plant	1,439,400	1
General Service Non-Demand	1,596	9,417
General Service Non-Demand - PV	1,709	61
General Service Time of Demand, Demand Rate	6,023	3
General Service Time of Demand, No Demand Rate	2,933	11
Solar REC Meters	1,274	76
Residential	811	81,871
Residential - PV	671	214

GRU has three lighting customer classes: Streetlighting, Rental Lighting, and Traffic Lights. Streetlighting and Rental Lighting are charged under customer-specific contracts based on the type of fixture. Traffic Lights are billed under the General Service Non-Demand rate schedule.

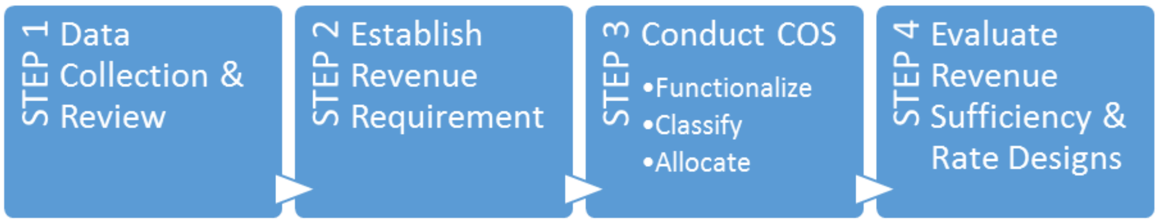
GRU also provides bundled power generation and delivery at the transmission level to two wholesale customers: the City of Alachua and the City of Winter Park. GRU provides approximately 98% of Alachua's energy requirements through a full requirements contract through March 2022. The Study assumes that the City of Alachua will remain a full requirements customer of GRU through the end of the study period, September 30, 2023. The 10 MW contract with the City of Winter Park expires in December 2018, and, for purposes of this Study, these wholesale revenues are excluded from Test Year revenues as of January 2019.

GRU provides transmission wheeling service to Seminole Electric Power Cooperative (Seminole) for delivery of third-party power to Clay's Farnsworth substation which is located within GRU's service territory.

[20] Ibid.

B. ELECTRIC SYSTEM COST OF SERVICE ANALYSIS

The COS process used by Willdan follows industry standards and involves the four basic steps described in Section I.A and illustrated below.



This Section of the Study: presents the current budget and revenue requirement; describes the methodology for establishing the Test Year revenue requirement; identifies the Adjustments made to the Fiscal Year revenue requirement to generate the Test Year revenue requirement; functionally unbundles, classifies, and allocates the Test Year revenue requirement; identifies the Test Year Billing Determinants; and presents the projected revenue requirement and revenue for FY 2019-2023.

1. CURRENT ELECTRIC SYSTEM BUDGET AND REVENUE

Willdan used historical budget data provided by GRU for FYs 2013 through 2017 and forecasted budget data for FY 2019 through FY 2023. The FY 2018 budget numbers developed for FY 2019 were used as the starting point for the Test Year revenue requirement for the COS analysis. Table 10 provides budget and revenue data for FY 2017 through FY 2019.

Table 10 Electric System Budget and Revenue (FY 2017 to FY 2019)

ELECTRIC SYSTEM BUDGET ITEM	2017	2018	2019
Non-Fuel Operating Expenses			
Administrative, General, & Customer Service	$15,510,013	$18,951,130	$19,116,965
Energy Supply	27,132,264	32,203,820	31,937,770
Energy Delivery	15,239,191	14,802,013	14,967,556
System Expenditures	13,506,772	9,665,417	9,955,380
Other Operating Expenses	2,112,853	3,162,699	3,277,767
Total Non-Fuel Operating Expenses	*$73,501,094*	*$78,785,079*	*$79,255,437*
Fuel and Purchased Power Expenses	*$153,733,512*	*$163,387,381*	*$159,030,069*
Other Revenue Requirements			
Existing Debt Service	$38,848,611	$39,887,725	$40,590,842
General Fund Transfer	21,087,237	21,427,278	21,772,102
Utility Plant Improvement Fund (UPIF) CIP Transfer	27,046,177	25,498,577	22,815,410
Total Other Revenue Requirements	*$86,982,025*	*$86,813,580*	*$85,178,354*
Total Revenue Requirements	**$314,216,631**	**$328,986,040**	**$ 323,463,860**
Revenue from Established Rates			

ELECTRIC SYSTEM BUDGET ITEM	2017	2018	2019
Residential Revenue (Net Embedded Fuel)	$47,130,237	$49,669,861	$51,482,573
Non-Residential Revenue (Net Embedded Fuel)	65,885,690	69,388,651	72,134,200
Surcharge Revenue	2,913,109	3,070,214	3,177,803
Sales for Resale (Wholesale to Alachua, Winter Park)[21]	3,388,918	3,678,280	2,933,537
Fuel Adjustment Revenue (With Embedded Fuel)	153,733,512	163,387,381	159,030,069
Total Rate Revenue	*$273,051,466*	*$289,194,387*	*$288,758,182*
Other Revenue Sources and Inflows			
South Energy Center Revenue, Non-Electric	$11,143,019	$15,299,611	$16,752,981
Innovation Square Revenue, Non-Electric	165,000	252,000	346,000
Build America Bonds, U.S. Treasury Cash Subsidy	2,936,015	2,895,091	2,852,048
Other Revenue (includes Seminole Wheeling)	7,320,099	7,937,394	8,254,889
Interest Income	1,176,208	900,307	595,313
UPIF for Debt Service (to)/from	5,000,000	5,000,000	-
Rate Stabilization (to)/from	13,424,825	7,507,250	5,904,445
Total Other Revenue Sources and Inflows	*$41,165,166*	*$39,791,653*	*$34,705,676*
Total Revenue and Inflows	**$314,216,632**	**$328,986,040**	**$323,463,858**
Total Surplus or (Deficiency)	$1	($0)	($2)

In total, all utility revenues and inflows, including base rate, fuel adjustment, and other revenues, are budgeted at $323,463,858 for FY 2019. Revenues requirements are budgeted at $323,463,860, a difference of $2. However, Test Year 2019 revenue requirements, which have been adjusted for known and measurable changes, result in a $20 million revenue surplus. Please refer to Table 11.

2. METHODOLOGY

Willdan created the Test Year using a three-step process. First a statement of expenses for the actual FY 2019 operations using GRU's detailed budget data by cost center was created. GRU provided this information based on its FY 2018 budget. Next, adjustments occurring after October 1, 2017, or known and measurable changes, were identified and quantified. Known and measurable changes impact GRU's costs or revenues and have either occurred or are expected to occur during the Study period (FY 2019 through 2023). Finally, the adjustments were applied to the original budget to create the Test Year FY 2019 values.

For the purposes of this Study, FY 2019 is the Test Year upon which the COS and rate design analyses are based. In addition, projected costs and revenues are shown for FY 2020 through 2023.

[21] As of January 2019, no Wholesale revenues are included for Winter Park.

ELECTRIC SYSTEM

a) Electric System Test Year Revenue Requirement

Table 11 presents the FY 2019 Budget, Adjustments and the resulting Test Year 2019 Budget and Revenues. For each adjustment, an explanation follows in Section II(B)(3).

Table 11 Electric System Test Year Revenue Requirement

CATEGORY	2019	ADJUSTMENTS	TEST YEAR FY 2019
Non-Fuel Operating Expenses			
Administrative, General, & Customer Service	$19,116,965	$3,799,841	$22,916,806
Energy Supply	31,937,770	4,448,047	36,385,816
Energy Delivery	14,967,556	-	14,967,556
System Expenditures	9,955,380	-	9,955,380
Other Operating Expenses	3,277,767	-	3,277,767
Total Non-Fuel Operating Expenses	*$79,255,437*	*$8,247,888*	*$87,503,325*
Fuel and Purchased Power Expenses	**$159,030,069**	**($76,739,658)**	**$82,290,411**
Other Revenue Requirements			
Existing Debt Service	$40,590,842	$30,712,250	$71,303,092
General Fund Transfer	21,772,102		21,772,102
Utility Plant Improvement Fund (UPIF) Transfer	22,815,410		22,815,410
Total Other Revenue Requirements	*$85,178,354*	*$30,712,250*	*$115,890,604*
Total Revenue Requirements	**$323,463,860**	**($37,779,520)**	**$285,684,339**
Revenue from Established Rates			
Residential Revenue (Net Embedded Fuel)	$51,482,573	(1,761,307)	$ 49,721,266
Non-Residential Revenue (Net Embedded Fuel)	72,134,200	(1,525,102)	70,609,098
Surcharge Revenue	3,177,803	278,945	3,456,748
Sales for Resale (Wholesale Alachua, Winter Park)[22]	2,933,537	(0)	2,933,537
Fuel Adjustment Revenue (With Embedded Fuel)	159,030,069	(13,103,518)	145,926,551
Total Rate Revenue	*$288,758,182*	($16,110,983)	$272,647,199
Other Revenue Sources and Inflows			
South Energy Center Revenue, Non-Electric	$16,752,981		$16,752,981
Innovation Square Revenue, Non-Electric	346,000		346,000
Build America Bonds, U.S. Treasury Cash Subsidy	2,852,048		2,852,048
Other Revenue (includes Seminole Wheeling)	8,254,889		8,254,889
Interest Income	595,313		595,313
UPIF for Debt Service (to)/from	-		-
Rate Stabilization (to)/from	5,904,445		5,904,445
Total Other Revenue Sources and Inflows	*$34,705,676*		*34,705,676*
Total Revenue and Inflows	**$323,463,858**	**($16,110,983)**	**$307,352,875**
Total Surplus or (Deficiency)	*($2)*	*$ 21,668,537*	*$21,668,536*

[22] The Wholesale contract with Winter Park ends in December 2018 and, therefore no revenues from this contract are included in calendar year 2019.

b) Cost of Power

Willdan developed the cost of power using GRU's projections of energy supplied (MWh) from its generation resources, market purchases, landfill gas purchases, and solar feed-in tariff purchases as well as projections for the associated fuel costs and purchase prices. Willdan did not adjust GRU's projections of energy by source or price.

c) Debt Service

Annual debt service information through FY 2023 was provided by GRU and follows management's expectations of future debt issuances and associated debt service, including long-term bond and commercial paper issuances. Willdan reviewed this data to determine reasonableness, however, no in-depth analysis of the debt plan was conducted and no adjustments to the debt plan were made in terms of size of debt, timing, interest rates, or other parameters.

d) Capital Improvement Program

GRU's capital improvement plan includes debt-funded and revenue-funded expenditures for energy supply, energy delivery, and special projects. For Test Year FY 2019, GRU plans approximately $53.7 million in capital improvement projects, with $22.8 million of those funded by revenues and the remaining funding by debt.

e) Cash Reserves

GRU maintains a rate stabilization fund, with a balance of $74.2 million at the end of FY 2016 according to its Financial Statements, that can be used by all utilities: electric, water, wastewater, and natural gas. GRU has budgeted for an inflow from the rate stabilization fund of $5.9 million for FY 2019. Willdan has retained this inflow in its Test Year projections, however, for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other electric utility funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for those years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is a generally-accepted industry practice.

3. FISCAL YEAR, ADJUSTMENTS, AND TEST YEAR

Table 11 on page 35 above presents the FY 2019 Budget, Adjustments, and the resulting Test Year 2019 Budget. Each adjustment is described below.

a) Administrative, General, And Customer Service Adjustment

The administrative, general, and customer service cost was adjusted upward to reflect expected increased spending for the One SAP initiative. The original budget of $19.1

million included $3.7 M for the One SAP initiative. This estimate was increased by $3.8 million resulting in total One SAP expenditures of $7.5 million for Test Year 2019 and total administrative, general, and customer service expenditures of $22.9 million.

b) Energy Supply Adjustment

The FY 2019 budgeted amount for the cost of power was $31.9 million. These costs are expected to increase due to the acquisition of the DHRGS. In addition, the natural gas expense for the South Energy Center had incorrectly been included in the budget resulting in a decrease in this cost item. A total adjustment of $4.4 million was made to the Energy Supply cost to cover both these items.

c) Fuel and Purchased Power Expenses Adjustment

Purchased power costs, recovered through the fuel adjustment charge, are expected to decrease significantly due to the acquisition of the DHRGS. A reduction of $76.7 million was made for the Test Year to reflect the elimination of these purchased power costs.

d) Debt Service Adjustment

Budgeted debt service for FY 2019 was $40.6 million. These costs will increase due to the recent bond issuance made to fund the acquisition of the DHRGS. An increase of $30.7 million was made to reflect the additional debt service obligations for the Test Year.

e) Base Rate Revenue Adjustments

Base rate revenues were adjusted to reflect inflows at expected FY 2019 billing determinants times current rates, effective October 1, 2017, resulting in an overall decrease in revenues of $3 million, including surcharges.

f) Fuel Adjustment Revenue Adjustments

The Fuel Adjustment Charge revenue has been changed to account for the impact of Test Year billing determinants, resulting in a decrease of $13 million in this component.

g) Overall Impact of Adjustments

For Test Year 2019, total base rate revenues are deficient by 20.6% while fuel adjustment revenues are excess by 77.3% of revenue requirements. From a total rate perspective, at current rates and based on the assumptions described above, GRU would over-collect approximately 7.6% of its Test Year revenue requirements. Existing rates would have to be lowered approximately 7.9% to have revenue inflows equal expenditure outflows, absent other adjustments.

4. FUNCTIONAL UNBUNDLING, CLASSIFICATION, AND ALLOCATION

The Test Year revenue requirement was then functionally unbundled, classified, and allocated to customer class to determine the cost of service by rate class.

a) Functional Unbundling of Electric System Revenue Requirement

GRU costs were unbundled into Production, Transmission, Distribution, and Customer functions—the primary services provided by GRU's electric utility to its retail and wholesale customers.

Other revenue sources and inflows were also functionalized according to causation and used to reduce the revenue requirement by functional component. For example, revenues from South Energy Center and Innovation Square associated with chilled water and steam sales were functionalized as Production, and used to reduce the Production-related revenue requirement. Surcharge revenues were direct assigned to each customer class based on collections for each class. Other revenues and inflows were functionalized using allocators such as Total Gross Plant or Total revenue requirement by function. The results of the functional unbundling are summarized in Table 12.

Table 12 Functional Unbundling of Electric System Test Year Revenue Requirement

ELECTRIC COST COMPONENT	TEST YEAR FY 2019
Bundled Revenue Requirements	$285,684,339
Less Other Revenue Sources and Inflows (Without Seminole Wheeling)[23]	(37,804,228)
Total Revenue Requirements	**$247,880,111**
Functionally Unbundled Revenue Requirements	
Production	$183,282,807
Transmission	5,420,085
Distribution	46,371,490
Customer	12,805,729
Total Revenue Requirements	**$247,880,111**

[23] Wheeling revenues received from Seminole have been removed from other revenues (which reduce or offset the revenue requirement) to align rate revenues and expenses for purposes of the COS analysis. Absent this adjustment, the COS results would result in an under collection of the revenue requirement.

b) Classification of Fixed, Variable, And Direct Assign

Functionally unbundled utility costs can be classified into four generally accepted ratemaking cost classifications: (i) demand or fixed costs; (ii) energy or variable costs; (iii) customer-related costs; and (iv) directly assignable costs. Each of these classifications is discussed below.

- **Demand Costs:** Demand (fixed- or capacity-related) costs are those costs incurred to maintain a utility system in a state of readiness to serve, enabling it to meet the total combined demands of its customers. Demand costs include that portion of operating and maintenance expenses, debt service, capital expenditures, and other costs such as labor, which are generally fixed and do not vary materially with the quantity of usage or which cannot be designated specifically as a customer cost, a variable cost, or a directly assignable cost.
  - For this study, production fixed costs were classified between demand and energy using the Peak and Average method, which considers both average and peak load as cost drivers. Under this method, the demand portion of production fixed costs was calculated by dividing the system annual CP and by the sum of the CP plus average demand [CP / (CP + average demand)]. Under this method, 66% of fixed production costs were classified as demand, and the remaining 34% as energy.
  - For classification of distribution costs that have both customer and demand attributes, a proxy Minimum Size method was used. The Minimum Size method, an industry standard, relies on several assumptions that may or may not prove feasible in real-world applications. Notwithstanding this limitation, the Minimum Size method is widely accepted for classification purposes and has been used for this Study. The foundational assumption of this method is that a minimum sized distribution system could be built, to serve the minimum loading requirements of customers, by identifying the minimum installed components (e.g., pole, conductor, etc.). The average installed cost of this hypothetical minimum distribution system by component is then used to apportion costs to the customer component with the balance allocated to demand. For this study, the resulting split of shared distribution costs was 25% to customer and 75% to demand.
- **Energy Costs:** Energy or variable costs vary directly with energy usage, including such items as fuel, energy-related purchased power, and some maintenance expenses (those maintenance expenses not associated with fuel or labor).
- **Customer Costs:** Customer costs are those costs directly related to the number and type of customers, such as customer accounting and billing, service drop, and meter-related expenses.

- **Direct Assignment Costs:** Direct assignment costs are those costs that are readily identifiable and applicable to a particular customer or customer class.

The functionally unbundled classified Test Year revenue requirement appears in Table 13.

Table 13 Classified Functionally Unbundled Electric System Test Year Revenue Requirements

ELECTRIC CATEGORY	TEST YEAR FY 2019
Production	
Demand	$59,291,883
Energy	123,990,924
Total Production	*$183,282,807*
Transmission	
Demand	$4,978,764
Direct Assign Alachua Transmission[24]	441,320
Total Transmission	*$5,420,085*
Distribution	
Demand	$28,249,194
Energy	12,030,563
Direct Assign Lighting	6,091,733
Total Distribution	*$46,371,490*
Customer	$12,805,729
Total Revenue Requirement	**$247,880,111**

c) Allocation to Customer Classes

The classified, functionally unbundled Test Year revenue requirement was then Allocated to customer class using industry accepted allocators as discussed below.

- **Demand Allocation Factors:** Demand allocation factors were designed to reflect the cost responsibility of the various customer classes with respect to the revenue requirement components determined to be demand-related. For purposes of this Study, two types of demand allocators were used based on: CP and NCP.
  - Demand-related production and transmission costs were allocated using 12 CP (twelve months of coincident peak values by class). Class contribution to the system's CP is the primary driver of demand-related power and transmission costs

[24] Alachua is served by a dedicated substation.

and 12 CP recognizes GRU's load diversity. FERC typically recommends the use of 12 CP or 4 CP unless system characteristic dictate otherwise.

- Primary distribution costs are generally allocated based on NCP demand, or multiple NCP demands, because distribution facilities are typically sized to meet the localized customer demands. For substation and transformer related distribution costs, 12 NCP was used. For primary and secondary system costs, 4 NCP at primary and secondary levels was used.

- **Energy Allocation Factors:** Net energy for load (NEFL), or kWh sales by customer class, was used to allocate energy costs to individual customer rate classes. The use of NEFL recognizes that energy losses are inherent in the delivery of power. For this Study, GRU provided estimates of the power losses for its primary and secondary systems. For fuel and purchased power costs, kWh sold at meter was used as an allocator because the fuel and purchased power costs are recovered through a fuel adjustment charge that will remain the same for all customers. For fixed and variable operations and maintenance costs, NEFL incorporating secondary losses was used as an allocator.

- **Customer Allocation Factors:** Customer costs are defined as those costs related to the number of customers and the type of service required. Included in the customer-related costs are the costs associated with transformers, customer connections or service drops, meter reading, customer service, sales, billing, collection, and other customer-related accounting activities. Additionally, a portion of the distribution system costs are related to the number of customers served by the utility. For all but customer accounting, customer allocation factors were based on the number of customers in each class. For customer accounting-related costs, an energy-weighted customer allocation factor was used. This weighting reflects that servicing certain types of customers, in particular large and wholesale customers, requires more effort and expense.

Allocation of the classified, functionally unbundled electric system Test Year revenue requirements appears in Table 14.

Table 14 Test Year Electric System Revenue Requirements Functionalized, Classified, and Allocated to Customer Class ($000)

CUSTOMER CLASS	RESIDENTIAL ($000)		GENERAL SERVICE NON-DEMAND ($000)		GENERAL SERVICE DEMAND ($000)		LARGE POWER ($000)		OTHER RATE CLASSES[25]	TOTAL
COMPONENT	**Regular**	**PV**	**Regular**	**PV**	**Regular**	**PV**	**Regular**	**PV**	**($000)**	**($000)**
Demand										
Production	$28,159	$39	$7,089	$29	$15,843	$208	$1,844	$971	$5,070	$59,251
Transmission	2,245	3	566	2	1,260	16	147	77	1,103	5,420
Distribution	14,094	27	3,346	18	8,501	126	930	561	6,737	34,340
Total Demand	*$44,497*	*$69*	*$11,001*	*$50*	*$25,604*	*$350*	*$2,920*	*$1,609*	*$12,910*	*$99,010*
Energy										
Production	$51,816	$111	$11,464	$79	$37,992	$530	$6,054	$3,260	$12,725	$124,032
Total Energy	*$51,816*	*$111*	*$11,464*	*$79*	*$37,992*	*$530*	*$6,054*	*$3,260*	*$12,725*	*$124,032*
Customer										
Distribution	10,469	27	1,201	8	150	2	1	0	173	12,032
Customer	9,826	25	1,249	8	973	13	140	76	495	12,806
Total Customer-	*$20,295*	*$52*	*$2,451*	*$16*	*$1,123*	*$15*	*$142*	*$76*	*$667*	*$24,838*
TOTAL	**$116,609**	**$232**	**$24,916**	**$145**	**$64,718**	**$895**	**$9,116**	**$4,946**	**$26,303**	**$247,880**

5. FY 2019-2023 ELECTRIC SYSTEM BILLING DETERMINANTS

The electric system billing determinants for the Test Year FY 2019 were determined using GRU's customer class energy forecast (MWh) and system peak demand (MW) forecast for its FY 2018 budget. Annual forecast numbers were applied to individual customer classes on a monthly basis, while respecting load factor, monthly energy and demand profiles, and coincident to non-coincident ratios. Table 15 presents billing determinants by customer class for the Test Year.

[25] Includes General Service Time-of-Demand both Demand and Non-Demand classes, Murphree Water Treatment Plant, Kanapaha Water Reclamation Facility, Lighting—Rental, Street and Traffic, Alachua and Winter Park Sales for Resale, and Seminole Power Cooperative Wheeling.

Table 15 Test Year Electric System Billing Determinants by Customer Class

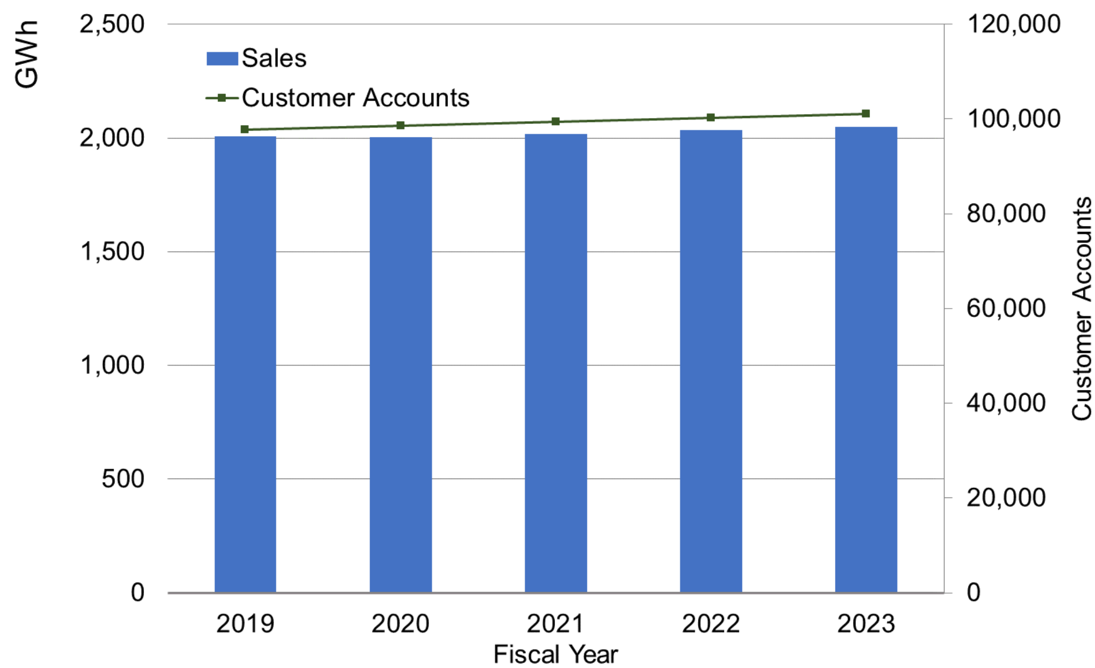
CUSTOMER CLASS	ANNUAL LOAD (MWH)	COINCIDENT PEAK DEMAND (MW)	NON-COINCIDENT PEAK DEMAND (MW)	AVERAGE CUSTOMER ACCOUNTS
General Service Demand	607,288	109.8	148.6	1,176
General Service Demand - PV	8,677	1.5	2.2	18
Gainesville Renewable Energy Center[26]	6,136	4.2	9.9	1
Kanapaha Water Reclamation Facility	11,545	1.1	1.7	1
Large Power	96,192	14.1	17.9	9
Large Power - PV	51,637	6.6	10.0	2
Murphree Water Treatment Plant	17,273	1.4	2.5	1
General Service Non-Demand	184,335	49.3	57.7	9,417
General Service Non-Demand - PV	1,270	0.2	0.4	61
General Service Time of Demand, Demand	235	0.0	0.1	3
General Service Time of Demand, Non-Demand	391	0.1	0.3	11
Residential	834,475	218.3	239.8	81,871
Residential - PV	1,812	0.4	0.5	214
Rental Lighting	11,995	2.0	3.2	1,295
Streetlighting	12,895	2.1	3.4	15
Traffic Lights	54	0.0	0.0	2
Sales for Resale - Alachua	142,029	26.7	29.5	1
Sales for Resale - Winter Park[27]	22,090	-	10.0	1
TOTAL	2,010,328	437.7	537.8	94,099

[26] Refer to Footnote 15 on page 26.

[27] Refer to Footnote 22 on page 35.

Figure 18 presents electric system sales and customer accounts for the Study period (FY 2019 to 2023).

Figure 18 Electric System Sales and Customer Accounts (FY 2019-2023)



6. FY 2019-2023 PROJECTED ELECTRIC REVENUE REQUIREMENT & REVENUES AT CURRENT RATES

Using the billing determinants developed for FY 2019 through FY 2023, Willdan calculated annual FY revenues at current rates and compared them against cost projections. This comparison informs the expected base and fuel adjustment rate increases/decreases required over time to meet projected revenue requirements. Table 16 shows the revenue requirement and associated rate revenue at current rates for the FY 2019 through FY 2023 period.

Table 16 Electric System Revenue Requirement and Revenues at Current Rates for FY 2019-2023 ($000)

ELECTRIC BUDGET COMPONENT ($000)	2019	2020	2021	2022	2023
Non-Fuel Operating Expenses					
Administrative, General, & Customer Service	$22,917	$27,671	$19,819	$16,025	$16,206
Energy Supply	$36,386	$36,404	$38,123	$43,282	$44,787
Energy Delivery	$14,968	$15,334	$15,712	$16,100	$16,500
System Expenditures	$9,955	$10,254	$10,562	$10,879	$11,205
Other Operating Expenses	$3,278	$3,331	$3,385	$3,440	$3,496
Total Non-Fuel Operating Expenses	*$87,503*	*$92,995*	*$87,600*	*$89,725*	*$92,194*
Fuel and Purchased Power Expenses	$82,290	$87,000	$92,395	$91,384	$94,436
Other Revenue Requirement	$-	$-	$-	$-	$-
Existing Debt Service	$71,303	$78,191	$75,686	$75,324	$76,334
General Fund Transfer	$21,772	$22,122	$23,176	$24,086	$24,390
Utility Plant Improvement Fund (UPIF) Transfer	$22,815	$24,215	$24,940	$26,056	$26,982
Total Other Revenue Requirement	*$115,891*	*$124,528*	*$123,802*	*$125,466*	*$127,706*
Total Revenue Requirement	**$285,684**	**$304,522**	**$303,797**	**$306,575**	**$314,335**
Revenue from Established Rates					
Residential (Net Embedded Fuel)	$49,721	$50,033	$50,340	$50,641	$50,936
Non-Residential (Net Embedded Fuel)	70,609	71,169	71,708	72,263	72,819
Surcharge Revenue	3,457	3,483	3,508	3,533	3,558
Sales for Resale (Wholesale Alachua)[28]	2,934	2,711	2,772	2,832	2,890
Fuel Adjustment (With Embedded Fuel)	145,927	146,061	147,141	148,229	149,306
Total Rate Revenue	*$272,647*	*$273,457*	*$275,470*	*$277,497*	*$279,509*
Other Revenue Sources and Inflows					
South Energy Center Revenue, Non-Electric	$16,753	$16,860	$16,969	$17,080	$17,193
Innovation Square Revenue, Non-Electric	346	353	360	367	374
Build America Bonds, U.S. Treasury Cash Subsidy	2,852	2,807	2,759	2,706	2,651
Other Revenue (includes Seminole Wheeling)	8,255	8,585	8,928	9,286	9,657
Interest Income	595	421	400	400	401
UPIF for Debt Service (to)/from	0	0	0	0	00
Rate Stabilization (to)/from	5,904				
Total Other Revenue Sources and Inflows	*$34,706*	*$29,026*	*$29,416*	*$29,839*	*$30,276*
Total Revenue and Inflows	**$307,353**	**$302,483**	**$304,886**	**$307,336**	**$309,785**
Total Surplus or (Deficiency)	**$21,669**	**($2,039)**	**$1,089**	**$760**	**($4,550)**
Difference from Revenue Requirement	7.6%	-0.7%	0.4%	0.2%	-1.4%
Difference from Current Rates	7.9%	-0.7%	0.4%	0.3%	-1.6%

[28] Refer to Footnote 22 on page 35.

C. ELECTRIC SYSTEM RATE DESIGN

This section presents: the Study approach to rate design, GRU's current retail electric rate structures, and GRU's current wholesale rate structures.

1. APPROACH

The first step in the rate design process is to determine the cost to serve each customer class based on energy/consumption, demand/fixed cost, and customer service. This information was obtained through the COS analysis discussed above. In addition to the COS analysis, various considerations drive the rate design process including existing rate structures, magnitude of required changes, and elasticity of demand, as well as traditional principles as discussed in Section I.A.4 on page 6. The existing rate structure is important because customers are accustomed to it; rate design changes could result in sudden and unexpected cost increases, negatively impacting customers. Public policy decisions can also: influence rate design; dictate class cross subsidies; impact the level of fixed (such as the customer charge) versus variable or consumption-based charges (such as the energy charge), and determine the period over which new rates are implemented. Finally, rates should be designed to send proper pricing signals to consumers, while taking into account the degree to which rate levels influence consumption (positively and negatively). However, for purposes of this Study, the most critical driver for rate design was to ensure revenue adequacy: that proposed rates generate adequate revenue to meet the financial needs of GRU.

2. RETAIL RATE STRUCTURE

This section discusses GRU's current rate structures for retail customers and compares them to the cost-based rates derived from the COS analysis.

a) Current Rates

GRU currently has four main customer classes:

- Residential
- General Service Non-Demand (customers with less than 50 kW of demand)
- General Service Demand (customers with between 50 and 1,000 kW of demand)
- Large Power Service (customers with greater than 1,000 kW of demand)

GRU has special rate classes for the Murphree Water Treatment Plant as well as the Kanapaha Water Reclamation Facility.

An overview of current rate designs for these four and the special rate classes follows.

- **Residential:** GRU's Residential class rates consist of three components: a monthly customer charge ($14.25 per customer per month), a base rate consisting of a monthly inclining block energy rate with two tiers; and a fuel adjustment charge. The base rate of 4.4 cents per kWh applies to the first 850 kWh of consumption per month, and increases to 6.6 cents per kWh for all consumption over 850 kWh. A portion of fuel expenses is embedded in the base rate (6.5 mills per kWh).

  A Florida Gross Receipts Tax, at the rate of 2.564% is applied to all rate revenue including surcharge revenue. Depending on customer location, a 10% City utility tax (within the City limits of Gainesville), or 10% County utility tax is applied to all rate revenue, except the fuel adjustment revenue and including surcharge revenue, plus the Florida Gross Receipts Tax. All taxes are pass-throughs and are not used by GRU to meet its revenue requirement. Customers within the City of Alachua pay a 6% Franchise Fee, applied to all rate revenue except the fuel adjustment charge, Florida Gross Receipts Tax, and the surcharge; the franchise fee is also a pass-through for GRU.

  Customers outside of City limits also pay a 10% surcharge applied to all rate revenue and the Florida Gross Receipts Tax, except the fuel adjustment revenue. Surcharge revenue is used by GRU to meet revenue requirements.

- **General Service Non-Demand:** Commercial customers with demand below 50 kW qualify for the General Service Non-Demand customer class. Current rates for this class consist of: a monthly customer charge ($29.50 per customer per month); a base rate consisting of a monthly inclining block energy rate with two tiers; and a fuel adjustment charge. The base rate of 7 cents per kWh applies to the first 1,500 kWh of consumption per month, and increases to 10.3 cents per kWh for all consumption over 1,500 kWh. A portion of fuel expenses is embedded in the base rate (6.5 mills per kWh).

  In addition to the taxes, surcharges, and Franchise Fees paid by the Residential class, general service non-demand customers pay: an Electric Wild Spaces Surtax of 0.5% (effectively capped at $25.00) applied to all rate revenue plus the Florida Gross Receipts Tax; and a State Sales Tax of 6.95% applied to all rate, surcharge revenue, and the Florida Gross Receipts Tax.

- **General Service Demand:** Commercial customers with demand between 50 and 1,000 kW qualify for the General Service Demand customer class. Current rates for this class consist of: a monthly customer charge ($100.00 per customer per month); a demand charge ($8.5 per kW); an energy charge (4.12 cents per kWh) for all consumption; and the fuel adjustment charge. A portion of fuel expenses is embedded in the base rate (6.5 mills per kWh). Customers receiving service at the primary level also receive a Primary Service Discount of 15 cents per kW applied to the demand charge (resulting in a rate of $8.35 per kW) and a Primary Metering Discount of 2% applied to both energy and demand charges.

The same taxes, surcharges, Franchise Fees, and surtax applied to the General Service Non-Demand customer class are paid by this class.

- **Large Power Service:** Commercial customers with demand greater than 1,000 kW qualify for the Large Power Service customer class. Current rates for this class consist of: a monthly customer charge ($350.00 per customer per month); a demand charge ($8.50 per kW); an energy charge (3.7 cents per kWh) for all consumption; and the fuel adjustment charge. A portion of fuel expenses is embedded in the base rate (6.5 mills per kWh). Customers receiving service at the primary level also receive a Primary Service Discount of 15 cents per kW applied to the demand charge (resulting in a rate of $8.35 per kW) and a Primary Metering Discount of 2% applied to both energy and demand charges.

  The same taxes, surcharges, Franchise Fees, and surtax applied to the General Service Non-Demand and Demand customer class are paid by this class.

- **Special Rates:** GRU's Murphree Water Treatment Plant as well as its Kanapaha Water Reclamation Facility are billed using the Large Power Service schedule with an additional Curtailable Discount applied. For the Murphree Water Treatment plant, a Curtailable Discount of $1.25 per kW is applied to all kW of demand above 1,925 kW. For the Kanapaha Water Reclamation Facility, a Curtailable Discount of $1.25 per kW is applied to all kW of demand.

  Although these customers pay the Florida Gross Receipts Tax, no other taxes are applicable.

b) Electric Current, Cost-Based, and Proposed Retail Rates

Willdan summed the customer-allocated cost of service to create the total cost to serve each class. Individual energy-related, demand-related, and customer-related cost components were then divided by associated billing determinants within each class to develop unitized costs, for example variable energy costs on a per-kWh basis, fixed demand costs on a per-kW basis, and customer costs on a per-customer-per-month basis.

Table 17 shows current electric rates versus Test Year 2019 COS rates and GRU's proposed rates (effective February 1, 2018) by class.

Table 17 Current, Cost of Service, and Proposed Electric Rates

ELECTRIC RATE COMPONENT (All Rates in $ per kWh Unless Noted)	CURRENT FY 2018 RATES	COS RATES, TEST YEAR (FY 2019)	DIFFERENCE CURRENT RATES FROM COS		GRU PROPOSED RATES (FEBRUARY 1, 2018)	DIFFERENCE CURRENT RATES FROM PROPOSED	
Residential[29]							
Tier 1 kWh (0-850) Net Embedded Fuel	0.0375	0.0658	(0.0283)	-43.0%	0.0615	0.0240	64.0%
Tier 2 kWh (>850) Net Embedded Fuel	0.0595	0.1004	(0.0409)	-40.7%	0.0865	0.0270	45.4%
Customer Charge ($ per Customer-Month)	14.25	20.66	(6.41)	-31.0%	14.25	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
General Service Non-Demand[30]							
Tier 1 kWh (0-1500) Net Embedded Fuel	0.0635	0.0629	0.0006	0.9%	0.0825	0.0190	29.9%
Tier 2 kWh (>1500) Net Embedded Fuel	0.0965	0.0959	0.0006	0.6%	0.1155	0.0190	19.7%
Customer Charge ($ per Customer-Month)	29.50	21.69	7.81	36.0%	29.50	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
General Service Demand[31]							
Energy Charge Net Embedded Fuel	0.0347	0.0214	0.0133	61.8%	0.0536	0.0189	54.5%
Demand Charge ($/kW)	8.50	16.12	(7.62)	-47.3%	9.50	1.00	11.8%
Customer Charge ($ per Customer-Month)	100.00	79.55	20.45	25.7%	100.00	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
Primary Service Discount ($/kW)	(0.1500)	(0.3321)	0.1821	-54.8%	(0.1500)	-	0.0%
Primary Metering Discount[32]	2.00%	0.70%	1.3%	183.9%	2.00%	0.00%	0.0%

[29] This rate includes the Residential PV class.

[30] This rate includes the following classes: General Service Non-Demand PV; General Service Time of Demand, and Non-Demand; Lighting, Traffic.

[31] This rate includes the following classes: General Service Demand PV; and General Service Time of Demand, Demand.

[32] Under current rates, this discount applies to both energy and demand charges; under COS results, this discount applies to energy charges only.

ELECTRIC RATE COMPONENT (All Rates in $ per kWh Unless Noted)	CURRENT FY 2018 RATES	COS RATES, TEST YEAR (FY 2019)	DIFFERENCE CURRENT RATES FROM COS		GRU PROPOSED RATES (FEBRUARY 1, 2018)	DIFFERENCE CURRENT RATES FROM PROPOSED	
Large Power Service[33]							
Energy Charge Net Embedded Fuel	0.0305	0.0216	0.0089	41.0%	0.0498	0.0193	63.3%
Demand Charge ($/kW)	8.50	16.33	(7.83)	-48.0%	9.75	1.25	14.7%
Customer Charge ($ per Customer-Month)	350.00	1,335.90	(985.90)	-73.8%	350.00	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
Primary Service Discount ($/kW)	(0.1500)	(0.3321)	0.1821	-54.8%	(0.1500)	-	0.0%
Primary Metering Discount[34]	2.0%	0.7%	1.3%	183.9%	2.0%	0.0%	0.0%
GREC[35]							
Energy	0.0215	-	0.0215	-	-	(0.0215)	-100.0%
Demand ($/kW)	-	-	-	-	-	-	-
Customer Charge ($ per Customer-Month)	350.00	-	350.00	-	-	(350.00)	-100.0%
Embedded Fuel	0.0065	-	0.0065	-	0.0065	-	0.0%
Fuel Adjustment	0.0700	-	0.0700	-	0.0700	-	0.0%
Kanapaha							
Energy Charge, Net Embedded Fuel	0.0305	0.0218	0.0087	40.2%	0.0498	0.0193	63.3%
Demand Charge ($/kW)	8.50	14.98	(6.48)	-43.3%	9.75	1.25	14.7%
Customer Charge ($ per Customer-Month)	350.00	1,432.25	(1,082.25)	-75.6%	350.00	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
Primary Service Discount ($/kW)	(0.1500)	(0.3321)	0.1821	-54.8%	(0.1500)	-	0.0%
Primary Metering Discount[36]	2.0%	0.7%	1.3%	183.9%	2.0%	0.0%	0.0%
Curtailable Discount ($/kW)	1.2500	1.2500	-	0.0%	1.2500	-	0.0%

33 This rate includes the Large Power Service PV class.

34 Refer to footnote 32 on page 49.

35 Now known as the Deerhaven Renewable Energy Center. Refer to footnote 15 on page 26.

36 Refer to footnote 32 on page 49.

ELECTRIC RATE COMPONENT (All Rates in $ per kWh Unless Noted)	CURRENT FY 2018 RATES	COS RATES, TEST YEAR (FY 2019)	DIFFERENCE CURRENT RATES FROM COS		GRU PROPOSED RATES (FEBRUARY 1, 2018)	DIFFERENCE CURRENT RATES FROM PROPOSED	
Murphree							
Energy Charge, Net Embedded Fuel	0.0305	0.0218	0.0087	40.2%	0.0498	0.0193	63.3%
Demand Charge	8.50	15.09	(6.59)	-43.7%	9.75	1.25	14.7%
Customer Charge ($ per Customer-Month)	350.00	2,133.03	(1,783.03)	-83.6%	350.00	-	0.0%
Embedded Fuel	0.0065	0.0065	-	0.0%	0.0065	-	0.0%
Fuel Adjustment	0.0700	0.0351	0.0349	99.6%	0.0350	(0.0350)	-50.0%
Primary Service Discount ($/kW)	(0.1500)	(0.3321)	0.1821	-54.8%	(0.1500)	-	0.0%
Primary Metering Discount[37]	2.0%	0.7%	1.3%	183.9%	2.0%	0.0%	0.0%
Curtailable Discount ($/kW) (on kW over 1,925)	1.2500	1.2500	-	0.0%	1.2500	-	0.0%
Alachua							
Base Energy Charge	0.0185	0.0278	(0.0093)	-33.5%	0.0185	-	0.0%
Demand Charge ($/kW)	-	14.52	(14.52)	-100.0%	-	-	
Customer Charge ($ per Customer-Month)	1,750	17,386.21	(15,636.21)	-89.9%	1,750.00	-	0.0%
Fuel Adjustment	0.0395	0.0351	0.0044	12.6%	0.0395	-	0.0%
Winter Park							
Energy Charge	-	0.0278	(0.0278)	-100.0%	-	-	
Demand Charge, Base Rate ($/kW)	8.00	13.70	(5.70)	-41.6%	8.00	-	0.0%
Customer Charge ($ per Customer-Month)	-	2,711.59	(2,711.59)	-100.0%	-	-	
Fuel Adjustment	0.0440	0.0351	0.0089	25.4%	0.0440	-	0.0%
Wheeling - Seminole							
Wheeling Charges	1.36	1.0992	0.2608	23.7%	1.3600	-	0.0%

[37] Refer to footnote 32 on page 49.

This section discussed the difference between COS based and current retail electric rates by customer class.

- **Residential:** For the Residential class, cost-based rates would:
    - Increase the monthly customer charge to $20.66 from $14.25 (per customer per month);
    - Increase the Tier 1 energy charge to $0.0723 from $0.044 (per kWh);
    - Increase the Tier 2 energy charge to $0.1069 from $0.066 (per kWh);
    - Decrease the fuel adjustment charge to $0.0351 from $0.070 (per kWh).
- **General Service Non-Demand:** For General Service Non-Demand class, cost-based rates would:
    - Decrease the monthly customer charge to $21.69 from $29.50 (per customer per month);
    - Decrease the Tier 1 energy charge to $0.0694 from $0.070 (per kWh);
    - Decrease the Tier 2 energy charge to $0.1024 from $0.1030 (per kWh);
    - Decrease the fuel adjustment charge to $0.0351 from $0.070 (per kWh).
- **General Service Demand:** For General Service Demand class, cost-based rates would:
    - Decrease the monthly customer charge to $79.55 from $100.00 (per customer per month);
    - Increase the demand charge to $16.12 from $8.50 (per kW);
    - Decrease the energy charge to $0.0279 from $0.0412 (per kWh);
    - Decrease the fuel adjustment charge to $0.0351 from $0.070 (per kWh);
    - Increase the Primary Service Discount to $0.3321 from $0.15 (per kW);
    - Decrease the Primary Metering Discount to 0.70% from 2%, applied only to the energy components.[38]

[38] The Primary Metering Discount currently applies to base rate demand and energy rates (non-fuel). However, COS results calculate both energy-related and demand-related cost savings attributable to customers receiving service at the primary level.

- **Large Power Service:** For General Service Demand class, cost-based rates would:
  - Increase the monthly customer charge to $1,335.90 from $350.00 (per customer per month);
  - Increase the demand charge to $16.33 from $8.50 (per kW);
  - Decrease the energy charge to $0.0281 from $0.037 (per kWh);
  - Decrease the fuel adjustment charge to $0.0351 from $0.070 (per kWh);
  - Increase the Primary Service Discount to $0.3321 from $0.15 (per kW);
  - Decrease the Primary Metering Discount to 0.70% from 2%, applied only to the energy components.[39]
- **Special Rates:** Two customers, Murphree and Kanapaha, are included in this category and discussed below; valuing the cost of curtailment was not possible.
  - Murphree Water Treatment Plant: Under full COS rates:
    - The customer charge would increase to $2,133.03 from $350.00 (per customer per month);
    - The demand charge would increase to $15.09 from $8.50 (per kW);
    - The energy charge would decrease to $0.0283 from $0.037 (per kWh) for all consumption;
    - The fuel adjustment charge would decrease to $0.0351 from $0.070 (per kWh);
    - A Primary Service Discount of $0.3321 per kW (instead of $0.15 per kW) would apply; and
    - Decrease the Primary Metering Discount to 0.70% from 2%, applied only to the energy components.[40]

Therefore, under COS-based rates, the Primary Service Discount captures all demand-related impacts and the Primary Metering Discount captures all the energy-related impacts.

39 Ibid.

40 Ibid.

- Kanapaha Water Reclamation Facility: Under full COS rates:
  - The customer charge would increase to $1,432.25 from $350.00 (per customer per month);
  - The demand charge would increase to $14.98 from $8.50 (per kW);
  - The energy charge would decrease to $0.0283 from $0.037 (per kWh) for all consumption;
  - The fuel adjustment charge would decrease to $0.0351 from $0.070 (per kWh);
  - A Primary Service Discount of $0.3321 per kW (instead of $0.15 per kW) would apply; and
  - Decrease the Primary Metering Discount to 0.70% from 2%, applied only to the energy components.[41]

c) Electric Revenues at Current, Cost of Service, and Proposed Rates

Table 18 shows revenues at current rates versus revenues at COS rates for the Test Year 2019 by class (based on FY 2019 billing determinants), as well as revenues at GRU's proposed rates effective February 1, 2018. GRU's Test Year FY 2019 total revenues at current rates less its total revenue requirement yields a surplus of $21.7 million, after incorporating non-rate revenues, surcharge revenues, and other inflows. This amount primarily consists of over collection of fuel adjustment and purchased power costs, approximately $63.6 million, and under collection of revenues associated with all other costs (primarily production) of approximately $42 million. Both components are driven primarily by the DHRGS transaction which moved costs from purchased power to debt service. Proposed rates are discussed in Section II.D.

[41] Ibid.

Table 18 Test Year Electric Revenues at Current, Cost of Service, and Proposed Rates ($000)

ELECTRIC RATE COMPONENT BY CUSTOMER CLASS[42]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	CURRENT v. PROPOSED	
Residential							
Tier 1 kWh (0-850)	$24,222	$42,508	($18,285)	-43.0%	$39,725	$15,502	64.0%
Tier 2 kWh (>850)	11,218	18,921	(7,703)	-40.7%	16,309	5,091	45.4%
Customer Charge	14,165	20,535	(6,370)	-31.0%	14,165	-	0.0%
Embedded Fuel	5,424	5,424	-	0.0%	5,424	-	0.0%
Fuel Adjustment	58,413	29,270	29,144	99.6%	29,207	(29,207)	-50.0%
Total	$113,443	$116,657	($3,214)	-2.8%	$104,830	($8,614)	-7.6%
Residential PV							
Tier 1 kWh (0-850)	$44	$60	($16)	-27.1%	$72	$28	64.0%
Tier 2 kWh (>850)	38	51	(13)	-24.8%	56	17	45.4%
Customer Charge	33	48	(15)	-31.0%	33	-	0.0%
Embedded Fuel	12	12	-	0.0%	12	-	0.0%
Fuel Adjustment	127	64	63	99.6%	63	(63)	-50.0%
Total	$254	$235	$19	8.3%	$236	($18)	-7.1%
GS Non-Demand							
Tier 1 kWh (0-1500)	$5,638	$5,588	$50	0.9%	$7,325	$1,687	29.9%
Tier 2 kWh (>1500)	9,220	9,165	55	0.6%	11,036	1,815	19.7%
Customer Charge	3,394	2,495	899	36.0%	3,394	-	0.0%
Embedded Fuel	1,198	1,198	-	0.0%	1,198	-	0.0%
Fuel Adjustment	12,903	6,466	6,438	99.6%	6,452	(6,452)	-50.0%
Total	$32,354	$24,912	$7,442	29.9%	$29,405	($2,949)	-9.1%
GS Non-Demand PV							
Tier 1 kWh (0-1500)	$30	$22	$8	36.3%	$39	$9	29.9%
Tier 2 kWh (>1500)	77	57	20	34.4%	92	15	19.7%
Customer Charge	12	9	3	36.0%	12	-	0.0%
Embedded Fuel	8	8	-	0.0%	8	-	0.0%
Fuel Adjustment	89	45	44	99.6%	44	(44)	-50.0%
Total	$216	$141	$75	53.4%	$196	($20)	-9.4%

42 For specific information on charges, refer to Table 17 on page 49.

ELECTRIC RATE COMPONENT BY CUSTOMER CLASS[42]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	CURRENT v. PROPOSED	
General Service Demand							
Energy Charge	$21,073	$13,023	$8,050	61.8%	$32,551	$11,478	54.5%
Demand Charge	13,420	25,444	(12,024)	-47.3%	14,998	1,579	11.8%
Customer Charge	1,471	1,171	301	25.7%	1,471	-	0.0%
Embedded Fuel	3,947	3,947	-	0.0%	3,947	-	0.0%
Fuel Adjustment	42,510	21,301	21,209	99.6%	21,255	(21,255)	-50.0%
Primary Service Discount	(72)	(159)	87	-54.8%	(72)	-	0.0%
Primary Metering Discount	(258)	(42)	(216)	512.0%	(258)	-	0.0%
Total	$82,091	$64,684	$17,407	26.9%	$73,893	($8,199)	-10.0%
General Service Demand PV							
Energy Charge	$301	$178	$123	69.3%	$465	$164	54.5%
Demand Charge	206	343	(138)	-40.1%	230	24	11.8%
Customer Charge	19	13	6	42.6%	19	-	0.0%
Embedded Fuel	56	56	-	0.0%	56	-	0.0%
Fuel Adjustment	607	304	303	99.6%	304	(304)	-50.0%
Primary Service Discount	(1)	(3)	2	-54.8%	(1)	-	0.0%
Primary Metering Discount	(6)	(1)	(5)	511.8%	(6)	-	0.0%
Total	$1,183	$891	$292	32.7%	$1,067	($116)	-9.8%
Large Power Service							
Energy Charge	$2,934	$2,080	$854	41.0%	$4,790	$1,856	63.3%
Demand Charge	1,548	2,975	(1,427)	-48.0%	1,776	228	14.7%
Customer Charge	40	154	(114)	-73.8%	40	-	0.0%
Embedded Fuel	625	625	-	0.0%	625	-	0.0%
Fuel Adjustment	6,733	3,374	3,359	99.6%	3,367	(3,367)	-50.0%
Primary Service Discount	(27)	(60)	33	-54.8%	(27)	-	0.0%
Primary Metering Discount	(102)	(19)	(83)	436.0%	(102)	-	0.0%
Total	$11,752	$9,129	$2,623	28.7%	$10,469	($1,282)	-10.9%
Large Power Service PV							
Energy Charge	$1,575	$1,124	$451	40.2%	$2,572	$997	63.3%
Demand Charge	929	1,645	(716)	-43.5%	1,066	137	14.7%
Customer Charge	9	82	(73)	-89.4%	9	-	0.0%
Embedded Fuel	336	336	-	0.0%	336	-	0.0%
Fuel Adjustment	3,615	1,811	1,803	99.6%	1,807	(1,807)	-50.0%
Primary Service Discount	(16)	(36)	20	-54.8%	(16)	-	0.0%
Primary Metering Discount	(57)	(10)	(47)	452.5%	(57)	-	0.0%
Total	$6,390	$4,951	$1,438	29.1%	$5,716	($674)	-10.5%

ELECTRIC RATE COMPONENT BY CUSTOMER CLASS[42]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000) CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	CURRENT v. PROPOSED	
GS TOD, Non-Demand							
Tier 1 kWh (0-1500)	$11	$12	($1)	-4.9%	$15	$3	29.9%
Tier 2 kWh (>1500)	21	22	(1)	-5.0%	25	4	19.7%
Customer Charge	4	3	1	22.9%	4	-	0.0%
Embedded Fuel	3	3	-	0.0%	3	-	0.0%
Fuel Adjustment	27	14	14	99.6%	14	(14)	-50.0%
Total	$66	$53	$13	24.0%	$60	($6)	-9.5%
GS TOD, Demand							
Energy Charge	$8	$5	$3	58.3%	$13	$4	54.5%
Demand Charge	15	16	(1)	-8.2%	16	2	11.8%
Customer Charge	4	1	2	238.4%	4	-	0.0%
Embedded Fuel	2	2	-	0.0%	2	-	0.0%
Fuel Adjustment	16	8	8	99.6%	8	(8)	-50.0%
Primary Service Discount	-	-	-	0.0%	-	-	0.0%
Primary Metering Discount	-	-	-	0.0%	-	-	0.0%
Total	$44	$32	$12	38.7%	$42	($2)	-4.6%
GREC							
Energy	$132	$-	$132	0.0%	$-	($132)	-100.0%
Demand	-	-	-	0.0%	-	-	0.0%
Customer Charge	4	-	4	0.0%	-	(4)	-100.0%
Embedded Fuel	40	-	40	0.0%	80	40	100.0%
Fuel Adjustment	429	-	429	0.0%	429	-	0.0%
Total	$606	$-	$606	0.0%	$509	($96)	-15.9%
Kanapaha							
Energy Charge	$352	$251	$101	40.2%	$575	$223	63.3%
Demand Charge	176	310	(134)	-43.3%	202	26	14.7%
Customer Charge	4	17	(13)	-75.6%	4	-	0.0%
Embedded Fuel	75	75	-	0.0%	75	-	0.0%
Fuel Adjustment	808	405	403	99.6%	404	(404)	-50.0%
Primary Service Discount	(3)	(7)	4	-54.8%	(3)	-	0.0%
Primary Metering Discount	(12)	(2)	(10)	425.0%	(12)	-	0.0%
Curtailable Discount	(26)	(26)	-	0.0%	(26)	-	0.0%
Total	$1,375	$1,024	$351	34.3%	$1,219	($155)	-11.3%

ELECTRIC RATE COMPONENT BY CUSTOMER CLASS[42]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	CURRENT v. PROPOSED	
Murphree							
Energy Charge	$527	$376	$151	40.2%	$860	$333	63.3%
Demand Charge	251	445	(195)	-43.7%	288	37	14.7%
Customer Charge	4	26	(21)	-83.6%	4	-	0.0%
Embedded Fuel	112	112	-	0.0%	112	-	0.0%
Fuel Adjustment	1,209	606	603	99.6%	605	(605)	-50.0%
Primary Service Discount	(4)	(10)	5	-54.8%	(4)	-	0.0%
Primary Metering Discount	(18)	(3)	(14)	417.6%	(18)	-	0.0%
Curtailable Discount	(8)	(8)	-	0.0%	(8)	-	0.0%
Total	$2,073	$1,544	$529	34.3%	$1,839	($234)	-11.3%
Lighting, Traffic							
Tier 1 kWh (0-1500)	$1	$1	$0	63.0%	$1	$0	29.9%
Tier 2 kWh (>1500)	3	2	1	59.4%	4	1	19.7%
Customer Charge	1	1	0	28.3%	1	-	0.0%
Embedded Fuel	0	0	-	0.0%	0	-	0.0%
Fuel Adjustment	4	2	2	99.6%	2	(2)	-50.0%
Total	$9	$6	$4	66.6%	$9	($1)	-9.1%
Alachua							
Base Energy Charge	$2,628	$3,951	($1,324)	-33.5%	$2,628	$-	0.0%
Demand Charge	$-	$4,277	($4,277)	-100.0%	$-	$-	0.0%
Customer Charge	21	209	(188)	-89.9%	21	-	0.0%
Fuel Adjustment	5,610	4,982	628	12.6%	5,610	-	0.0%
Total	$8,259	$13,419	($5,160)	-38.5%	$8,259	$-	0.0%
Winter Park							
Energy Charge	$-	$615	($615)	-100.0%	0	0	0.0%
Demand Charge, Base Rate	285	411	(126)	-30.7%	285	-	0.0%
Customer Charge	-	33	(33)	-100.0%	-	-	0.0%
Fuel Adjustment	986	775	211	27.2%	986	-	0.0%
Total	$1,271	$1,833	($562)	-30.7%	$1,271	$-	0.0%
Wheeling – Seminole							
Wheeling Charges	$358	$290	$69	23.7%	$358	$-	0.0%
Sub Total	**$261,743**	**$239,799**	**$21,944**	**9.2%**	**$239,376**	**($22,367)**	**-8.5%**
Rental and Street Lighting	7,805	7,805	-	0.0%	7,805	-	0.0%
TOTAL RATE REVENUE	***269,549***	***247,605***	***21,944***	***8.9%***	***247,181***	***(22,367)***	***-8.3%***
Net Total Cost to Serve	247,880	247,880	21,944	0.0%	247,880	-	0.0%
Surplus/(Deficiency)	21,669	(275)	43,888	-7967.9%	(699)	(22,367)	-103.2%

ELECTRIC RATE COMPONENT BY CUSTOMER CLASS[42]	TEST YEAR ELECTRIC REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		GRU PROPOSED RATES (FEB. 1, 2018)	CURRENT v. PROPOSED	
OTHER REVENUES							
Surcharge Revenues	3,457	4,695	(1,238)	-26.4%	4,832	1,375	39.8%
Other Revenues	34,347	34,347	-	0.0%	34,347	-	0.0%
Total Other Revenues	*$37,804*	*$39,039*	*($1,234)*	*-3.2%*			
TOTAL REVENUES	**$307,353**	**$286,647**	**$20,706**	**7.2%**	**$286,361**	**(20,992)**	**-6.8%**
Net Revenue Requirement	*$285,684*	*$285,684*	*$-*	*0.0%*	*$285,684*	*-*	*0.0%*
Total Surplus/(Deficiency)	$21,669	$962	20,706	2151.4%	$677	(20,992)	-96.9%

A summary of the COS based electric retail revenues by customer class follows. Base revenues exclude embedded fuel revenues which are included in fuel adjustment revenues.

- **Residential:** Based on COS analysis of Test Year revenue requirements, the Residential class base rate revenues under current rates are $32.3 million below cost of service. Fuel adjustment revenues are $29.1 million above cost of service, for a net total under-collection of $3.2 million.
- **General Service Non-Demand:** Based on COS analysis of Test Year revenue requirements, General Service Non-Demand base rate revenues under current rates are $999,744 above cost of service. Fuel adjustment revenues are $6.4 million above cost of service, for a net total over-collection of $7.4 million.
- **General Service Demand:** General Service Demand base rate revenues under current rates are $3.8 million below cost of service. Fuel adjustment revenues are $21.2 million above cost of service, for a net total over-collection of $17.4 million.
- **Large Power Service:** Large Power Service base rate revenues under current rates are $724,010 below cost of service. Fuel adjustment revenues are $3.4 million above cost of service, for a net total over-collection of $2.6 million. These figures do not include the Murphree Water Treatment Plant and the Kanapaha Water Reclamation Facility (both are discussed under Special Rates below).
- **Special Rates:** Two customers, the Murphree Water Treatment Plant and the Kanapaha Water Reclamation Facility, are included in this category and are discussed below.

- Murphree Water Treatment Plant: Results of the cost of service analysis for Murphree Water Treatment Plant indicate that base rate revenues under current rates are $19,641 below cost of service and fuel adjustment revenues are $603,245 above cost of service; for a net total over-collection of $583,603.

- Kanapaha Water Reclamation Facility: Results of the cost of service analysis for the Kanapaha Water Reclamation Facility indicate that base rate revenues under current rates are $55,738 below cost of service and fuel adjustment revenues are $403,211 above cost of service; for a net total over-collection of $347,473.

d) Non-Rate Charges and Fees

GRU has two types of non-rate charges and fees: Turn-On Charges and other Non-Rate Charges.

i) Turn-On Charges

GRU's turn-on charges for electric service range between $26 for Residential customers to $197 for Large Power Service.

ii) Other Non-Rate Charges

Total other non-rate charges, including express service fees and penalties for failure to show, were $557,325 for FY 2017. These charge revenues equate to 3.6% of GRU's $15.5 million total costs for Administrative, General, and Customer Service costs for that year.

3. WHOLESALE ELECTRIC RATE STRUCTURE

This section discusses GRU's current rate structure for wholesale customers. Unlike retail customers, wholesale customers are able to bypass GRU service and are therefore charged market-based rates pursuant to negotiated contracts. The COS results presented here are for informational purposes only.

a) Current Wholesale Electric Rates

GRU currently provides transmission-level bundled power (generation and delivery) to two wholesale customers the Cities of Alachua and Winter Park. GRU provides approximately 98% of Alachua's energy requirements through a full requirements contract through March 2022. The Study assumes that the City of Alachua will remain a full requirements customer of GRU through the end of the study period, September 30, 2023. The City of Winter Park purchases 10 MW of energy from GRU through December 2018, at which time the Study assumes that Winter Park discontinues wholesale service.

GRU provides transmission wheeling service (no power generation) to Seminole Electric Power Cooperative from third-party generation resources to Clay's Farnsworth substation that is located within the GRU service territory.

- **City of Alachua:** pays a customer charge of $1,750 per month and an energy charge of $.058 per kWh—$0.0185 per kWh of which is recognized as base rate revenue and $0.0395 as fuel adjustment revenue.
- **City of Winter Park:** pays a demand charge of $8.00 per kW recognized as base rate revenue, and an energy charge of $0.0440 recognized as fuel adjustment revenue.
- **Seminole Electric Power Cooperative:** pays $1.36 per kW of power wheeled across GRU's system to Clay's Farnsworth substation.

b) Electric Wholesale Cost-Based Rates and Revenues

Unlike retail customers, wholesale customers are able to bypass GRU electric service and are therefore charged market-based rates pursuant to negotiated contracts. The COS results presented here are for informational purposes only.

- **City of Alachua:** Cost-based rates would result in higher customer charge at $17,386 per month, a new demand charge at $14.52 per kW, a higher energy charge of $0.0278, and the lower fuel adjustment charge of $0.0351.

  Base rate revenues under current rates for the Test Year is $4.9 million under cost of service. Fuel rate revenues are $294,776 under cost of service. In total, revenues are $5.2 million under the cost of service.

- **City of Winter Park:** Cost-based rates would result in a new customer charge of $2,712 per month, a higher demand charge of $13.70 per kW, an energy charge $0.0278, and a separate fuel adjustment charge of $0.0351 (the energy charge and fuel adjustment together are higher than the current rate of $0.0440).

  Base rate revenues under current rates are $629,562. Fuel rate revenues are $67,098 above cost of service. In total, revenues are $562,463 below cost of service.

- **Seminole Electric Power Cooperative:** COS results indicate that rate revenues are $68,689 higher than the cost to provide transmission-only service. Cost-based rates would result in rates approximately 19.2% lower (to $1.099 per kW).

D. ELECTRIC SYSTEM RESULTS AND RECOMMENDATIONS

This section presents the results of the retail rate analysis followed by the wholesale rate analysis and Study recommendations. Evaluation of taxes, surcharges, Surtaxes, Franchise Fees, and other similar assessments are outside the scope of this Study.

1. RETAIL ELECTRIC RESULTS

This section presents retail results, proposed rate changes, revenue sufficiency analysis, billing impact analysis, comparison with neighboring utilities, and recommendations.

Based on Study results for the Test Year 2019, at current rates:

- An overall base rate revenue increase (excluding embedded fuel) of 33% would be required to cover non-fuel, non-purchased power costs, primarily driven by the increased debt service for DHRGS.
- An overall fuel adjustment revenue decrease of 44% would be required to match fuel and purchased power expenditures (non-embedded), primarily driven by the reduction in purchased power costs due to the acquisition of the DHRGS.

An overall decrease of 7.9% in total rate revenue (base plus fuel adjustment) would be required to match revenue requirements with revenues.

a) Proposed Retail Rates

This section presents the retail rate design recommendations by class. No structural changes to retail rate designs for any rate class are proposed.

- **Residential:**

  Willdan recommends moving the Residential customer class to cost-based rates over a three- to five-year period. **Table 19** illustrates a rate plan for the Residential customer class for FY 2018 through FY 2023 that provides a smooth transition from those going into effect on February 1, 2018 through FY 2023. These rates do not guarantee revenues sufficient to meet revenue requirements in each year, however, the rate stabilization fund would be adequate to cover such shortfalls.

Table 19 Residential Electric Illustrative Rate Plan

COMPONENT (All Rates in $ per kWh Unless Noted)	FEB. 1 - SEP. 30, 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	ANNUAL % CHANGE
Tier 1 kWh, Less Embedded Fuel	0.0615	0.0639	0.0665	0.0691	0.0718	0.0747	4.0%
Tier 2 kWh, Less Embedded Fuel	0.0865	0.0913	0.0964	0.1018	0.1074	0.1134	5.6%
Customer Charge ($ per Month)	14.25	15.71	17.31	19.08	21.03	23.18	10.2%
Embedded Fuel	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0%
Fuel Adjustment	0.0350	0.0360	0.0370	0.0380	0.0390	0.0401	2.8%

Currently, the Residential Tier 1 consumption level is set at 850 kWh, while average usage is below that at 811 kWh and, therefore, the average customer is rarely impacted by the Tier 2 rate. At the current setpoint 645,933 MWh, or 77%, of Tier 1 Residential consumption occurred in the Test Year. A Tier 1 consumption setpoint at below average usage, for example 700 kWh, would increase the impact on the average customer and potentially enhance incentives for conservation and energy efficiency. Commensurate adjustments to the associated rate would be required to avoid over-collection.

Because GRU does not meter Residential demand, no demand charges were recommended for this class. However, should GRU meter Residential demand, Willdan recommends adding a demand charge for this class to better align rates with cost causation.

- **General Service Non-Demand:**

Willdan recommends moving the General Service Non-Demand customer class to cost-based rates over a three- to five-year period. Table 20 illustrates a rate plan for the General Service Non-Demand customer class for FY 2018 through FY 2023 providing a smooth transition from February 1, 2018 to FY 2023. Although these rates do not guarantee revenues sufficient to meet revenue requirements each year, shortfalls would be adequately covered by the rate stabilization fund.

Table 20 Electric General Service Non-Demand Illustrative Rate Plan

COMPONENT (All Rates in $ per kWh Unless Noted)	FEB. 1 - SEP. 30, 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	ANNUAL % CHANGE
Tier 1 kWh, Less Embedded Fuel	0.0825	0.0802	0.0779	0.0757	0.0735	0.0714	-2.8%
Tier 2 kWh, Less Embedded Fuel	0.1155	0.1141	0.1126	0.1112	0.1098	0.1084	-1.3%
Customer Charge ($ per Month)	29.50	28.39	27.32	26.29	25.29	24.34	-3.8%
Embedded Fuel	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0%
Fuel Adjustment	0.0350	0.0360	0.0370	0.0380	0.0390	0.0401	2.8%

Currently, the General Service Non-Demand Tier 1 consumption level is set at 1,550 kWh, while average usage is slightly higher at 1,596 kWh. In the Test Year, approximately 52% of usage for this class was included in Tier 2. A Tier 1 consumption setpoint at below average usage, for example 1,300 kWh, would increase the impact on an average customer and potentially enhance incentives for conservation and energy efficiency. Commensurate adjustments to the associated rate would be required to avoid over-collection.

GRU may want to consider adding a demand charge for this class to better align rates with cost causation.

- **General Service Demand:**

Willdan recommends moving the General Service Demand customer class to cost-based rates over a three- to five-year period. Table 21 illustrates a rate plan for the General Service Demand customer class for FY 2018 through FY 2023 providing a smooth transition from February 1, 2018 to FY 2023. Although these rates do not guarantee revenues sufficient to meet revenue requirements each year, the rate stabilization fund would be adequate to cover shortfalls.

Table 21 Electric General Service Demand Illustrative Rate Plan

COMPONENT (All Rates in $ per kWh Unless Noted)	FEB. 1 - SEP. 30, 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	ANNUAL % CHANGE
Energy Charge, Less Embedded Fuel	0.0536	0.0460	0.0394	0.0338	0.0290	0.0249	-14.2%
Demand Charge ($ per kW)	9.50	10.81	12.29	13.98	15.90	18.09	13.7%
Customer Charge ($ per Month)	100.00	97.76	95.56	93.42	91.32	89.28	-2.2%
Embedded Fuel	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0%
Fuel Adjustment	0.0350	0.0360	0.0370	0.0380	0.0390	0.0401	2.8%
Primary Service Discount ($ per kW)	(0.1500)	(0.1758)	(0.2061)	(0.2416)	(0.2833)	(0.3321)	17.2%
Primary Metering Discount*	2.00%	1.62%	1.32%	1.07%	0.87%	0.70%	-18.8%

As the cost-based Primary Service Discount accounts for all cost of service savings attributable to the demand component for primary customer, Willdan recommends changing the applicability of the Primary Metering Discount to only the energy portion of the bill (rather than energy plus demand).

- **Large Power Service:**

  Willdan recommends moving the Large Power Service customer class to cost-based rates over a three- to five-year period. Table 22 illustrates a rate plan for the Large Power Service customer class for FY 2018 through FY 2023 that provides a smooth transition from February 1, 2018 to FY 2023. Although these rates do not guarantee revenues sufficient to meet revenue requirements each year, the rate stabilization fund would adequately cover shortfalls.

Table 22 Electric Large Power Illustrative Rate Plan

COMPONENT (All Rates in $ per kWh Unless Noted)	FEB. 1 - SEP. 30, 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	ANNUAL % CHANGE
Energy Charge, Less Embedded Fuel	0.0498	0.0434	0.0378	0.0330	0.0288	0.0251	-12.8%
Demand Charge ($ per kW)	9.75	11.06	12.55	14.24	16.15	18.33	13.5%
Customer Charge ($ per Month)	350.00	468.20	626.31	837.83	1,120.77	1,499.26	33.8%
Embedded Fuel	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0%
Fuel Adjustment	0.0350	0.0360	0.0370	0.0380	0.0390	0.0401	2.8%
Primary Service Discount ($ per kW)	(0.1500)	(0.1758)	(0.2061)	(0.2416)	(0.2833)	(0.3321)	17.2%
Primary Metering Discount*	2.0%	1.62%	1.32%	1.07%	0.87%	0.70%	-18.8%

As the cost-based Primary Service Discount accounts for all cost of service savings attributable to the demand component for primary customer, Willdan recommends changing the applicability of the Primary Metering Discount to only the energy portion of the bill (rather than energy plus demand).

- **Special Rates:**

  Two customers, the Kanapaha Water Reclamation Facility and the Murphree Water Treatment Plant, are included in this category. Willdan recommends moving the Kanapaha Water Reclamation and Murphree Water Treatment customers to cost-based rates over a three- to five-year period. As the cost-based Primary Service Discount accounts for all cost of service savings attributable to the demand component for primary customer, Willdan recommends changing the applicability of the Primary Metering Discount to the energy portion of the bill (rather than energy plus demand).

b) Non-Rate Charges and Fees

Willdan recommends no changes to these charges at this time.

c) Revenue Adequacy of Proposed Rates

GRU's proposed retail rates, effective February 1, 2018, are adequate to recover revenues equal to the Test Year revenue requirement presented in Section I.A.2. Revenue calculations were based on billing determinants extracted from historic data and forecasts provided by GRU. To the extent actual billing determinants vary from those projected, or future class usage characteristics vary from historical observations, actual revenues may vary from the expected revenues as presented herein.

As discussed in previous sections, in addition to the revenue requirement for the Test Year, a projection of the revenue requirement for FY 2020 through 2023 was made for informational purposes. Overall, to achieve the projected revenue requirement for the system through FY 2023, increases to projected base rate revenue under existing rates of approximately 33% for FY 2019 and an additional 11% for FY 2020 are required. Countering these increases in base rates would be a decrease of 44% to fuel adjustment rate revenue in FY 2019. However, several subsequent years would require fuel adjustment rate increases as well.

d) Bill Impact Comparisons

The following tables and figures show the bill impacts of current, cost-based, and, GRU's proposed rates (effective February 1, 2018) for four main retail rate classes: Residential, General Service Non-Demand, General Service Demand, and Large Power Service, at the average customer usage within each class. Table 23 and Figure 19 present billing impact results for Residential electric customers. Table 24 and Figure 20 present billing impact results for General Service Non-Demand electric customers. Table 25 and Figure 21 present billing impact results for General Service Demand electric customers. Table 26 and Figure 22 present billing impact results for Large Power Service electric customers.

Table 23 Residential Electric Monthly Bill Impact Comparison

COMPONENT	BILLING UNITS	CURRENT FY 2018 Unit Rate	Revenue	COS Unit Rate	Revenue	PROPOSED Unit Rate	Revenue
Tier 1 kWh	811	$0.0440	$35.69	$0.0723	$58.65	$0.0680	$55.15
Tier 2 kWh	-	$0.0660	$-	$0.1069	$-	$0.0930	$-
Customer Charge	1.00	$14.25	$14.25	$20.6578	$20.66	$14.25	$14.25
Fuel Adjustment	811.09	$0.0700	$56.78	$0.0351	$28.45	$0.0350	$28.39
Total		**$0.1316**	**$106.71**	**$0.1329**	**$107.75**	**$0.1206**	**$97.79**
Change ($)					$1.04		($8.92)
Change (%)					1.0%		-8.4%

Figure 19 Residential Electric Bill Impact of Rates at Various Usage Levels

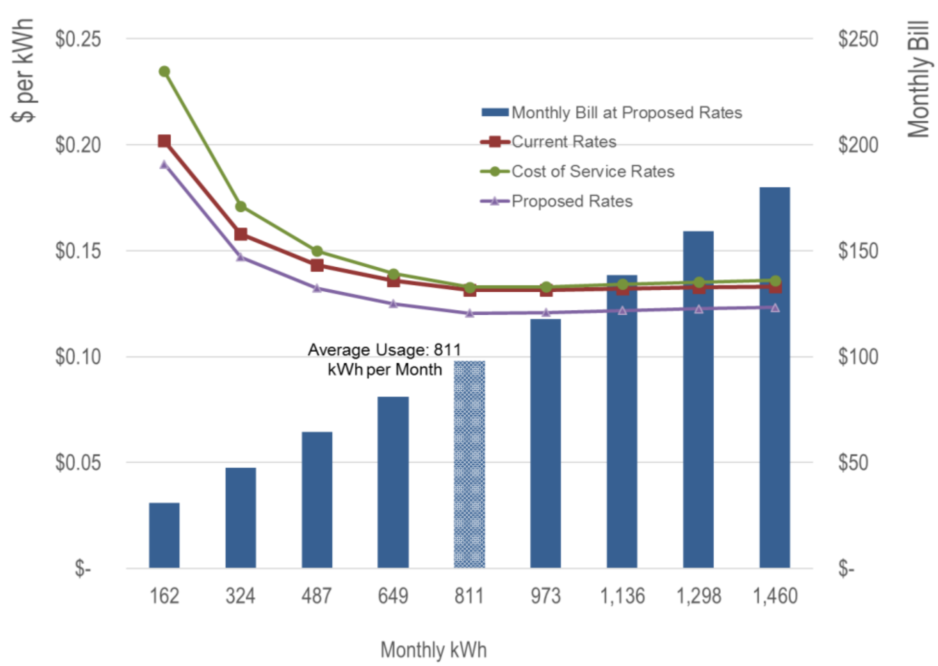


Table 24 General Service Non-Demand Electric Monthly Bill Impact

COMPONENT	BILLING UNITS	CURRENT FY 2018 Unit Rate	CURRENT FY 2018 Revenue	COS Unit Rate	COS Revenue	PROPOSED Unit Rate	PROPOSED Revenue
Tier 1 kWh	1,500	$0.0700	$105.00	$0.0694	$104.16	$0.0890	$133.50
Tier 2 kWh	96	$0.1030	$9.88	$0.1024	$9.82	$0.1220	$11.70
Customer Charge	1	$29.50	$29.50	$21.6882	$21.69	$29.50	$29.50
Fuel Adjustment	1,596	$0.0700	$111.71	$0.0351	$55.98	$0.0350	$55.86
Total		**$0.1605**	**$256.09**	$0.1201	**$191.64**	$0.1445	$230.56
Change ($)					($64.45)		($25.53)
Change (%)					-25.2%		-10.0%

Figure 20 General Service Non-Demand Electric Bill Impact of Rates at Various Usage Levels

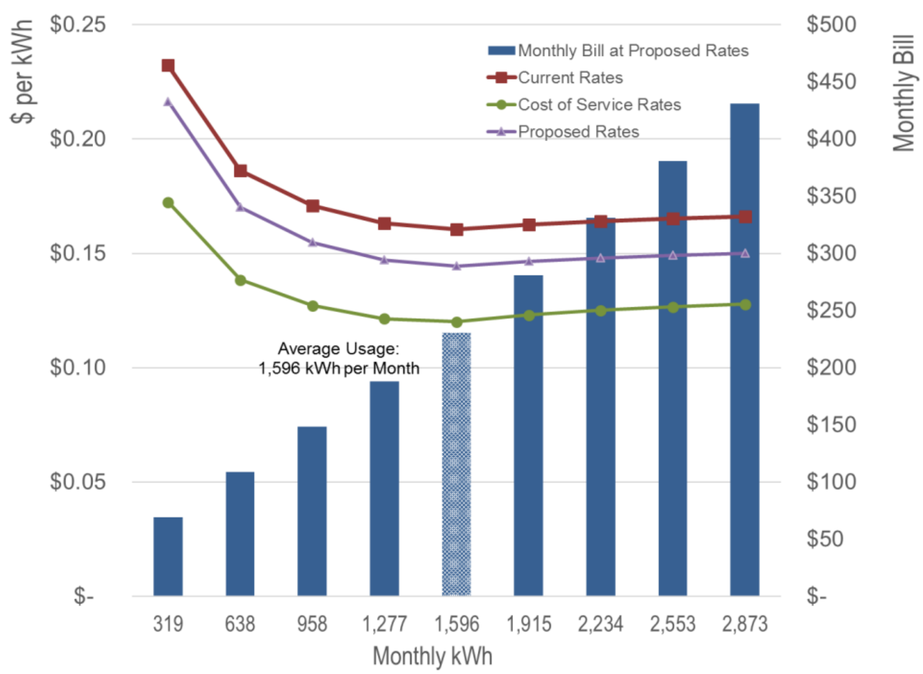


Table 25 General Service Demand Electric Monthly Bill Impact

COMPONENT	BILLING UNITS	CURRENT FY 2018		COS		PROPOSED	
		Unit Rate	Revenue	Unit Rate	Revenue	Unit Rate	Revenue
Energy (kWh)	42,457	$0.0412	$1,749.21	$0.0279	$1,186.44	$0.0601	$2,551.64
Demand (kW)	108	$8.50	$921.70	$16.12	$1,747.55	$9.50	$1,030.14
Customer Charge	1	$100.00	$100.00	$79.55	$79.55	$100.00	$100.00
Fuel Adjustment	42,457	$0.0700	$2,971.96	$0.0351	$1,489.19	$0.0350	$1,485.98
Primary Service Discount	108	($0.1500)	($16.27)	($0.3321)	($36.01)	($0.1500)	($16.27)
Primary Meter Discount		2.0%	($53.42)	0.7%	($8.36)	2.0%	($71.64)
Total		0.1336	$5,673.19	0.1050	$4,458.36	0.1196	$5,079.86
Change ($)					($1,214.83)		($593.33)
Change (%)					-21.4%		-10.5%
[*] Under COS rate, applied only to energy component.							

Figure 21 General Service Demand Electric Bill Impact of Rates at Various Usage Levels

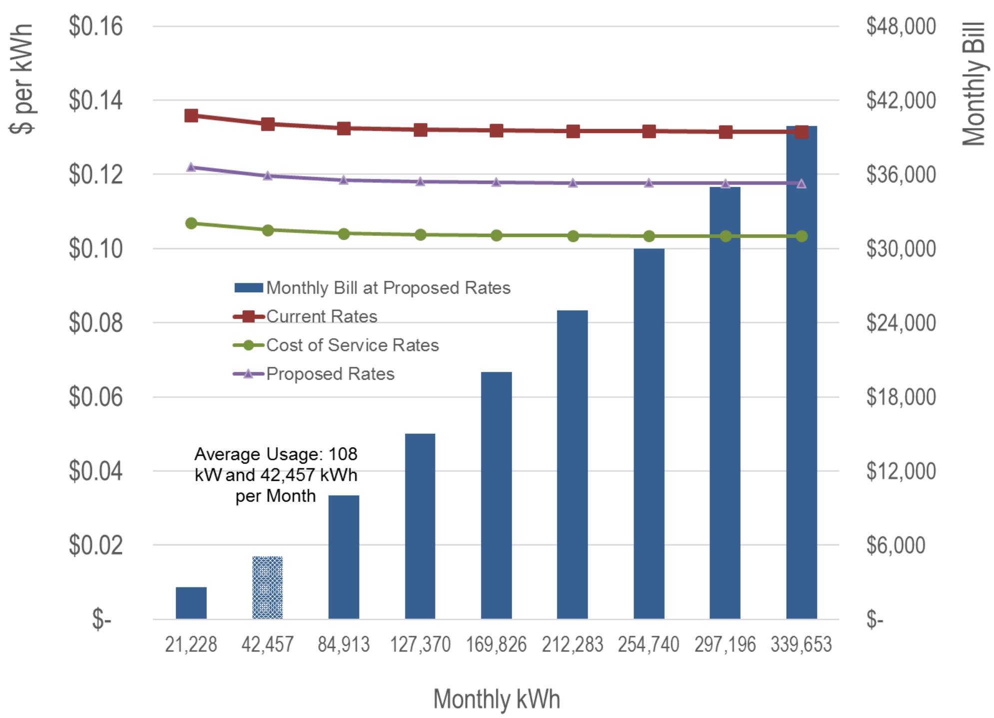
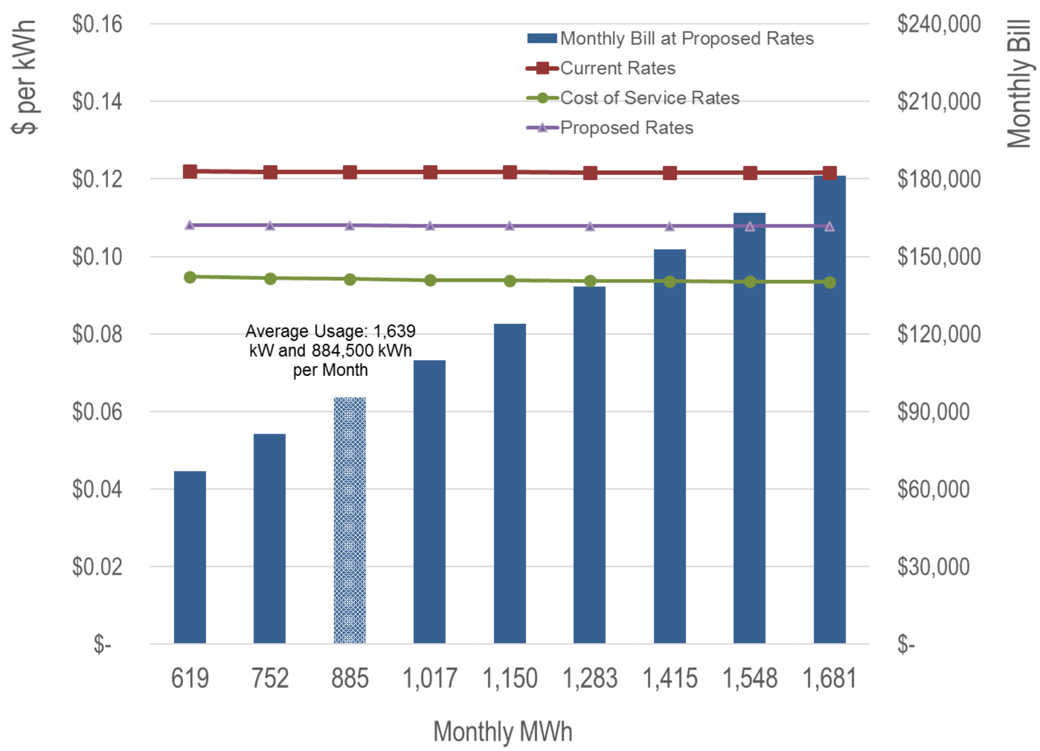


Table 26 Large Power Service Electric Monthly Bill Impact

COMPONENT	BILLING UNITS	CURRENT FY 2018 Unit Rate	CURRENT FY 2018 Revenue	COS Unit Rate	COS Revenue	PROPOSED Unit Rate	PROPOSED Revenue
Energy (kWh)	884,500	$0.0370	$32,727	$0.0281	$24,875	$0.0563	$49,797
Demand (kW)	1,639	$8.5000	$13,932	$16.33	$26,767	$9.75	$15,980
Customer Charge	1	$350	$350	$1,336	$1,336	$350	$350
Fuel Adjustment	884,500	$0.0700	$61,915	$0.0351	$31,024	$0.0350	$30,958
Primary Service Discount	1,639	($0.1500)	($246)	($0.3321)	($544)	($0.1500)	($246)
Primary Meter Discount	[*]	2.0%	($933)	0.7%	($175)	2.0%	($1,316)
Total		**$0.1218**	**$107,744**	$0.0942	**$83,283**	**$0.1080**	**$95,524**
Change ($)					($24,461)		($12,220)
Change (%)					-22.7%		-11.3%

[*] Under COS rate, applied only to energy component.

Figure 22 Large Power Service Electric Bill Impact of Rates at Various Usage Levels



e) Electric Rate Comparisons with Neighboring Utilities

GRU's existing and proposed (effective February 1, 2018) residential, small commercial, and large power service rates have been compared with six neighboring utilities, including investor owned, municipal, and cooperative utilities: Clay, Duke, FPLC, Jacksonville Electric Authority (JEA), Lakeland Electric Company, and the City of Tallahassee. The following graphs compare GRU's existing and proposed rates with those of comparator neighboring utilities for residential, small commercial and large commercial customers. As shown in these comparisons, even with GRU's proposed rate changes, GRU's estimated bills are still higher than neighboring utilities, but moving closer to comparator levels.

Figure 23 presents a comparison of average monthly residential bills at 800 kWh. Figure 24 presents a comparison of average monthly small commercial bills at 1,500 kWh. Figure 25 presents a comparison of average monthly large commercial bills at 1,400kW demand and 750,000 kWh.

Figure 23 Comparison of Residential Electric Monthly Bill for GRU and Six Comparators at 800 kWh

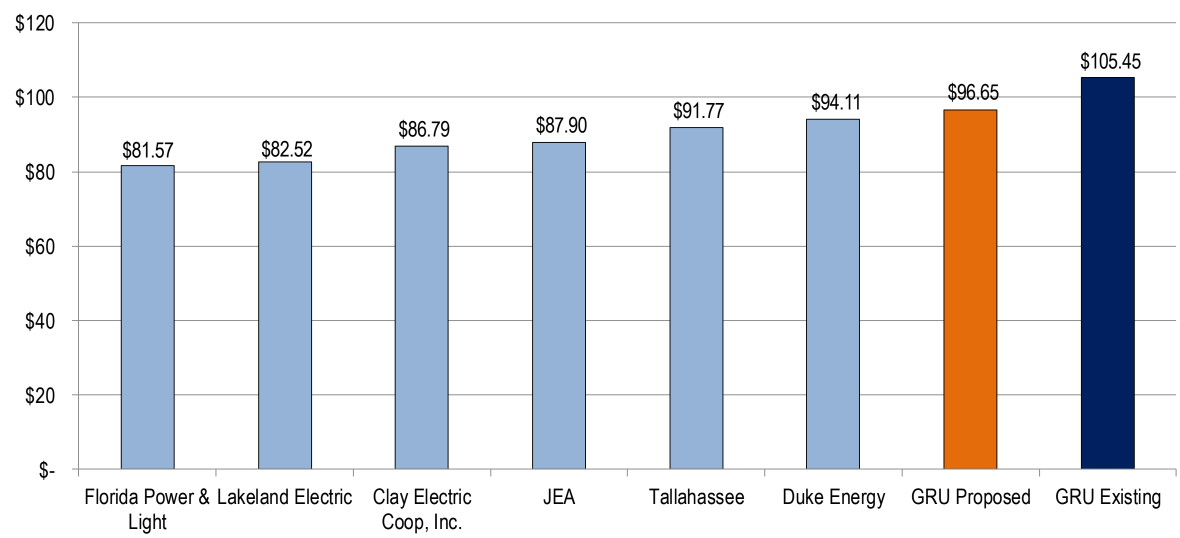


Figure 24 Comparison of Small Commercial Electric Monthly Bill for GRU and Six Comparators at 1,500 kWh

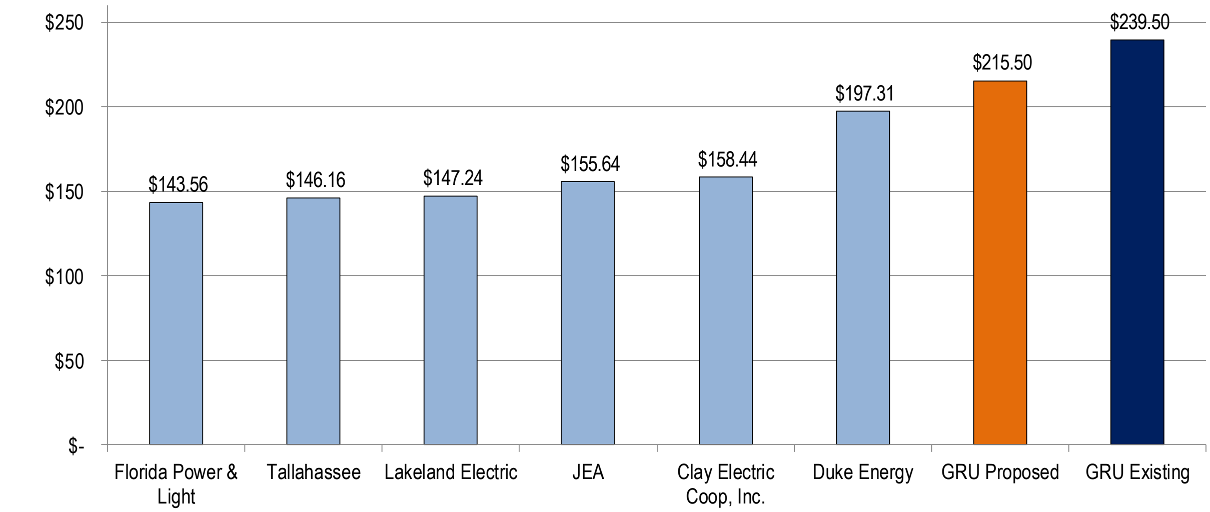
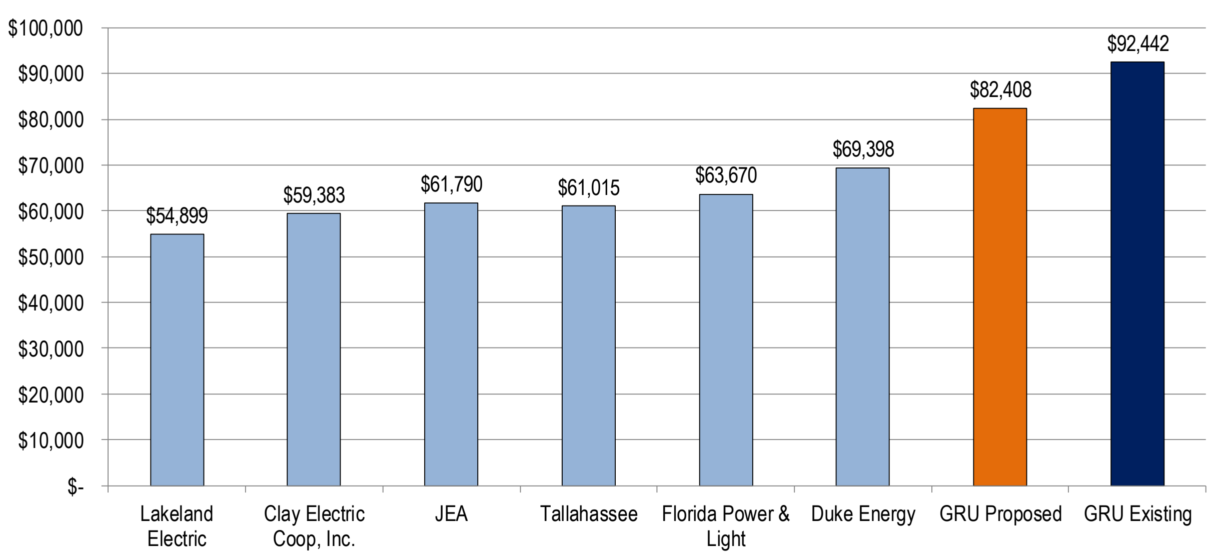


Figure 25 Comparison of Large Power Electric Monthly Bill for GRU and Six Comparators at 1,400 kW of Demand, 750,000 kWh



Many neighboring utilities include a fuel adjustment or power cost adjustment lower than that expected for GRU for the Test Year. The average of the comparators' fuel adjustment for the Residential class was approximately $0.0322 per kWh, 8% lower than GRU's proposed fuel adjustment charge (effective February 1, 2018) of $0.035. Also, most of the neighboring utilities' rates contain customer charges or service charges significantly lower than GRU's existing service charges. For example, the average residential service charge was approximately $9.87 per month, the average small commercial service charge was approximately $12.19 per month, and the average large commercial customer charge was approximately $108.78.

f) Non-Rate Charges and Fees

Looking at Residential Turn-On Charges for comparator utilities, GRU's charges are comparable. Comparator utilities (discussed in more detail in Section II.C.d) ranged between $18.50 and $50.00 (depending on the time of request, for example, same day vs. day-ahead). Total revenues for Turn-On Charges attributable to GRU's electric service were $560,461 for FY 2017; covering roughly 3.6% of GRU's $15.5 million total costs for Administrative, General and Customer Service costs for that year. Willdan recommends no changes to these charges at this time.

2. WHOLESALE ELECTRIC RESULTS

Rates paid by wholesale customers are based on fixed contracts. Also, except for Seminole, these customers can choose alternate service providers if GRU's rates are too high. Finally, all customers remaining on the system would incur additional costs if these wholesale customers choose alternate service providers. As such, Willdan recommends that GRU keep its wholesale rates as competitive as possible, recognizing the benefit the associated revenues provide to the system as a whole.

a) Proposed Rates

Wholesale customers are under contract and therefore no rate changes are applicable or possible.

b) Revenue Adequacy of Proposed Rates

All retail customers remaining on the system would incur additional costs if these wholesale customers choose alternate service providers. Therefore, any revenue generated above and beyond the variable costs incurred to provide the wholesale customers' service offsets system fixed costs is, therefore deemed beneficial to the entire system.

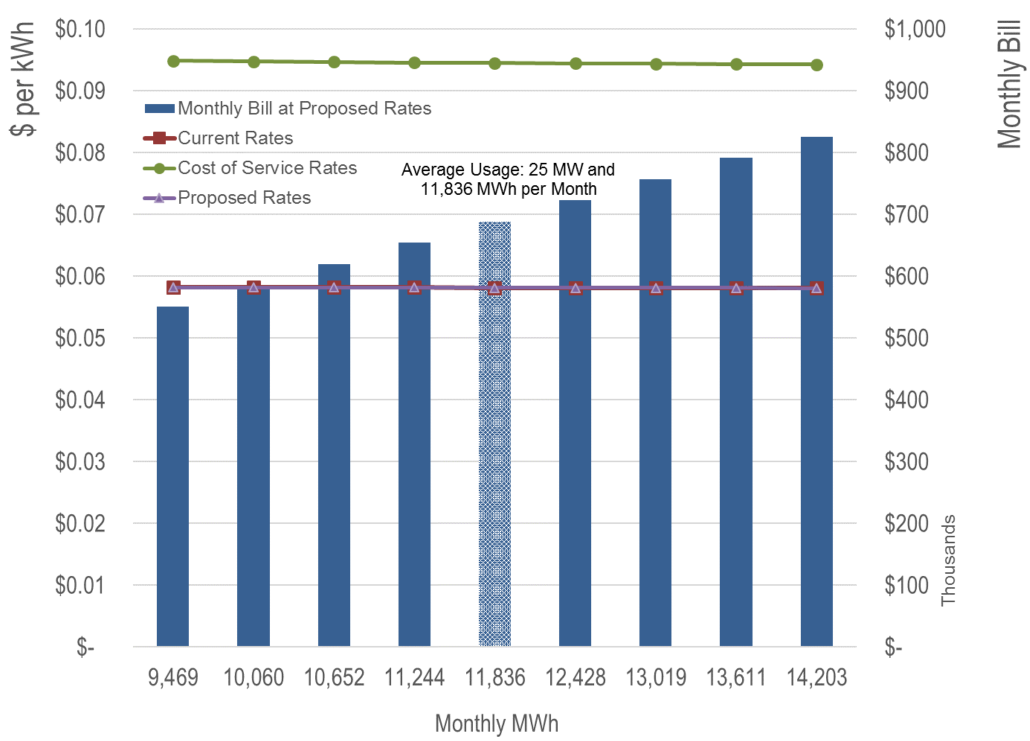
c) Wholesale Electric Bill Impact Comparison to Cost of Service

Table 27 compares a monthly Alachua wholesale electric service billing to COS. Figure 26 provides Alachua monthly wholesale bill impacts at various consumption levels for illustrative purposes only.

Table 27 Alachua Wholesale Electric Monthly Bill Impact

COMPONENT	BILLING UNITS	CURRENT FY 2018		COS	
		Unit Rate	Revenue	Unit Rate	Revenue
Energy (kWh)	11,835,751	$0.0185	$218,961.40	$0.0278	$329,262.38
Demand (kW)	24,555	$-	$-	$14.5152	$356,426.18
Fuel Adjustment	11,835,751	$0.0395	$467,512.17	$0.0351	$415,144.42
Customer Charge	1	$1,750	$1,750	$17,386.21	$17,386.21
Total		$0.0581	$688,223.56	$0.0945	$1,118,219.19
Change ($)					$429,995.62
Change (%)					62.5%

Figure 26 Alachua Wholesale Bill Impact of Rates at Various Usage Levels



3. ELECTRIC SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Electric Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over a three- to five-year period beginning in FY 2019.
2. Change the applicability of the Primary Metering Discount to only the energy portion of the bill (rather than energy plus demand).
3. If additional incentives for conservation and energy efficiency are desired, lower the consumption setpoint for Tier 1 energy for both its Residential and General Service Non-Demand customer classes, with commensurate rate changes to avoid over-collection.
4. Maintain competitive wholesale rates to provide systemwide benefits.
5. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

This page intentionally left blank.

Murphree Water Treatment Plant

III. WATER SYSTEM

This Section of the Report presents Study results for GRU's Water System and is organized as follows. Section A presents system information. Section B presents the COS analysis. Section C presents the rate design. Section D presents results and recommendations.

A. WATER SYSTEM INFORMATION

This Section of the report provides water system information including: general, supply and treatment, transmission and distribution, and usage characteristics by customer class.

WATER SYSTEM

1. GENERAL INFORMATION

GRU WATER SYSTEM SERVICE TERRITORY
Gainesville
Alachua
Unincorporated Alachua County

The GRU water system territory includes approximately 118 square miles serving the City, surrounding unincorporated areas, and a small residential development in the City of Alachua. Approximately 72% of Alachua County's total population receives water service from GRU.

Wholesale service is provided to UF and one small residential development in the City of Alachua.

2. SUPPLY AND TREATMENT

The Floridan Aquifer provides GRU's water supply which consists of 16 deep wells, vertical turbine pumps, and 18.5 million gallons of storage capacity comprised of pumped ground storage and elevated tanks. A conservation easement of over 7,000 acres immediately to the north and northwest of the treatment plant provides protection to the system's existing wells. The easement, purchased in 2000 by the water system and local water management districts, will accommodate the construction of additional wells.

In September 2014, GRU renewed its 30 million gallons per day (MGD) Consumptive Use Permit through September 10, 2034. Water supply facilities are planned based on reserve capacity requirements under extreme conditions of extended drought, with attendant maximum demands for water and lowered aquifer water levels. Under these design conditions, current water supply facilities are anticipated to have sufficient capacity through at least 2034. Based on information provided by the utility, no limitation of supply associated with the Aquifer's sustained yield has been identified by groundwater studies conducted to date.

Groundwater from the Aquifer is treated at the Murphree Water Treatment Plant prior to distribution and eventual use. Murphree's current peak day capacity of 54 MGD can be expanded to 60 MGD at the current site without interruption of treatment or service. In addition, Murphree's filter system has been upgraded with two additional filter cells, providing additional treatment capacity. Murphree's treated water meets all state and federal standards and the plant has been recognized by the AWWA and the Florida Department of Environmental Protection.

Water treatment consists of: softening, to protect the distribution system and improve customer satisfaction; fluoridation, for improved cavity protection in young children; filtration; and chlorination, for protection from microbial contamination. Specific treatment processes include sulfide oxidation, lime softening, pH (potential of hydrogen) stabilization, filtration, fluoridation, and chlorination. Treated water is collected in a clearwell for transfer to ground storage reservoirs prior to distribution.

3. TRANSMISSION AND DISTRIBUTION

The water system currently includes approximately 1,170 miles of lines throughout the Gainesville urban area, including approximately 258 miles of transmission and 912 miles of distribution.[43] Murphree's high service pumps, the Santa Fe Repump station, and two elevated storage tanks provide water flow and pressure stabilization throughout the service area.

The water transmission system consists primarily of cast iron and ductile iron water mains ranging from 10 to 36 inches in diameter and providing a hydraulically looped system.

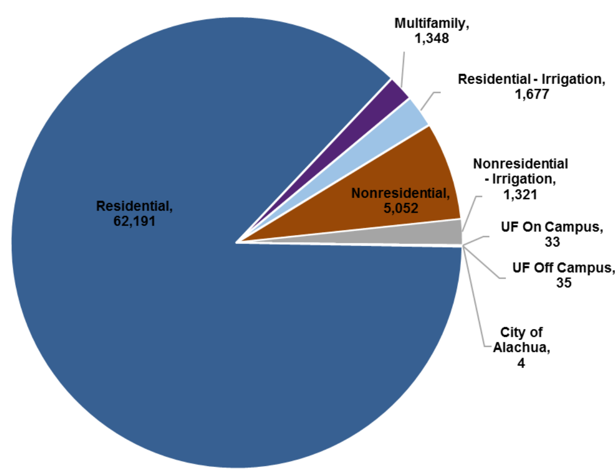
The water distribution system consists primarily of cast iron, ductile iron, and polyvinyl chloride (PVC) water lines from two to eight inches in diameter. GRU's water utility both installs new water distribution system additions and approves plans and inspects distribution facilities installed by private developers. Upon operation, such privately built systems are ultimately deeded over to GRU and become part of the overall distribution system. Pressure monitors located in several locations throughout the distribution system are monitored to ensure that adequate pressures are maintained. In addition, a computer model is used to assess future conditions and to identify system improvements required to ensure adequate pressure can be maintained in the future.

4. WATER SYSTEM USAGE CHARACTERISTICS BY CUSTOMER CLASS

In FY 2017, the water system served an average of 71,661 customers as illustrated in Figure 27, 87% of which were residential. The water system has experienced a slight increase in recent years as population growth has slowly begun to improve from weak economic conditions, as can be seen in Figure 28.

Figure 29 presents annual flows by customer class and total customers from FY 2014 to FY 2023.

Figure 27 Water Customers by Class FY 2017



[43] Based on information provided by GRU FMIS system. Based on GRU's GIS system data, these amounts are: 1,099 total miles of line, of which 849 miles are distribution, and 250 transmission.

Figure 28 Water System Customers by Class (FY 2013-2017)

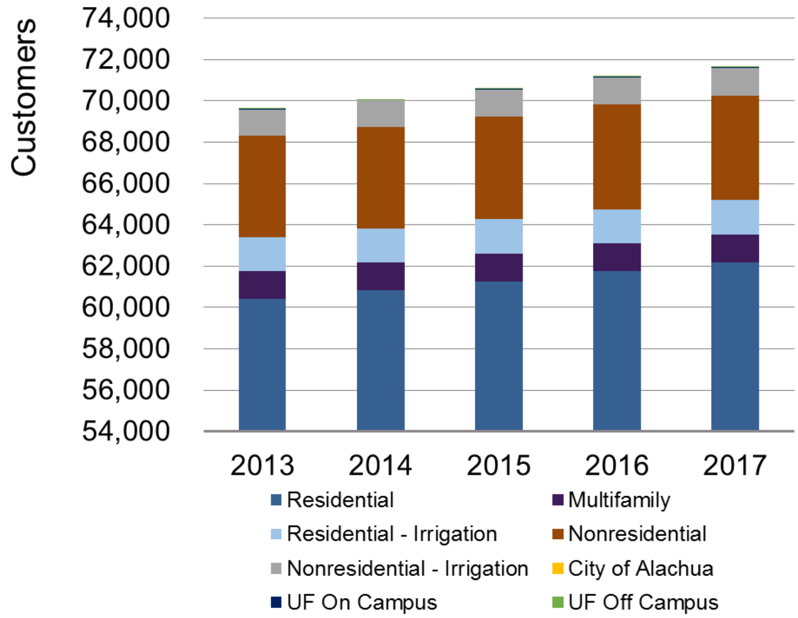
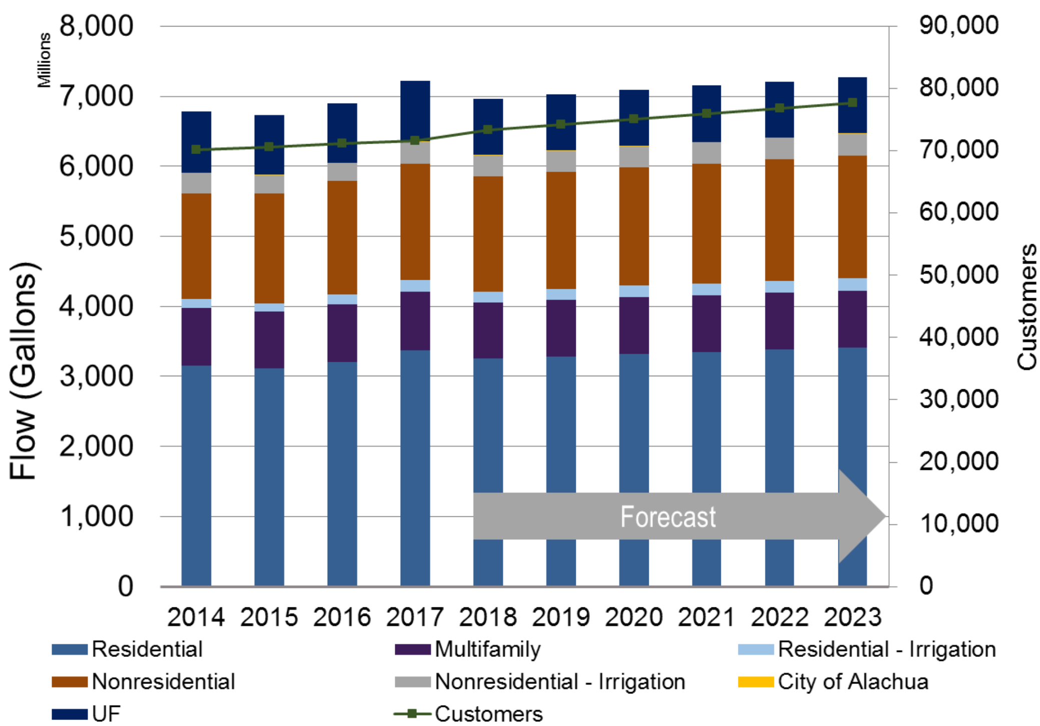
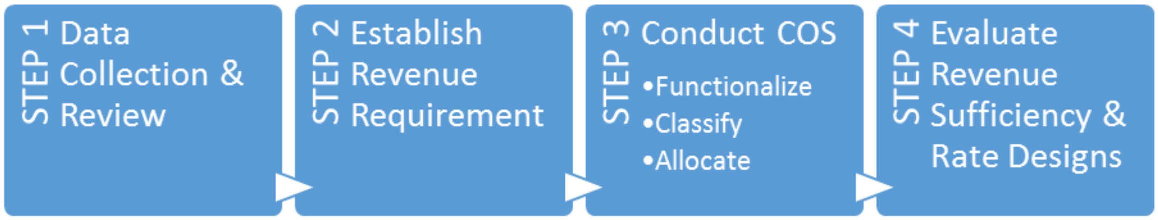


Figure 29 Water System Flows and Customers FY 2014-2023



B. WATER SYSTEM COST OF SERVICE ANALYSIS

The COS process used by Willdan follows industry standards and involves the four basic steps described in Section I.A and illustrated below.



This Section of the Study: presents the current budget and revenue requirement; describes the methodology for establishing the Test Year revenue requirement; identifies the Adjustments made to the Fiscal Year revenue requirement to generate the Test Year revenue requirement; functionally unbundles, classifies, and allocates the Test Year revenue requirement; identifies the Test Year Billing Determinants; and presents the projected revenue requirement and revenue for FY 2019-2023.

1. CURRENT WATER SYSTEM BUDGET AND REVENUE

Willdan used historical budget data provided by GRU for FYs 2013 through 2017 and forecasted budget data for FY 2019 through FY 2023. The FY 2018 budget numbers developed for FY 2019 were used as the starting point for the Test Year revenue requirement for the COS analysis. Table 28 provides budget and revenue data for FY 2017 through FY 2019.

Table 28 Water System Budget and Revenue (FY 2017 to FY 2019)

WATER BUDGET COMPONENT	2017	2018	2019
Operating Expenses	**$16,399,483**	**$17,294,498**	**$17,752,730**
Other Revenue Requirement			
Existing Debt Service	7,061,610	7,407,663	7,180,300
General Fund Transfer	5,794,879	5,838,842	5,838,842
Utility Plant Improvement Fund (UPIF) CIP Transfer	7,042,712	7,468,215	7,158,115
Total Other Revenue Requirement	*$19,899,200*	*$20,714,720*	*$20,177,258*
Total Revenue Requirement	**$36,298,683**	**$38,009,218**	**$37,929,988**
Revenue from Established Rates			
Residential Revenue	$22,032,584	$21,359,240	$21,590,342
Non-Residential Revenue	8,549,420	8,398,613	8,504,116
Surcharge Revenue	2,505,584	2,455,023	2,479,783
University of Florida Wholesale Revenues	1,960,398	1,867,498	1,867,498
Total Rate Revenue	*$35,047,986*	*$34,080,374*	*$34,441,739*

WATER BUDGET COMPONENT	2017	2018	2019
Other Revenue Sources and Inflows			
Connection	$1,139,000	$1,165,000	$1,170,000
Surcharge on Connections	71,000	73,000	73,000
Build America Bonds, U.S. Treasury Cash Subsidy	824,746	815,464	805,701
Other Revenue	2,200,000	2,643,528	2,749,270
Interest Income	165,520	278,739	298,435
Rate Stabilization (to)/from	(3,149,569)	(1,046,888)	(1,608,157)
Total Other Revenue Sources and Inflows	*$1,250,697*	*$3,928,843*	*$3,488,249*
Total Revenue and Inflows	**$36,298,684**	**$38,009,218**	**$37,929,988**
Total Surplus or (Deficiency)	$1	$0	$0

In total, all utility revenue requirements are projected to be approximately $37,929,988 for FY 2019. Revenues and inflows are projected to equal this amount after an infusion of $1.6 million to the rate stabilization fund.

2. METHODOLOGY

Willdan created the Test Year revenue requirement using a three-step process. First a statement of expenses for the FY 2019 operations using GRU's detailed budget data by cost center was created. GRU provided this information based on its FY 2018 budget. Next, adjustments occurring after October 1, 2017, or known and measurable changes, were identified and quantified. Known and measurable changes impact GRU's costs or revenues and have either occurred or are expected to occur during the Study period (FY 2019 through 2023). Finally, the adjustments were applied to the original budget to create the Test Year FY 2019 values.

For the purposes of this Study, FY 2019 is the Test Year upon which the COS and rate design analyses are based. In addition, projected costs and revenues are shown for FY 2020 through 2023.

a) Water System Test Year Revenue Requirement

Table 29 presents the FY 2019 Budget, Adjustments and the resulting Test Year 2019 Budget and Revenues. For each adjustment, an explanation follows in Section III.B.3.

Table 29 Water System Test Year Revenue Requirement

WATER BUDGET COMPONENT	2019	ADJUSTMENTS	TEST YEAR FY 2019
Operating Expenses	**$17,752,730**	**$0**	**$17,752,730**
Other Revenue Requirement			
Existing Debt Service	$7,180,300		$7,180,300
General Fund Transfer	5,838,842		5,838,842
Utility Plant Improvement Fund (UPIF) Transfer	7,158,115		7,158,115
Total Other Revenue Requirement	*$20,177,258*		*$20,177,258*
Total Revenue Requirement	**$37,929,988**	**$0**	**$37,929,988**
Revenue from Established Rates			
Residential Revenue	$21,590,342	($19,632)	$21,570,710
Non-Residential Revenue	8,504,116	244,528	8,748,644
Surcharge Revenue	2,479,783	247,363	2,727,146
University of Florida Wholesale Revenues	1,867,498	473,082	2,340,580
Total Rate Revenue	*$34,441,739*	*$945,341*	*$35,387,080*
Other Revenue Sources and Inflows			
Connection	$1,170,000		$1,170,000
Surcharge on Connections	73,000		73,000
Build America Bonds, U.S. Treasury Cash Subsidy	805,701		805,701
Other Revenue	2,749,270		2,749,270
Interest Income	298,435		298,435
Rate Stabilization (to)/from	(1,608,157)	1,608,157	0
Total Other Revenue Sources and Inflows	*$3,488,249*	*$1,608,157*	*$5,096,406*
Total Revenue and Inflows	**$37,929,988**	**$2,553,498**	**$40,483,486**
Total Surplus or (Deficiency)	$0		$2,553,498

b) Debt Service

Annual debt service information through FY 2023 was provided by GRU and follows management's expectations of future debt issuances and associated debt service, including long-term bond and commercial paper issuances. Willdan reviewed this data to determine reasonableness, however, no in-depth analysis of the debt plan was conducted and no adjustments to the debt plan were made in terms of size of debt, timing, interest rates, or other parameters.

c) Capital Improvement Program

GRU's capital improvement plan includes debt-funded and revenue-funded expenditures for treatment, transmission, distribution, and special projects. For Test Year FY 2019, GRU plans approximately $12.1 million in capital improvement projects, with $7.2 million funded by revenues and the remaining funding by debt.

d) Cash Reserves

GRU maintains a rate stabilization fund, with a balance of $74.2 million at the end of FY 2016 according to its Financial Statements, that can be used by all utilities: electric, water, wastewater, and natural gas. GRU has budgeted for an outflow from water revenues to the rate stabilization fund of $1.6 million for FY 2019. Willdan has removed this outflow in its Test Year projections, and for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other water system funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for all years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, an accepted industry practice.

3. FISCAL YEAR, ADJUSTMENTS, AND TEST YEAR

Table 29 on page 83 above presents the FY 2019 Budget, Adjustments and the resulting Test Year 2019 Budget. The following adjustments for known and measurable changes were made to the budget to develop the Test Year revenue requirement.

a) Rate Revenue Adjustments

Base rate, volumetric, and surcharge revenues were adjusted to reflect inflows at expected FY 2019 billing determinants times current rates, effective October 1, 2017, resulting in an overall increase in revenues of $945,341.

b) Rate Stabilization Fund Transfer Adjustment

GRU has budgeted for an outflow from water revenues to the rate stabilization fund of $1.6 million for FY 2019. Willdan has removed this outflow in its Test Year projections, and for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other water utility funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for all years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is a generally-accepted industry practice.

c) Overall Impact of Adjustments

The overall impact of adjusting the budget for known and measurable changes was an increase in revenues and net inflows of $2.6 million or $40.5 million in total.

4. FUNCTIONAL UNBUNDLING, CLASSIFICATION, AND ALLOCATION

The Test Year revenue requirement was then functionally unbundled, classified, and allocated to customer class to determine the cost of service by rate class.

a) Functional Unbundling of Water System Revenue Requirement

GRU costs were unbundled into Supply/Treatment, Transmission, Distribution, Customer, and Administration functions—the primary services provided by GRU's water utility to its retail and wholesale customers.

- **Supply/Treatment:** costs associated with obtaining and converting raw water to potable water
- **Transmission:** the costs associated with major pumping and large diameter line facilities that transmit potable water throughout the system at large
- **Distribution:** the costs associated with smaller diameter lines that carry water to individual customer properties
- **Customer:** the costs associated with metering, billing and providing other services to customers (e.g. printing, delivering and collecting utility bills, recordkeeping, etc.)
- **Administration:** miscellaneous overhead and other non-operating costs

Table 30 presents the functionally unbundled revenue requirement for the test Year FY 2019.

Table 30 Functional Unbundling of Water System Test Year Revenue Requirement

WATER BUDGET COMPONENT	TEST YEAR FY 2019 ($000)
Bundled Revenue Requirement	$37,930
Less Other Revenue Sources and Inflows	($5,096)
Total Revenue Requirement	**$32,834**
Functionally Unbundled Revenue Requirement	
Supply/Treatment	$14,909
Transmission	$3,024
Distribution	$10,085
Customer	$3,412
Administration	$1,404
Total Revenue Requirement	**$32,834**

b) Classification of Water System Costs

The functionally unbundled water system revenue requirement was then classified using the base-extra capacity cost allocation method included in AWWA Manual M-1. Applying this methodology, costs are classified into the following categories:

- **Base Costs:** capital costs and O&M expenses associated with service to customers under average demand conditions. This category does not include any costs attributable to variations in water use resulting from peaks in demand. Base costs tend to vary directly with the total quantity of water used.

- **Maximum Day/Extra Capacity Costs:** costs attributable to facilities that are designed to meet peaking requirements. These costs include capital and operating costs for additional plant and system capacity beyond that required for average usage. For the purpose of this analysis, the max/extra capacity costs are further separated into systemwide facilities and distribution facilities. Such a separation is done to provide a basis to exclude the allocation of distribution costs from wholesale customers that operate their own distribution facilities for their customers.

- **Customer Costs:** costs associated with any aspect of customer service including billing, accounting, recordkeeping and meter services. These costs are independent of the amount of water used and the size of the customer's meter, and are not subject to peaking factors.

According to AWWA Manual M-1, for the base-extra capacity method, care must be taken in separating costs between those devoted to base capacity and those devoted to extra capacity. The peak to average factor is calculated by dividing the volume on the peak day of the year by the average daily volume. Based on information provided by utility staff, the water treatment plant has a current Peak/Average ratio factor of 1.548 times. Based on this factor, facilities designed to meet maximum-day requirements, such as the treatment and distribution functions, are allocated 64.6% to base capacity, and 35.4% to extra capacity (Max Day). All customer service-related costs are allocated 100% to customer billing.

The system-wide costs by service characteristic are shown in Table 31. As with cost functionalization, these percentages are not expected to change significantly in the forecast period.

Table 31 Classification of Functionally Unbundled Water System Test Year Revenue Requirement

WATER BUDGET COMPONENT	BASE	MAXIMUM DAY SYSTEM	MAXIMUM DAY DISTRIBUTION	CUSTOMER	TOTAL
Supply/Treatment	$9,631	$5,278			**$14,909**
Transmission	$1,953	$123	$947	$-	**$3,024**
Distribution	$6,515	$-	$3,570	$-	**$10,085**
Customer				$3,412	**$3,412**
Administration	$809	$241	$202	$152	**$1,404**
TOTAL	**$18,908**	**$5,642**	**$4,719**	**$3,564**	**$32,834**

c) Allocation to Customer Classes

The functionalized, classified, revenue requirement was then allocated to customer classes as follows:

- **Base Costs:** Based on relative percentage of Base Annual Usage.
- **Maximum Day/Extra Capacity System Costs:** Based on relative percentage of Extra Capacity for the entire system (i.e., excluding UF on campus).
- **Maximum Day/Extra Capacity Distribution Costs:** Based on relative percentage of Extra Capacity for the distribution system (i.e., excluding the City of Alachua and UF on campus).

- **Customer Costs:** Based on relative percentage of Equivalent Residential Units (ERUs).

The functionalized, classified revenue requirement allocated to customer class are shown in Table 32.

Table 32 Allocation of Classified, Functionally Unbundled Water System Test Year Revenue Requirement to Customer Classes ($000)

WATER RATE CLASS	BASE ($000)	MAXIMUM DAY SYSTEM ($000)	MAXIMUM DAY DISTRIBUTION ($000)	CUSTOMER ($000)	TOTAL ($000)
Residential	$8,164	$2,784	$2,334	$2,988	**$16,270**
Multifamily	$2,284	$754	$632	$92	**$3,762**
Residential - Irrigation	$589	$657	$550	$85	**$1,882**
Nonresidential	$4,819	$950	$796	$311	**$6,876**
Nonresidential - Irrigation	$863	$476	$399	$65	**$1,803**
City of Alachua	$15	$12	$-	$1	**$28**
UF On Campus	$2,148	$-	$-	$18	**$2,166**
UF Off Campus	$26	$9	$7	$5	**$47**
TOTAL	**$18,908**	**$5,642**	**$4,719**	**$3,564**	**$32,834**

5. FY 2019-2023 BILLING DETERMINANTS

Table 33 presents consumption characteristics by customer class for the Test Year FY 2019. In developing flow-related billing determinants, the projected billable consumption amounts for the Test Year were adjusted to reflect: rate differentials associated with block rates (Residential and Residential Irrigation); and the 1.25 times surcharge for customers located outside the City limits of Gainesville.

Table 33 Water System Consumption Characteristics by Customer Class (FY 2019)

WATER CUSTOMER CLASS	AVERAGE DAILY USAGE – BASE		MAXIMUM DAILY USAGE		EXTRA CAPACITY - SYSTEM		EXTRA CAPACITY - DISTRIBUTION	
	Gallons	%	Factor	Gallons	Gallons	%	Gallons	%
Residential	8,229,853	43%	1.2	9,800,136	1,570,283	49%	1,570,283	49%
Multifamily	2,301,949	12%	1.2	2,727,441	425,492	13%	425,492	13%
Residential - Irrigation	594,154	3%	1.6	964,506	370,352	12%	370,352	12%
Nonresidential	4,857,420	25%	1.1	5,393,226	535,807	17%	535,807	17%
Nonresidential - Irrigation	870,021	5%	1.3	1,138,691	268,670	8%	268,670	8%
City of Alachua	15,030	0%	1.5	21,797	6,767	0%	-	0%
UF On Campus	2,165,479	11%	1.0	2,165,479	-	0%	-	0%
UF Off Campus	26,301	0%	1.2	31,266	4,965	0%	4,965	0%
TOTAL SYSTEM	19,060,207	100%	1.2	22,242,544	3,182,337	100%	3,175,570	100%

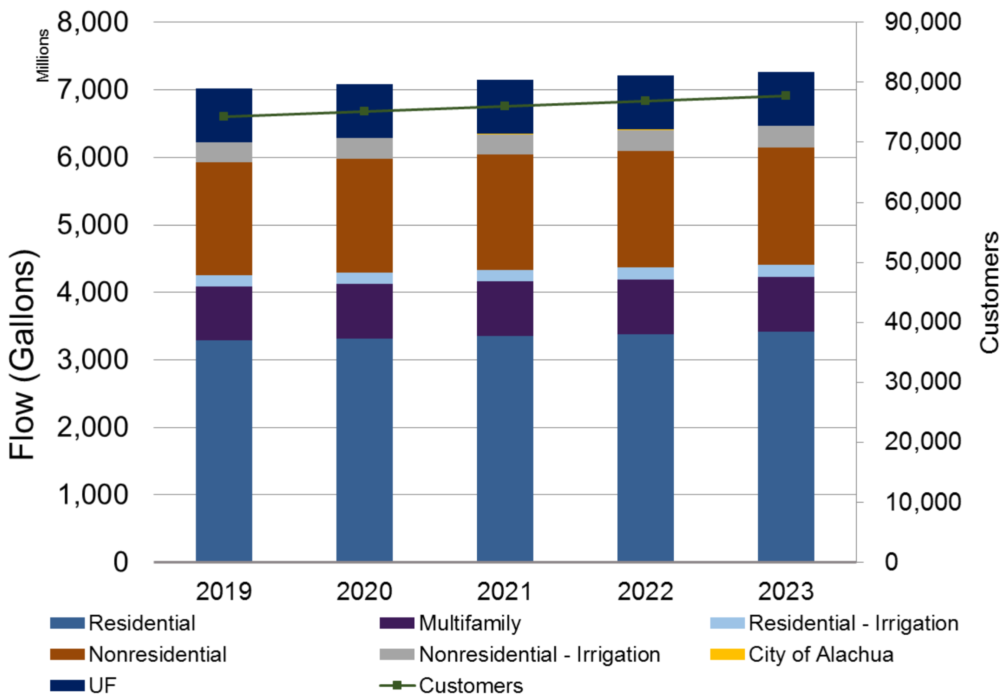
Table 34 presents customer accounts and equivalent residential units (ERUs) for Test Year FY 2019.

Table 34 Water System Accounts and Equivalent Residential Units by Customer Class (FY 2019)

WATER CUSTOMER CLASS	CUSTOMER ACCOUNTS		EQUIVALENT RESIDENTIAL UNITS	
Residential	64,673	87%	70,858	84%
Multifamily	1,350	2%	2,181	3%
Residential - Irrigation	1,727	2%	2,025	2%
Nonresidential	5,103	7%	7,368	9%
Nonresidential - Irrigation	1,328	2%	1,530	2%
City of Alachua	4	0%	25	0%
UF On Campus	36	0%	421	0%
UF Off Campus	40	0%	113	0%
TOTAL SYSTEM	74,261	100%	84,521	100%

Figure 30 presents customer accounts and flow for the Study period (FY 2019 to 2023).

Figure 30 Water System Flows and Customers (FY 2019-2023)



6. FY 2019-2023 PROJECTED REVENUE REQUIREMENT & REVENUES AT CURRENT RATES

Using the billing determinants developed for FY 2019 through FY 2023, Willdan calculated annual FY revenues at current rates and compared them against cost projections. This comparison informs the expected rate increases/decreases required over time to meet projected revenue requirements. Table 35 shows the revenue requirement and associated rate revenue at current rates for the FY 2019 through FY 2023 period.

Table 35 Projected Water System Revenue Requirement and Revenues at Current Rates (FY 2019-2023 $000)

WATER BUDGET COMPONENT ($000)	2019	2020	2021	2022	2023
Operating Expenses	**$17,753**	**$18,108**	**$18,470**	**$18,839**	**$19,216**
Other Revenue Requirement					
Existing Debt Service	$7,180	$7,452	$9,392	$9,744	$9,512
General Fund Transfer	5,839	5,933	6,028	5,925	5,823
Utility Plant Improvement Fund Transfer	7,158	7,019	6,964	7,038	7,000
Total Other Revenue Requirement	*$20,177*	*$20,404*	*$22,384*	*$22,706*	*$22,335*
Total Revenue Requirement	**$37,930**	**$38,512**	**$40,854**	**$41,545**	**$41,551**
Revenue from Established Rates					
Residential Revenue	$20,341	$18,591	$18,817	$19,037	$19,256
Non-Residential Revenue	9,978	12,772	13,247	13,642	14,001
Surcharge Revenue	2,727	2,829	2,906	2,978	3,047
University of Florida Wholesale Revenues	2,341	2,404	2,435	2,467	2,497
Total Rate Revenue	*$35,387*	*$36,595*	*$37,405*	*$38,123*	*$38,801*
Other Revenue Sources and Inflows					
Connection	$1,170	$1,176	$1,181	$1,185	$1,193
Surcharge on Connections	73	2,859	2,974	3,093	3,216
Build America Bonds, U.S. Treasury Cash Subsidy	806	795	784	773	760
Other Revenue	2,749	73	74	74	75
Interest Income	298	321	341	336	328
Rate Stabilization (to)/from	0	0	0	0	0
Total Other Revenue Sources and Inflows	*$5,096*	*$5,225*	*$5,354*	*$5,460*	*$5,573*
Total Revenue and Inflows	**$40,483**	**$41,820**	**$42,759**	**$43,583**	**$44,374**
Total Surplus or (Deficiency)	$2,553	$3,308	$1,905	$2,038	$2,823

C. WATER RATE DESIGN

This section presents: the Study approach to rate design, GRU's current retail water rate structures, and GRU's current wholesale water rate structures.

1. APPROACH

The first step in the rate design process is to determine the cost to serve each customer class based on consumption and customer counts. This information was obtained through the COS analysis discussed above. In addition to the COS analysis, various considerations drive the rate design process including existing rate structures, magnitude of required changes, and elasticity of demand, as well as traditional principles as discussed in Section I.A.4 on page 6. The existing rate structure is important because customers are accustomed to it; rate design changes could result in sudden and unexpected cost increases, negatively impacting customers. Public policy decisions can also: influence rate design; dictate class cross subsidies; impact the level of fixed (such as the meter charge) versus variable or consumption-based charges (such as the volumetric charge), and determine the period over which new rates are implemented. Finally, rates should be designed to send proper pricing signals to consumers, while taking into account the degree to which rate levels influence consumption (positively and negatively). However, for purposes of this Study, the most critical driver for rate design was to ensure revenue adequacy: that proposed rates generate adequate revenue to meet the financial needs of GRU.

2. WATER RETAIL RATE STRUCTURE

This section discusses GRU's current rate structures for retail customers and compares them to the cost-based rates derived from the COS analysis. In reviewing GRU's water rate structure, consideration is given to administrative efficiency, water conservation goals, the competitiveness of the rate structure with other regional utility systems, as well as common industry standards for water utility rates. Upon review, certain rate structure modifications are proposed.

a) Current Rates

GRU's retail rates apply to residential, multi-family, nonresidential, and irrigation customers. These rates are approved by the City Commission and are not subject to administrative review or approval by any other local or state agency. GRU has historically adjusted rates as necessary to provide for recovery of financial obligations including operating expenses, debt service, capital expenditures, other expenses, and transfers.

Existing retail water rates consist of two parts:

- **Monthly Base Charges** that designate the minimum amount a customer will pay regardless of usage and that increase incrementally based on water meter size; and
- **Volumetric Rates** based upon the amount of monthly metered water usage in MG;
    - Residential volumetric rates utilize a three-tier inclining (conservation) structure such that the rate increases at defined levels of monthly metered usage (less than 4,000 gallons, between 4,001 and 16,000 gallons, and greater than 16,000 gallons).
    - Residential Irrigation volumetric rates utilize a two-tier inclining (conservation) structure such that the rate increases at monthly metered usage greater than 12,000 gallons.

- Nonresidential and Multi-family volumetric rates utilize a uniform rate structure that remains constant for all levels of metered usage.

Customers located outside the City limits pay a 25% surcharge applicable to GRU's rates. The existing rates (FY 2018) for water service are summarized in Table 36. The middle column shows GRU's rates for all customers, and the right column shows the rate plus the surcharge paid by customers located outside of City limits.

Table 36 Retail Water Rates (FY 2018)

FY 2018 WATER RATES		
Monthly Base Charges ($/Month by Meter Size)	**User Rate**	**Rate Plus Surcharge**
5/8 & 3/4 Inch	$9.45	$11.81
1.0 Inch	$9.65	$12.06
1.5 Inch	$12.50	$15.63
2.0 Inch	$20.00	$25.00
3.0 Inch	$74.00	$92.50
4.0 Inch	$100.00	$125.00
6.0 Inch	$140.00	$175.00
8.0 Inch	$200.00	$250.00
10.0 Inch	$275.00	$343.75
Residential–Volumetric ($ per 1,000 Gallons)	**User Rate**	**Rate Plus Surcharge**
0 to 4,000 Gallons per Month	$2.45	$3.06
4,001 to 16,000 Gallons per Month	$3.75	$4.69
Over 16,000 Gallons per Month	$6.00	$7.50
Residential Irrigation–Volumetric ($ per 1,000 Gallons)	**User Rate**	**Rate Plus Surcharge**
0 to 12,000 Gallons per Month	$3.75	$4.69
Over 12,000 Gallons per Month	$6.00	$7.50
General Service–Volumetric ($ per 1,000 Gallons)	**User Rate**	**Rate Plus Surcharge**
Multi-Family	$3.75	$4.69
Nonresidential	$3.85	$4.81
Nonresidential Irrigation	$4.60	$5.75

b) Water System Current, Cost-Based, and Proposed Rates

Table 37 summarizes water system current, COS, and proposed rates for the Test Year.

Table 37 Water Test Year Current, Cost of Service and Proposed Rates

WATER RATE COMPONENT	USER RATES Existing	COS	Proposed
Monthly Base Charges:			
5/8 & 3/4 Inch	$9.45	$3.51	$9.45
1.0 Inch	$9.65	$3.58	$12.29
1.5 Inch	$12.50	$4.64	$19.85
2.0 Inch	$20.00	$7.45	$31.19
3.0 Inch	$74.00	$27.52	$89.78
4.0 Inch	$100.00	$37.18	$127.58
6.0 Inch	$140.00	$52.05	$206.96
8.0 Inch	$200.00	$74.36	$310.91
10.0 Inch	$275.00	$102.26	$456.44
Residential Inside	**Volumetric per 1,000 Gallons**		
Block 1 - 0 to 4,000 Gallons / Month	$2.45	$2.89	$2.45
Block 2 - 4,001 to 16,000 Gallons / Month	$3.75	$4.42	$3.75
Block 3 - All Over 16,000 Gallons / Month	$6.00	$7.07	$6.13
Volumetric Per 1,000 Gallons			
City of Alachua	$1.62	$4.90	$1.62
UF On Campus	$2.84	$2.72	$2.84
UF Off Campus	$3.67	$4.40	$3.67

c) Water System Revenues at Current, Cost-Based, and Proposed Rates

Table 38 provides Test Year Water revenues and current, COS, and proposed rates.

Table 38 Test Year Water Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS	TEST YEAR WATER REVENUES BY RATE ASSUMPTION ($000) CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$19,298	$16,270	$3,029	19%	$19,346	$47	0%
Multifamily	3,399	3,762	(364)	-10%	3,480	81	2%
Residential - Irrigation	1,043	1,882	(839)	-45%	1,049	6	1%
Nonresidential	7,660	6,876	785	11%	7,864	204	3%
Nonresidential - Irrigation	1,634	1,803	(169)	-9%	1,658	24	1%
City of Alachua	12	28	(16)	-58%	13	2	13%

CUSTOMER CLASS	TEST YEAR WATER REVENUES BY RATE ASSUMPTION ($000) CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
UF On Campus	2,292	2,166	127	6%	2,318	26	1%
UF Off Campus	48	47	1	2%	54	6	12%
TOTAL REVENUES	**$35,387**	**$32,834**	**$2,553**	**8%**	**$35,783**	**$396**	**1%**
Net Revenue Requirement	*$32,834*	*$32,834*	*$0*	*0%*	*$32,834*	*$0*	*0%*
Total Surplus/(Deficiency)	$2,553	$0	$2,553	-	$2,949	$396	15%

d) Non-Rate Charges and Fees

GRU has two types of non-rate charges and fees for the water system: connection charges and other non-rate charges.

i) Connection Charges

Water connection charges may be referred to by different terms including impact fees, capacity fees, capacity reservation charges, system development fees, facility fees, capital connection charges or other such terminology. In general, a connection charge is a one-time charge implemented as a means of recovering (in whole or part) the costs associated with capital investments made by the utility to provide water service to future users of the system. Such capital costs generally include the construction of facilities as well as engineering, surveys, land, financing, legal, and administrative costs. Implementation of connection charges (or other similar charges) to establish a supplemental (non-rate) source of funding for future capital projects is common water utility industry practice. GRU's existing water connection charges are provided in Table 39.

Table 39 Current Water Connection Charges (FY 2018)

WATER CONNECTION TYPE	TRANSMISSION AND DISTRIBUTION CONNECTION CHARGE	WATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WATER CONNECTION CHARGE
Minimum Connection Charge	($)	($)	($)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$448.00	$675.00	$1,123.00
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$448.00	$675.00	$1,123.00
Nonresidential connections with an estimated annual average daily flow	$448.00	$675.00	$1,123.00

WATER CONNECTION TYPE	TRANSMISSION AND DISTRIBUTION CONNECTION CHARGE	WATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WATER CONNECTION CHARGE
of less than or equal to 280 gallons per day			
Flow Based Connection Charge [*]	($/GPD ADF)	($/GPD ADF)	($/GPD ADF)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$1.60	$2.41	$4.01
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$1.60	$2.41	$4.01
Nonresidential connections with an estimated annual average daily flow of greater than 280 gallons per day	$1.60	$2.41	$4.01
Multi-family connections	$1.60	$2.41	$4.01
[*] The greater of: the charge per unit flow (in $/GPD ADF) multiplied by the estimated annual average daily flow (ADF); and the minimum connection charge.			

As part of this Study, Willdan conducted a detailed analysis of GRU water system connection charges, presented in Appendix A.

ii) Other Non-Rate Charges

Non-rate fees and charges (also referred to as miscellaneous service charges) are typically associated with activities that are ancillary to the provision of water utility service. As a general practice, miscellaneous fees and charges are not intended to overburden customers. Rather, these charges are intended to recover certain definable costs in cases where the administrative burden of administering the charge is financially justifiable.

3. WATER WHOLESALE RATE STRUCTURE

UF and a small residential development in Alachua are GRU's only wholesale water customers.

a) Current Rates

- **University of Florida:** UF wholesale rates are developed internally each fiscal year based on a formula that utilizes data from the prior year's audited financial statements. In accordance with this practice, the wholesale rates that will be applied to UF during the Test Year will be calculated based on the FY 2017 financial statements when completed.

- **City of Alachua:** The wholesale rates applied to Alachua are negotiated between the parties.

The current wholesale water rates are provided in Table 40.

Table 40 GRU Wholesale Water Rates (FY 2018)

FY 2018 WHOLESALE WATER RATES		
Monthly Base Charges ($/Month by Meter Size)	**INSIDE**	**OUTSIDE**
5/8 & 3/4 Inch	$9.45	$11.81
1.0 Inch	$9.65	$12.06
1.5 Inch	$12.50	$15.63
2.0 Inch	$20.00	$25.00
3.0 Inch	$74.00	$92.50
4.0 Inch	$100.00	$125.00
6.0 Inch	$140.00	$175.00
8.0 Inch	$200.00	$250.00
10.0 Inch	$275.00	$343.75
General Service–Volumetric ($/1,000 Gallons)	**INSIDE**	**OUTSIDE**
City of Alachua		$1.62
University of Florida On Campus	$2.84	
University of Florida Off Campus	$3.67	

D. WATER SYSTEM RESULTS AND RECOMMENDATIONS

This section presents the results of the retail rate analysis followed by the wholesale rate analysis and Study recommendations. Evaluation of taxes, surcharges, Surtaxes, Franchise Fees, and other similar assessments are outside the scope of this Study.

1. RETAIL RESULTS

Strict allocations to COS based rates can result in extremely different rates between customer classes, particularly for water due to the misalignment between cost incurrence and cost recovery. Water system costs are primarily fixed in nature, but are recovered using volumetric or consumption-based charges. Additional rate-making considerations include the eight principles listed in Section I.A.4 on page 6. When designing retail water rates, public policy often dictates compliance with conservation and economic development goals.

All proposed rates are based on application of these principles, discussions with staff, professional judgment, and prior experience with comparable utility systems. An overall goal of the proposed rate design is to move GRU towards monthly base charges that conform to AWWA meter equivalency standards that ensure that customers placing a greater potential demand requirement on the system (those with larger meters) pay proportionately more for the service availability component. The first phase of such incrementing adjustments applies to the proposed rates for the Test Year.

a) Proposed Rates

GRU's existing rate structure includes increases to the monthly base charge as the connection size (i.e., meter) increases, however GRU's incrementing equivalency factors do not conform to AWWA standards. The rates proposed by Willdan conform to AWWA equivalent meter capacity criteria and are used to establish a standard unit of measure for customers, ERUs. An ERU is equal to one single-family residential connection with a 5/8 x 3/4-inch water meter. The applicable ERU factors for larger water meters are based upon the incremental increase in potential capacity of those meters as compared to the standard meter size. These factors are derived from actual flow testing results, as performed and defined by the AWWA, and commonly utilized by the water utility industry. In fact, many state public service commissions have adopted the AWWA meter equivalency basis as the required rate structure for private water utility systems within their regulatory jurisdiction. In practice, the AWWA equivalency factors can be applied to the monthly base charge for a 5/8 x 3/4-inch meter to calculate the applicable base charges for each meter size. To mitigate the potential for "rate shock" for larger customers, Willdan proposes to phase-in the proposed changes over five years. Table 41 provides AWWA meter-size equivalency factors, the factors currently utilized by GRU, and Willdan's proposed phase-in plan.

Table 41 Meter Equivalency Factors: AWWA Recommended, GRU's Current and Willdan's Proposed Five-Year Phase-in Plan

METER SIZE	AWWA[44]	GRU CURRENT	WILLDAN'S PROPOSED PHASE-IN				
			Year 1	Year 2	Year 3	Year 4	Year 5
5/8 & 3/4 Inch	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.0 Inch	2.50	1.02	1.30	1.60	1.90	2.20	2.50

[44] Meter-size equivalency factors established by the AWWA and identified in AWWA Standards C700, M1 and M22.

METER SIZE	AWWA[44]	GRU CURRENT	WILLDAN'S PROPOSED PHASE-IN Year 1	Year 2	Year 3	Year 4	Year 5
1.5 Inch	5.00	1.32	2.10	2.90	3.70	4.50	5.00
2.0 Inch	8.00	2.12	3.30	4.50	5.70	6.90	8.00
3.0 Inch	16.00	7.83	9.50	11.20	12.90	14.60	16.00
4.0 Inch	25.00	10.58	13.50	16.40	19.30	22.20	25.00
6.0 Inch	50.00	14.81	21.90	29.00	36.10	43.20	50.00
8.0 Inch	80.00	21.16	32.90	44.70	56.50	68.30	80.00
10.0 Inch	125.00	29.10	48.30	67.50	86.70	105.90	125.00

b) Proposed Non-Rate Charges and Fees

Willdan's proposed changes to GRU's water system Connect Charges and Other Non-Rate Charges follows.

i) Proposed Connection Charges

Water connection charges were developed based upon estimated cost of capacity per gallon using the cost of major system facilities and capacities, as presented in Appendix A. Based on this methodology, water facility costs total $5.003 per gallon of water capacity, of which $1.645 represents treatment and $3.358 represents transmission, after rounding down to avoid over-collection.[45]

Applying the average day level of service (LOS) amount of 280 GPD to the estimated unit costs per gallon of capacity results in the proposed water connection charge of $1,400 for a typical single-family residential connection (i.e., per ERU), when rounded down to avoid over assessment.

New connections with larger water meters have the potential of placing more demand on the system and have been assessed ERU factors accordingly based AWWA meter equivalency factors. Proposed water connection charges by meter size are provided in Table 42.

[45] See Table A-5 on page A-7 of Appendix A.

Table 42 Proposed Water System Connection Charges

METER SIZE	METER-BASED ERU FACTOR	GRU CURRENT	WILLDAN PROPOSED METER BASIS	WILLDAN PROPOSED FLOW BASIS[46]
5/8 & 3/4 Inch	1.00	$1,123	$1,400	
1.0 Inch	2.50		$3,500	
1.5 Inch	5.00		$7,000	
2.0 Inch	8.00		$11,200	
3.0 Inch	16.00		$22,400	
4.0 Inch	25.00		$35,000	
6.0 Inch	50.00		$70,000	
8.0 Inch	80.00		$112,000	
Optional Flow Basis Charge Per Gallon of Capacity (GPD):				($/GPD)
Treatment Facilities				$1.645
Transmission Facilities				$3.358
Total				**$5.003**

ii) Proposed Other Non-Rate Charges

Willdan recommends no changes to these charges at this time.

c) Revenue Adequacy of Proposed Rates

The proposed retail rates have been designed to recover revenues equal to the Test Year revenue requirement presented in Section III (B.2.a). Rates were designed based on billing determinants extracted from historic data and forecasts provided by GRU. To the extent actual billing determinants vary from those projected, or future class usage characteristics vary from historical observations, actual revenues may vary from the expected revenues as presented herein.

d) Bill Impact Comparisons

The following figures compare typical monthly bills for residential, small commercial, and large commercial customers at various monthly flow levels. Based on proposed rates, the water bill for a typical residential customer with monthly flow of 6,000 gallons per month

[46] In situations where the application of the meter-based fees would result in the collection of fees significantly different than the potential demand requirement, a special fee calculation methodology could be applied based on the unit cost of capacity and the estimated daily capacity needs of the new service connection. The estimated capacity needs would be based on the amount determined by GRU's engineering staff to be appropriate.

will not increase. Table 43 presents residential bill impacts. Table 44 presents small commercial bill impacts. Table 45 presents large commercial bill impacts.

Table 43 Residential Water Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALLONS)	MONTHLY CHARGES ($ per 1,000 Gallons)			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Residential - Inside City:						
3/4 Inch	0	$9.45	$3.51	$9.45	($5.94)	$0.00
3/4 Inch	2,000	$14.35	$9.29	$14.35	($5.06)	$0.00
3/4 Inch	4,000	$19.25	$15.07	$19.25	($4.18)	$0.00
3/4 Inch	6,000	$26.75	$23.91	$26.75	($2.84)	$0.00
3/4 Inch	8,000	$34.25	$32.76	$34.25	($1.49)	$0.00
3/4 Inch	12,000	$49.25	$50.44	$49.25	$1.19	$0.00
3/4 Inch	16,000	$64.25	$68.13	$64.25	$3.88	$0.00
3/4 Inch	20,000	$88.25	$96.42	$88.77	$8.17	$0.52

Table 44 Small Commercial Water Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALS)	MONTHLY CHARGES			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Small Commercial - Inside City:						
3/4 Inch	10,000	$47.95	$40.54	$48.05	($7.41)	$0.10
3/4 Inch	20,000	$86.45	$77.57	$86.65	($8.88)	$0.20
1.0 Inch	40,000	$163.65	$151.69	$166.69	($11.96)	$3.04
1.0 Inch	60,000	$240.65	$225.75	$243.89	($14.90)	$3.24
1.5 Inch	80,000	$320.50	$300.86	$328.65	($19.64)	$8.15
1.5 Inch	100,000	$397.50	$374.92	$405.85	($22.58)	$8.35
2.0 Inch	150,000	$597.50	$562.86	$610.19	($34.64)	$12.69
2.0 Inch	200,000	$790.00	$748.00	$803.19	($42.00)	$13.19

Table 45 Large Commercial Water Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALS)	MONTHLY CHARGES			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Large Commercial - Inside City:						
3.0 Inch	150,000	$651.50	$582.93	$668.78	($68.57)	$17.28
3.0 Inch	200,000	$844.00	$768.07	$861.78	($75.93)	$17.78
4.0 Inch	300,000	$1,255.00	$1,148.01	$1,285.58	($106.99)	$30.58
4.0 Inch	400,000	$1,640.00	$1,518.28	$1,671.58	($121.72)	$31.58
6.0 Inch	600,000	$2,450.00	$2,273.70	$2,522.96	($176.30)	$72.96
6.0 Inch	1,000,000	$3,990.00	$3,754.80	$4,066.96	($235.20)	$76.96
8.0 Inch	2,000,000	$7,900.00	$7,479.86	$8,030.91	($420.14)	$130.91
8.0 Inch	6,000,000	$23,300.00	$22,290.86	$23,470.91	($1,009.14)	$170.91

e) Comparisons with Neighboring Utilities

This section presents comparisons of retail water rates and connection charges for GRU and other regional water systems. When making comparisons for water service, several factors influence the level of rates and charges. Such factors may include:

1. Level of treatment;
2. Anticipated capital improvement programs and capital financing methods;
3. Plant capacity utilization, age of facilities, and assistance in construction by federal or state grants, connection charges, developer contributions, and other sources;
4. General Fund and administrative transfers made to local government entities; and
5. Bond covenants and funding requirements of the rates.

For the utilities included in the rate comparisons, these five factors have not been accounted for in the analyses.

GRU's existing and proposed water rates were compared to eleven Florida water systems: Clay and Orange Counties, the Cities of Lakeland, Ocala, and Tallahassee, and JEA which have lower levels of treatment and the cities of Daytona, Fort Pierce, Lake City, and Vero Beach and Volusia County which have higher levels of treatment. The following graphs show this comparison for residential, small commercial and large commercial customers. Figure 31 presents a comparison of average monthly residential bills at 6,000 gallons. Figure 32 presents a comparison of average monthly small commercial bills at 50,000 gallons. Figure 33 presents a comparison of average monthly large commercial bills at 500,000 gallons.

Figure 31 Comparison of Residential Monthly Water Bill for GRU and Eleven Comparators at 6,000 Gallons

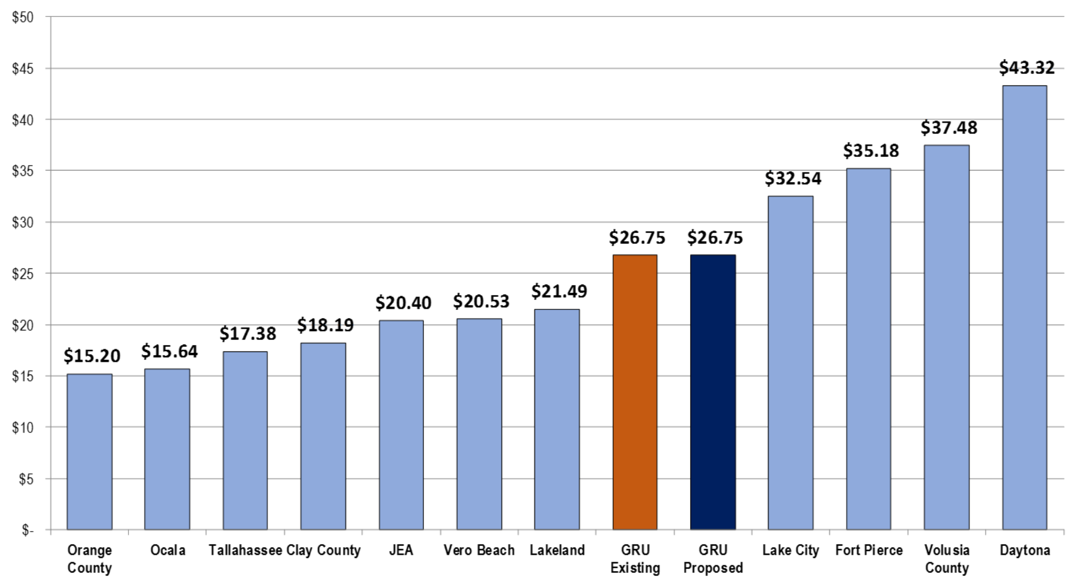


Figure 32 Comparison of Small Commercial Monthly Water Bill for GRU and Eleven Comparators at 50,000 Gallons

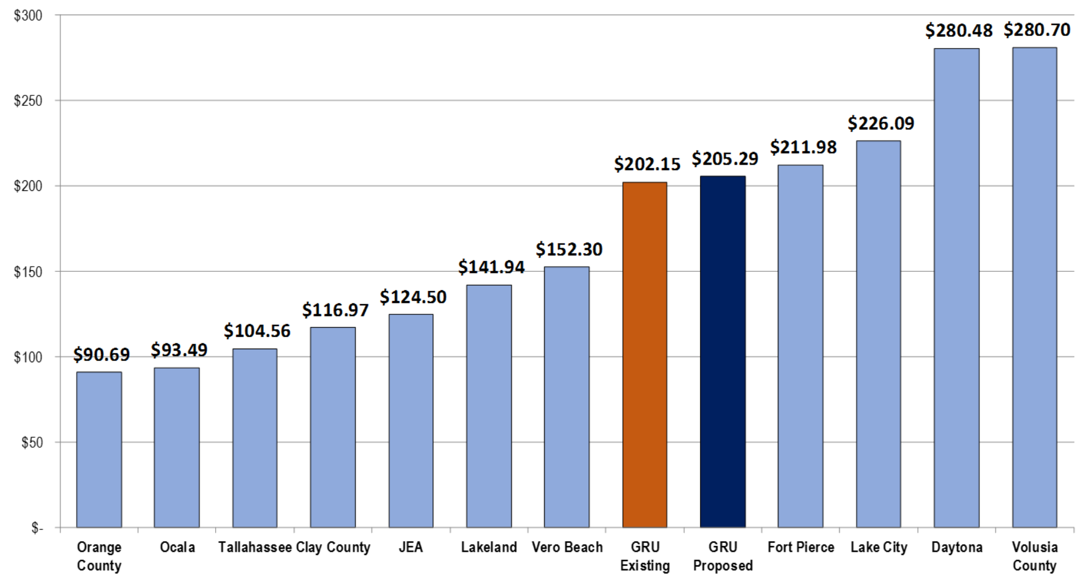
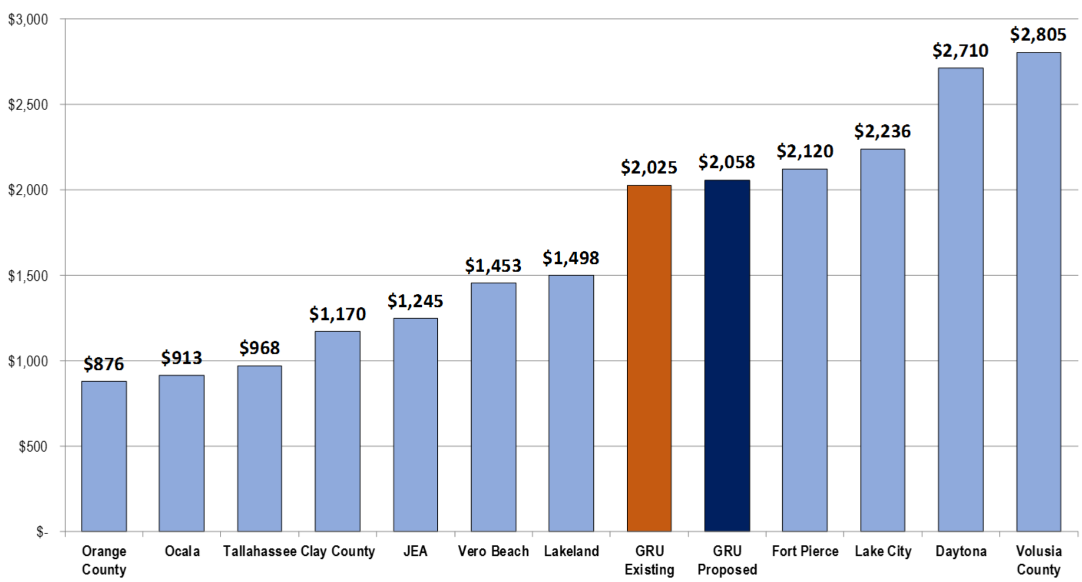


Figure 33 Comparison of Large Commercial Monthly Water Bill for GRU and Eleven Comparators at 500,000 Gallons



2. WHOLESALE WATER RESULTS

Willdan recommends no changes to these charges at this time.

3. WATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Water Utility System for GRU's consideration:

1. Adopt the proposed water rates and connection charges presented in this Study.
2. Enact the proposed rates to become effective as of October 1, 2018.
3. Phase up the monthly base charge based AWWA meter equivalency factors.
4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

This page intentionally left blank.

Main Street Water Reclamation Facility

IV. WASTEWATER SYSTEM

This Section of the Report presents Study results for GRU's Wastewater System and is organized as follows. Section A presents system information. Section B presents the COS analysis. Section C presents the rate design. Section D presents results and recommendations.

A. WASTEWATER SYSTEM INFORMATION

This Section of the report provides wastewater system information including: general, collection, treatment, and flow characteristics by customer class.

WASTEWATER SYSTEM

1. GENERAL INFORMATION

GRU's wastewater system territory includes approximately 629 square miles serving the City, surrounding unincorporated areas, and excludes most of the UF campus.

WASTEWATER SYSTEM SERVICE TERRITORY
Gainesville
Unincorporated Alachua County

Wholesale service is provided to the City of Waldo.

2. COLLECTION

The wastewater collection system consists of: approximately 629 miles of gravity sewer lines, including 14,991 manholes; and a force main system of 168 pump stations and 139 miles of pipe that route flow to the treatment plant. Three television sealing and inspection units are used to inspect new additions and identify pipe with high infiltration and inflow or structural concerns for repair. Half of the gravity system consists of vitrified clay pipe. For both the gravity and force main systems, existing facilities smaller than 12 inches in diameter are primarily constructed of PVC pipe as are new facilities of less than 12 and 16 inches in diameter for the gravity and force main systems, respectively. New gravity systems facilities and existing force main facilities of greater than 12 inches in diameter are primarily constructed of ductile iron pipe. New force mains of greater than 16 inches in diameter are constructed of ductile iron pipe and high-density polyethylene.

3. TREATMENT

GRU's wastewater treatment system includes two major facilities: the Main Street Water Reclamation Facility and the Kanapaha Water Reclamation Facility. The combined capacity of 22.4 MGD, on an AADF basis, is sufficient to meet projected demands through at least FY 2034. Each facility receives flow from distinct collection areas; a pump station enables routing of flow from either collection area to either facility.

Main Street includes a reclaimed water treatment plant, pumping station, and distribution system. Main Street has a treatment capacity of 7.5 MGD and was upgraded in 1992 to include advanced tertiary activated sludge treatment process units, effluent filtration, gravity belt sludge thickeners, and major improvements to plant headworks to control odors and improve plant reliability. Existing sludge treatment facilities are adequate to meet current federal sludge regulations. Effluent from Main Street is discharged to the Sweetwater Branch.

The Main Street reclaimed water distribution system pipeline provides reclaimed water to the South Energy Center for process cooling and to the Manufactured Gas Plant remediation site for pond augmentation and future irrigation. The line will also serve future irrigation and cooling uses that develop near the pipeline corridor.

Kanapaha includes a wastewater treatment plant and reclaimed water distribution system. The treatment plant was completed in June 2004 to provide a capacity of 14.9 MGD. The plant has two distinct treatment processes consisting of a modified Ludzack-Ettinger Treatment process and a carrousel advanced wastewater treatment activated sludge system. The treatment process concludes with filtration and chlorination prior to discharge into aquifer recharge wells and a reclaimed water distribution system. Kanapaha discharges effluent into a potable zone of the Aquifer.

Reclaimed water from Kanapaha is distributed to commercial and residential customers for landscape and golf course irrigation. In addition to recharging the Aquifer, the facility includes numerous aesthetic water features that serve as public amenities and wildlife habitats. All unused reclaimed water recharges the Aquifer via wells that discharge to a depth of 1,000 feet.

4. FLOW CHARACTERISTICS BY CUSTOMER CLASS

In FY 2017, the wastewater system served 65,078 customers as illustrated in **Figure 34**, 85% of which are residential. The wastewater system has experienced a slight increase in customers in recent years as can be seen in **Figure 35,** mostly in Clay's electric service area.

Figure 36 presents annual wastewater treatment flows by customer class and total customers from FY 2014 to FY 2023. Wastewater collection flows exclude the City of Waldo volumes which averaged approximately 22.877 MG per year over the period presented in the figure.

Figure 34 Wastewater Customers by Class FY 2017

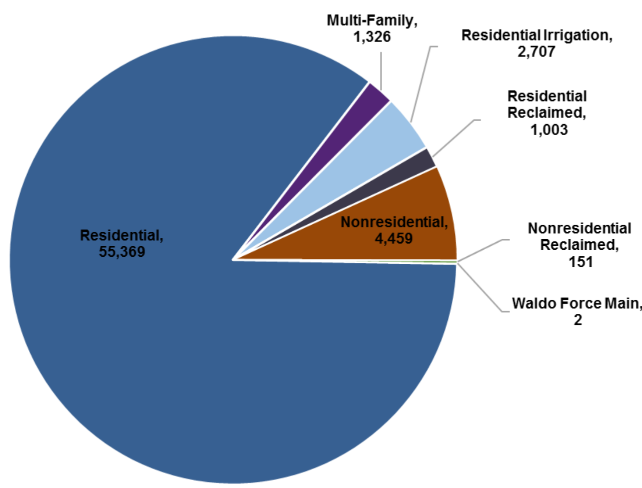


Figure 35 Wastewater System Customers by Class (FY 2013-2017)

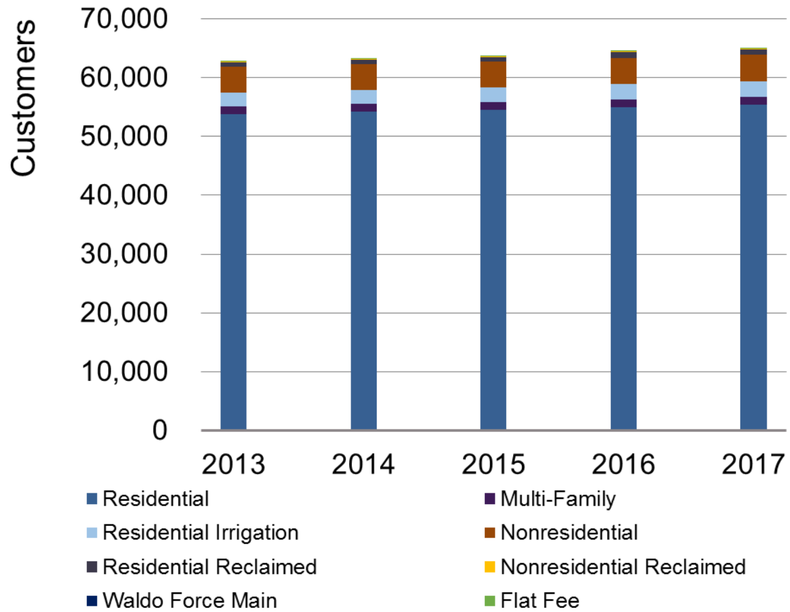
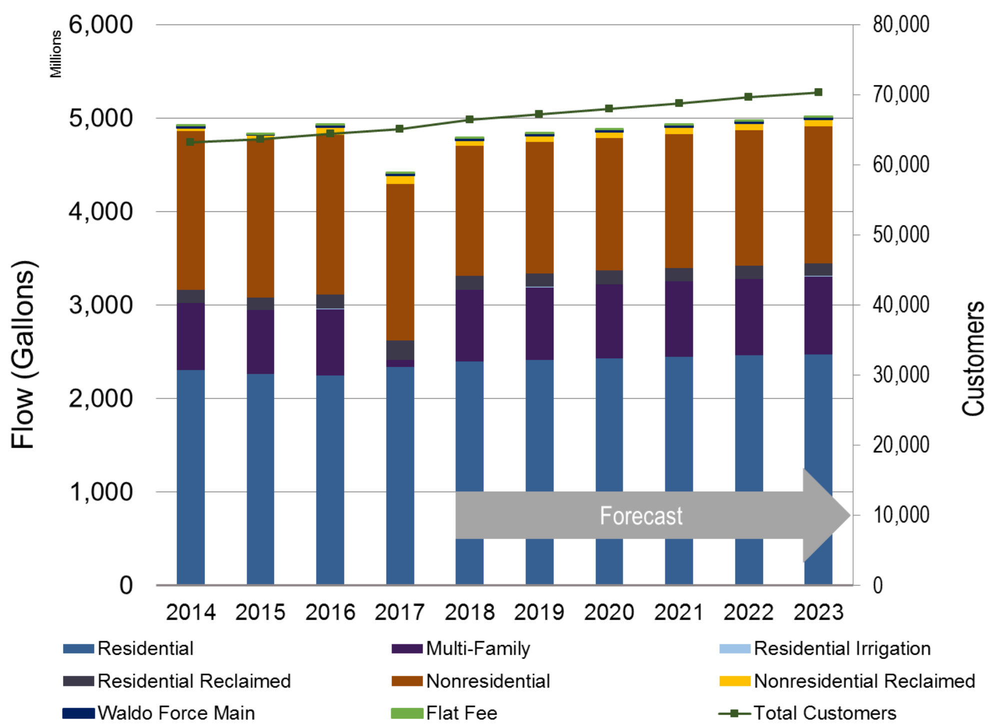
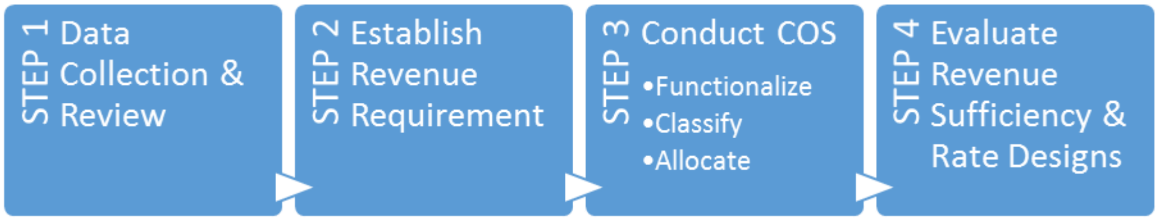


Figure 36 Wastewater Treatment Flows and Customers FY 2014-2023



B. WASTEWATER COST OF SERVICE ANALYSIS

The COS process used by Willdan follows industry standards and involves the four basic steps described in Section I.A and illustrated below.



This Section of the Study: presents the current budget and revenue requirement; describes the methodology for establishing the Test Year revenue requirement; identifies the Adjustments made to the Fiscal Year revenue requirement to generate the Test Year revenue requirement; functionally unbundles, classifies, and allocates the Test Year revenue requirement; identifies the Test Year Billing Determinants; and presents the projected revenue requirement and revenue for FY 2019-2023.

1. CURRENT WASTEWATER SYSTEM BUDGET AND REVENUE

Willdan used historical budget data provided by GRU for FYs 2013 through 2017 and forecasted budget data for FY 2019 through FY 2023. The FY 2018 budget numbers developed for FY 2019 were used as the starting point for the Test Year revenue requirement for the COS analysis. Table 46 provides budget and revenue data for FY 2017 through FY 2019.

Table 46 Wastewater System Budget and Revenue (FY 2017 to FY 2019)

WASTEWATER BUDGET COMPONENT	2017	2018	2019
Operating Expenses	**$19,180,578**	**$20,554,950**	**$21,091,088**
Other Revenue Requirement			
Existing Debt Service	$8,792,638	$8,951,257	$8,709,078
General Fund Transfer	7,247,154	7,348,574	7,348,574
Utility Plant Improvement Fund CIP Transfer	9,432,248	9,836,478	9,190,034
Total Other Revenue Requirement	*$25,472,039*	*$26,136,309*	*$25,247,687*
Total Revenue Requirement	$44,652,617	$46,691,259	$46,338,775
Revenue from Established Rates			
Residential Revenue	$26,811,018	$26,588,599	$26,864,934
Non-Residential Revenue	9,284,693	9,343,991	9,443,842
Surcharge Revenue	2,771,229	2,751,183	2,776,220
Reclaimed Revenue	359,585	314,879	316,822
Total Rate Revenue	*$39,226,525*	*$38,998,652*	*$39,401,818*

WASTEWATER BUDGET COMPONENT	2017	2018	2019
Other Revenue Sources and Inflows			
South Energy Center	$91,764	$91,764	$91,764
Biosolids	334,652	300,000	300,000
Connection	2,312,000	1,908,000	1,919,000
Surcharge on Connections	144,000	119,000	120,000
Build America Bonds, U.S. Treasury Cash Subsidy	933,479	926,219	918,583
Other Revenue	1,405,000	1,878,417	1,953,553
Interest Income	187,649	244,073	213,020
Rate Stabilization (to)/from	17,549	2,225,136	1,421,036
Total Other Revenue Sources and Inflows	*$5,426,093*	*$7,692,609*	*$6,936,956*
Total Revenue and Inflows	**$44,652,618**	**$46,691,261**	**$46,338,774**
Total Surplus or (Deficiency)	1	2	(1)

In total, all utility revenues requirements are projected to be approximately $46,338,774 for FY 2019. Revenues and inflows are projected to equal this amount after an infusion of $1,421,036 from the rate stabilization fund.

2. METHODOLOGY

Willdan created the Test Year using a three-step process. First a statement of expenses for the actual FY 2019 operations using GRU's detailed budget data by cost center was created. GRU provided this information based on its FY 2018 budget. Next, adjustments occurring after October 1, 2017, or known and measurable changes, were identified and quantified. Known and measurable changes impact GRU's costs or revenues and have either occurred or are expected to occur during the Study period (FY 2019 through 2023). Finally, the adjustments were applied to the original budget to create the Test Year FY 2019 values.

For the purposes of this Study, FY 2019 is the Test Year upon which the COS and rate design analyses are based. In addition, projected costs and revenues are shown for FY 2020 through 2023.

a) Wastewater System Test Year Revenue Requirement

Table 47 presents the FY 2019 Budget, Adjustments, and the resulting Test Year 2019 Budget and Revenues. For each adjustment, an explanation follows in Section IV.B.3.

Table 47 Wastewater System Test Year Revenue Requirement (FY 2019)

WASTEWATER BUDGET COMPONENT	2019	ADJUSTMENTS	TEST YEAR FY 2019
Operating Expenses	**$21,091,088**		**$21,091,088**
Other Revenue Requirement			
Existing Debt Service	$8,709,078		$8,709,078
General Fund Transfer	7,348,574		7,348,574
Utility Plant Improvement Fund CIP Transfer	9,190,034		9,190,034
Total Other Revenue Requirement	*$25,247,687*		*$25,247,687*
Total Revenue Requirement	**$46,338,775**		**$46,338,775**
Revenue from Established Rates			
Residential Revenue	$26,864,934	$27,470	$26,892,404
Non-Residential Revenue	9,443,842	53,484	9,497,326
Surcharge Revenue	2,776,220	90,836	2,867,056
Reclaimed Revenue	316,822	472	317,294
Total Rate Revenue	*$39,401,818*	*$172,262*	*$39,574,080*
Other Revenue Sources and Inflows			
South Energy Center	$91,764	$0	$91,764
Biosolids	300,000		300,000
Connection	1,919,000		1,919,000
Surcharge on Connections	120,000		120,000
Build America Bonds, U.S. Treasury Cash Subsidy	918,583		918,583
Other Revenue	1,953,553		1,953,553
Interest Income	213,020		213,020
Rate Stabilization (to)/from	1,421,036	(1,421,036)	-
Total Other Revenue Sources and Inflows	*$6,936,956*	*($1,421,036)*	*$5,515,920*
Total Revenue and Inflows	**$46,338,774**	**($1,248,774)**	**$45,090,000**
Total Surplus or (Deficiency)	(1)		($1,248,775)

b) Debt Service

Annual debt service information through FY 2023 was provided by GRU and follows management's expectations of future debt issuances and associated debt service, including long-term bond and commercial paper issuances. Willdan reviewed this data to determine reasonableness, however, no in-depth analysis of the debt plan was conducted and no adjustments to the debt plan were made in terms of size of debt, timing, interest rates, or other parameters.

c) Capital Improvement Program

GRU's capital improvement plan includes debt-funded and revenue-funded expenditures for reclamation, collection, force mains, lift stations, laterals, and special projects. For Test

Year FY 2019, GRU plans approximately $19.7 million in capital improvement projects, with $9.2 million funded by revenues and the remaining funding by debt.

3. FISCAL YEAR, ADJUSTMENTS, AND TEST YEAR

Table 47 on page 113 above presents the FY 2019 Budget, Adjustments, and the resulting Test Year 2019 Budget. The following adjustments for known and measurable changes were made to the budget to develop the Test Year revenue requirement.

a) Cash Reserves

GRU maintains a rate stabilization fund, with a balance of $74.2 million at the end of FY 2016 according to its Financial Statements, that can be used by all utilities: electric, water, wastewater, and natural gas. GRU has budgeted for an inflow to wastewater revenues from the rate stabilization fund of $1.4 million for FY 2019. Willdan has removed this inflow in its Test Year projections, and for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other wastewater utility funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for all years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is a generally-accepted industry practice

b) Rate Revenue Adjustments

Base rate, volumetric, and surcharge revenues were adjusted to reflect inflows at expected FY 2019 billing determinants times current rates, effective October 1, 2017, resulting in an overall increase in revenues of $172,262.

c) Rate Stabilization Fund Transfer Adjustment

GRU has budgeted for an inflow to wastewater revenues from the rate stabilization fund of $1.4 million for FY 2019. Willdan has removed this inflow in its Test Year projections, and for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other wastewater utility funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for all years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is a generally-accepted industry practice

d) Overall Impact of Adjustments

The overall impact of adjusting the budget for known and measurable changes was a decrease in revenues and net inflows of $1.25 million or $45.1 million in total.

4. FUNCTIONAL UNBUNDLING, CLASSIFICATION, AND ALLOCATION

The Test Year revenue requirement was then functionally unbundled, classified, and allocated to customer class to determine the cost of service by rate class.

a) Functional Unbundling of Wastewater System Revenue Requirement

GRU costs were unbundled into Collection, Treatment, and Customer functions—the primary services provided by GRU's wastewater utility to its retail and wholesale customers.

- **Collection:** the costs associated with lines and facilities that transport wastewater from customer properties to the plants for treatment
- **Treatment:** costs associated with treating wastewater for reclamation and/or discharge
- **Customer:** the costs associated with metering, billing and providing other services to customers (e.g. printing, delivering and collecting utility bills, recordkeeping, etc.)

Table 48 presents the functionally unbundled revenue requirement for the test Year FY 2019.

Table 48 Functional Unbundling of Wastewater System Test Year Revenue Requirement

WASTEWATER BUDGET COMPONENT	TEST YEAR FY 2019 ($000)
Bundled Revenue Requirement	$46,339
Less Other Revenue Sources and Inflows	(5,516)
Total Revenue Requirement	**$40,823**
Functionally Unbundled Revenue Requirement	
Collection	$14,235
Treatment	23,616
Customer	2,972
Total Revenue Requirement	**$40,823**

b) Classification of Wastewater System Revenue Requirement

The functionally unbundled revenue requirement for the wastewater system was then classified into volumetric and fixed customer components based on AWWA methodology. The system-wide costs by service characteristic are shown in Table 49. As with cost functionalization, these percentages are not expected to change significantly in the forecast period.

Table 49 Classification of Functionally Unbundled Wastewater System Test Year Revenue Requirement

WASTEWATER BUDGET COMPONENT ($000)	VOLUMETRIC ($000)	CUSTOMER ($000)	TOTAL ($000)
Collection	$14,235		$14,235
Treatment	23,616		$23,616
Customer		2,972	$2,972
TOTAL	$37,851	$2,972	$40,823

c) Allocation to Customer Classes

The functionalized, classified, revenue requirement was then allocated to customer classes proportionate use levels of each characteristic by each class. Customer costs were based on ERUs. The functionalized, classified, revenue requirement allocated to customer class is shown in Table 50.

Table 50 Allocation of Classified, Functionally Unbundled Wastewater System Test Year Revenue Requirement to Customer Classes

WASTEWATER CUSTOMER CLASS	VOLUMETRIC ($000)		CUSTOMER	TOTAL
	COLLECTION	TREATMENT	($000)	($000)
Residential	$7,213	$11,914	$2,526	$21,653
Multifamily	$2,211	$3,651	$57	$5,919
Residential - Irrigation	$3	$5	$143	$151
Residential Reclaimed	$496	$819	$46	$1,362
Nonresidential	$4,083	$6,746	$191	$11,021
Nonresidential - Reclaimed	$218	$359	$7	$584
Waldo Force Main	$0	$103	$0.1	$103
Flat Charge	$10	$17	$3	$30
TOTAL	$14,235	$23,616	$2,972	$40,824

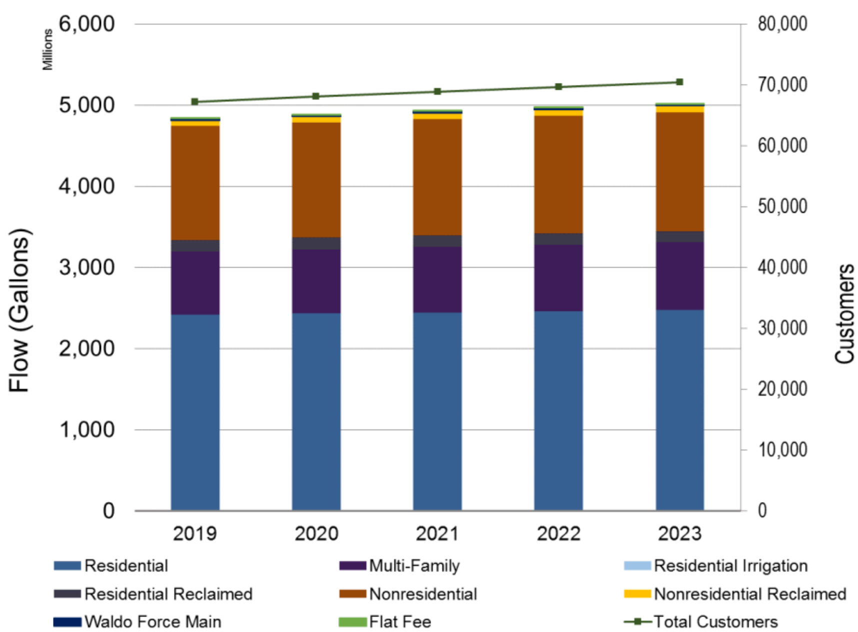
5. FY 2019-2023 BILLING DETERMINANTS

Table 51 presents flow, customer accounts, and ERUs by customer class for the Test Year FY 2019. **Figure 37** presents customer accounts and flow for the Study period (FY 2019 to 2023). To develop flow-related billing determinants, the Test Year projected billable consumption was adjusted to reflect the 1.25 times surcharge for outside City limits.

Table 51 Wastewater System Flow, Accounts, and Equivalent Residential Units by Customer Class (FY 2019)

WASTEWATER CUSTOMER CLASS	FLOW (1,000 GALLONS)	CUSTOMER ACCOUNTS		EQUIVALENT RESIDENTIAL UNITS	
Residential	2,640,382	57,392	85.329%	62,185	84.970%
Multifamily	809,194	1,367	2.032%	1,406	1.921%
Residential - Irrigation	1,157	2,929	4.355%	3,513	4.800%
Residential Reclaimed	181,599	919	1.366%	1,141	1.559%
Nonresidential	1,494,971	4,452	6.619%	4,703	6.426%
Nonresidential - Reclaimed	79,659	140	0.208%	173	0.236%
Waldo Force Main	22,883	2	0.003%	2	0.003%
Flat Charge	3,720	59	0.088%	62	0.085%
TOTAL	5,233,565	67,260	100%	73,185	100.000%

Figure 37 Wastewater System Flows and Customers (FY 2019-2023)



6. FY 2019-2023 PROJECTED REVENUE REQUIREMENT & REVENUES AT CURRENT RATES

Using the billing determinants developed for FY 2019 through FY 2023, Willdan calculated annual FY revenues at current rates and compared them against cost projections. This comparison informs the expected base and volumetric rate increases/decreases required over time to meet projected revenue requirements. Table 52 shows the revenue requirement and associated rate revenue at current rates for the FY 2019 through FY 2023 period. As can be seen from this data, absent either rate increases or infusion of money from the rate stabilization fund, forecasted revenues are not sufficient to cover the Wastewater System's revenue requirement, falling short by as little as $300,000 in 2020 or as much as $3.2 million in 2021.

Table 52 Projected Wastewater System Revenue Requirement and Revenues at Current Rates (FY 2019-2023 $000)

WASTEWATER BUDGET COMPONENT ($000)	2019	2020	2021	2022	2023
Operating Expenses	**$21,091**	**$21,513**	**$21,943**	**$22,382**	**$22,830**
Other Revenue Requirement					
Existing Debt Service	$8,709	$8,865	$12,132	$12,571	$12,305
General Fund Transfer	7,349	7,467	7,587	7,208	6,982
Utility Plant Improvement Fund CIP Transfer	9,190	8,907	8,756	8,864	8,688
Total Other Revenue Requirement	*$25,248*	*$25,240*	*$28,475*	*$28,643*	*$27,975*
Total Revenue Requirement	**$46,339**	**$46,752**	**$50,418**	**$51,025**	**$50,804**
Revenue from Established Rates					
Residential Revenue	$21,855	$22,105	$22,291	$22,464	$22,632
Non-Residential Revenue	14,604	15,552	15,986	16,415	16,817
Surcharge Revenue	2,867	2,970	3,034	3,098	3,159
Reclaimed Revenue	248	247	244	241	239
Total Rate Revenue	*$39,574*	*$40,873*	*$41,555*	*$42,218*	*$42,847*
Other Revenue Sources and Inflows					
South Energy Center	$92	$92	$92	$92	$92
Biosolids	300	300	300	300	300
Connection	1,919	1,927	1,941	1,944	1,958
Surcharge on Connections	120	120	121	122	122
Build America Bonds, U.S. Treasury Cash Subsidy	919	911	902	893	883
Other Revenue	1,954	2,032	2,113	2,197	2,285
Interest Income	213	197	217	136	128
Rate Stabilization (to)/from	-				
Total Other Revenue Sources and Inflows	*$5,516*	*$5,578*	*$5,686*	*$5,684*	*$5,768*
Total Revenue and Inflows	**$45,090**	**$46,451**	**$47,241**	**$47,903**	**$48,615**
Total Surplus or (Deficiency)	($1,249)	($301)	($3,177)	($3,123)	($2,189)

C. WASTEWATER RATE DESIGN

This section presents: the Study approach to rate design, GRU's current retail wastewater rate structures, and GRU's current wholesale wastewater rate structures.

1. APPROACH

The first step in the rate design process is to determine the cost to serve each customer class based on flow and customer counts. This information was obtained through the COS analysis discussed above. In addition to the COS analysis, various considerations drive the rate design process including existing rate structures, magnitude of required changes, and elasticity of demand, as well as traditional principles as discussed in Section I.A.4 on page 6. The existing rate structure is important because customers are accustomed to it; rate design changes could result in sudden and unexpected cost increases, negatively impacting customers. Public policy decisions can also: influence rate design; dictate class cross subsidies; impact the level of fixed (such as the meter charge) versus variable or consumption-based charges (such as the volumetric charge), and determine the period over which new rates are implemented. Finally, rates should be designed to send proper pricing signals to consumers, while taking into account the degree to which rate levels influence consumption (positively and negatively). However, for purposes of this Study, the most critical driver for rate design was to ensure revenue adequacy: that proposed rates generate adequate revenue to meet the financial needs of GRU.

2. RETAIL WASTEWATER RATE STRUCTURE

This section discusses GRU's current rate structures for retail customers and compares them to the cost-based rates derived from the COS analysis. In reviewing GRU's wastewater rate structure, consideration was given to administrative efficiency and competitiveness of the rate structure with other regional utility systems, as well as common industry standards for wastewater utility rates. Upon review, certain rate structure modifications are proposed.

a) Current Retail Rates

GRU's retail rates apply to residential, multi-family, nonresidential, and irrigation customers. These rates are approved by the City Commission and are not subject to administrative review or approval by any other local or state agency. GRU has historically adjusted rates as necessary to provide for recovery of financial obligations including operating expenses, debt service, capital expenditures and any other expenses and transfers.

Existing retail wastewater rates consist of two parts:

- **Monthly Base Charges** that designate the minimum amount a customer will pay regardless of usage or rate class of $9.10 per 1,000 gallons (a surcharge for outside City service applies, increasing the rate to $11.38).
- **Volumetric Rates** based upon the amount of monthly metered water usage in MG of flow:
  - Regular Service (i.e., non-reclaimed water classes): a volumetric rate of $6.30 per 1,000 gallons (a surcharge for outside City service applies, increasing the rate to $7.88).
  - Reclaimed Water Service: a volumetric rate of $0.95 per 1,000 gallons (a surcharge for outside City service applies, increasing the rate to $1.19).

For residential customers, the billable flow is based on the lesser of the metered water usage or the individual customer's winter maximum. For nonresidential and multi-family customers, the billable flow is based on 95% of metered water usage. Customers located outside the City limits pay rates that are equal to 1.25-times the inside City rates. GRU offers a residential flat rate based on current inside City rates and an assumed flow of 5,000 gallons per month.

b) Wastewater System Current, Cost-Based, and Proposed Rates

Table 53 provides wastewater current, COS and proposed rates for the wastewater system.

Table 53 Wastewater Current, Cost of Service, and Proposed Rates

DESCRIPTION	USER RATES – INSIDE CITY			USER RATES – OUTSIDE CITY		
	Existing	COS	Proposed	Existing	COS	Proposed
Monthly Base Charges:						
5/8 & 3/4 Inch	$9.10	$3.38	$9.40	$11.38	$4.23	$11.75
1.0 Inch	$9.10	$3.38	$12.22	$11.38	$4.23	$15.28
1.5 Inch	$9.10	$3.38	$19.74	$11.38	$4.23	$24.68
2.0 Inch	$9.10	$3.38	$31.02	$11.38	$4.23	$38.78
3.0 Inch	$9.10	$3.38	$89.30	$11.38	$4.23	$111.63
4.0 Inch	$9.10	$3.38	$126.90	$11.38	$4.23	$158.63
6.0 Inch	$9.10	$3.38	$205.86	$11.38	$4.23	$257.33
8.0 Inch	$9.10	$3.38	$309.26	$11.38	$4.23	$386.58
10.0 Inch	$9.10	$3.38	$454.02	$11.38	$4.23	$567.53

DESCRIPTION	USER RATES – INSIDE CITY			USER RATES – OUTSIDE CITY		
	Existing	COS	Proposed	Existing	COS	Proposed
Volumetric Rates Per 1,000 Gal:						
All Billable Flow - General Service	$6.30	$7.24	$6.49	$7.88	$9.06	$8.11
All Billable Flow - Reclaimed	$0.95	$7.24	$0.98	$1.19	$9.06	$1.23
Residential Flat Charge Per Month	$40.60	$39.61	$41.85	$50.75	$49.51	$52.31

c) Wastewater System Revenues at Current, Cost-Based, and Proposed Rates

Table 54 presents Test Year Wastewater System Revenues at current, COS, and proposed rates.

Table 54 Test Year Wastewater Revenues at Current, Cost of Service, and Proposed Rates ($000)

CUSTOMER CLASS	TEST YEAR WASTEWATER REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential	$23,431	$21,653	$1,778	8%	$24,164	$733	3%
Multi-Family	5,252	5,919	(667)	-11%	5,579	327	6%
Residential - Irrigation	391	151	240	159%	405	14	4%
Flat Fee	30	29	1	3%	31	1	3%
Residential Reclaimed	297	1,362	(1,064)	-78%	308	10	3%
Nonresidential	9,934	11,021	(1,087)	-10%	10,605	671	7%
Nonresidential Reclaimed	95	584	(489)	-84%	112	17	18%
Waldo Force Main	144	103	41	40%	149	4	3%
TOTAL REVENUES	$39,574	$40,823	($1,249)	-3%	$41,351	$1,777	4%
Net Revenue Requirement	$40,823	$40,823	$0	0%	$40,823	$0	0%
Total Surplus/(Deficiency)	($1,249)	($0)	($1,249)		$528	$1,777	-142%

d) Wastewater System Non-Rate Charges and Fees

GRU has two types of non-rate charges and fees for the wastewater system: connection charges and other non-rate charges.

i) Connection Charges

Wastewater connection charges may be referred to by different terms including impact fees, capacity fees, capacity reservation charges, system development fees, facility fees, capital connection charges or other such terminology. In general, a connection charge is a one-time charge implemented as a means of recovering (in whole or part) the costs associated with capital investments made by the utility to provide wastewater service to future users of the system. Such capital costs generally include the construction of facilities as well as engineering, surveys, land, financing, legal, and administrative costs. Implementation of connection charges (or other similar charges) to establish a supplemental (non-rate) source of funding for future capital projects is common water utility industry practice. GRU's existing wastewater connection charges are provided in Table 55.

Table 55 Current Wastewater Connection Charges (FY 2018)

CONNECTION TYPE	COLLECTION CONNECTION CHARGE	WASTEWATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WASTEWATER CONNECTION CHARGE
Minimum Connection Charge	($)	($)	($)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$744.00	$2,554.00	$3,298.00
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$744.00	$2,554.00	$3,298.00
Nonresidential connections with an estimated annual average daily flow of less than or equal to 280 gallons per day	$744.00	$2,554.00	$3,298.00
Flow Based Connection Charge [*]	($/GPD ADF)	($/GPD ADF])	($/GPD ADF)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$2.66	$9.12	$11.78
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$2.66	$9.12	$11.78
Nonresidential connections with an estimated annual average daily flow of greater than 280 gallons per day	$2.66	$9.12	$11.78
Multi-family connections	$2.66	$9.12	$11.78
[*] The greater of: the charge per unit flow (in $/GPD ADF) multiplied by the estimated annual average daily flow (ADF); and the minimum connection charge.			

As part of this Study, Willdan conducted a detailed analysis of GRU wastewater system connection charges, presented in Appendix A.

ii) Other Non-Rate Charges

Non-Rate Charges (also referred to as miscellaneous service charges) are typically associated with activities that are ancillary to the provision of water utility service. As a general practice, miscellaneous fees and charges are not intended to overburden customers. Rather, these charges are intended to recover certain definable costs in cases where the administrative burden of administering the charge is financially justifiable.

3. WHOLESALE WASTEWATER RATE STRUCTURE

The City of Waldo is the only wholesale wastewater customer on the system. Although Waldo is located outside the City limits of Gainesville, its rates are equal to GRU's general service inside City rates.

D. WASTEWATER SYSTEM RESULTS AND RECOMMENDATIONS

This section presents the results of the retail rate analysis followed by the wholesale rate analysis and Study recommendations. Evaluation of taxes, surcharges, Surtaxes, Franchise Fees, and other similar assessments are outside the scope of this Study.

1. RETAIL WASTEWATER SYSTEM RESULTS

Strict allocations to COS based rates can result in extremely different rates between customer classes, particularly for wastewater due to the misalignment between cost incurrence and cost recovery. Wastewater system costs are primarily fixed in nature, but are recovered using volumetric or consumption-based charges. Additional rate-making considerations include the eight principles listed in Section I.A.4 on page 6. When designing retail wastewater rates, public policy often dictates compliance with conservation and economic development goals.

All proposed rates are based on application of these principles, discussions with staff, professional judgment, and prior experience with comparable utility systems. An overall goal of the proposed rate design is to move GRU towards monthly base charges that conform to AWWA meter equivalency standards that ensure that customers placing a greater potential demand requirement on the system (those with larger meters) pay proportionately more for the service availability component. The first phase of such incrementing adjustments applies to the proposed rates for the Test Year.

a) Proposed Retail Wastewater Rates

Under GRU's existing rate, the monthly base charge does not change as the connection size (i.e., meter) increases. The rates proposed by Willdan conform to AWWA equivalent meter capacity criteria and are used to establish a standard unit of measure for customers, ERUs. Additional discussion of the proposed methodology appears under the Water

System rates (refer to Section III.D.1.a). To mitigate the potential for "rate shock" for larger customers, Willdan proposes to phase-in the proposed changes over five years. Table 56 provides AWWA meter-size equivalency factors, the factors currently utilized by GRU, and Willdan's proposed phase-in plan.

Table 56 Meter Equivalency Factors: AWWA Recommended, GRU's Current and Willdan's Proposed Five-Year Phase-in Plan

METER SIZE	AWWA[47]	GRU CURRENT	WILLDAN'S PROPOSED PHASE-IN				
			Year 1	Year 2	Year 3	Year 4	Year 5
5/8 & 3/4 Inch	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.0 Inch	2.50	1.02	1.30	1.60	1.90	2.20	2.50
1.5 Inch	5.00	1.32	2.10	2.90	3.70	4.50	5.00
2.0 Inch	8.00	2.12	3.30	4.50	5.70	6.90	8.00
3.0 Inch	16.00	7.83	9.50	11.20	12.90	14.60	16.00
4.0 Inch	25.00	10.58	13.50	16.40	19.30	22.20	25.00
6.0 Inch	50.00	14.81	21.90	29.00	36.10	43.20	50.00
8.0 Inch	80.00	21.16	32.90	44.70	56.50	68.30	80.00
10.0 Inch	125.00	29.10	48.30	67.50	86.70	105.90	125.00

b) Proposed Non-Rate Charges and Fees

Willdan's proposed changes to GRU's wastewater system Connect Charges and Other Non-Rate Charges follows.

i) Proposed Connection Charges

Wastewater connection charges were developed based upon estimated cost of capacity per gallon using the cost of major system facilities and capacities, as presented in Appendix A. Based on this methodology, wastewater facility costs total $13.070 per gallon of wastewater capacity, of which $5.285 represents treatment and $7.785 represents transmission, after rounding down to avoid over-collection.[48]

Applying the average day LOS amount of 280 GPD to the estimated unit costs per gallon of capacity results in the proposed wastewater connection charge of $3,660 for

[47] Meter-size equivalency factors established by the AWWA and identified in AWWA Standards C700, M1 and M22.

[48] See Table A-9 on page A-12 of Appendix A.

a typical single-family residential connection (i.e., per ERU), when rounded down to avoid over assessment.

New connections with larger water meters have the potential of placing more demand on the system and have been assessed ERU factors accordingly based AWWA meter equivalency factors. Proposed wastewater connection charges by meter size are provided in Table 57.

Table 57 Proposed Wastewater System Connection Charges

METER SIZE	METER-BASED ERU FACTOR	GRU CURRENT	WILLDAN PROPOSED METER BASIS	WILLDAN PROPOSED FLOW BASIS[49]
5/8 & 3/4 Inch	1.00	$3,298	$3,660	
1.0 Inch	2.50		$9,150	
1.5 Inch	5.00		$18,300	
2.0 Inch	8.00		$29,280	
3.0 Inch	16.00		$58,560	
4.0 Inch	25.00		$91,500	
6.0 Inch	50.00		$183,000	
8.0 Inch	80.00		$292,800	
Optional Flow Basis Charge Per Gallon of Capacity (GPD):				($/GPD)
Treatment Facilities				$5.285
Collection Facilities				$7.785
Total				**$13.070**

ii) Proposed Other Non-Rate Charges

Willdan recommends no changes to these fees at this time.

c) Revenue Adequacy of Proposed Rates

The proposed retail rates have been designed to recover revenues equal to the Test Year revenue requirement (presented in Section III.B.2.a). Rates were designed based on

[49] In situations where the application of the meter-based fees would result in the collection of fees significantly different than the potential demand requirement, a special fee calculation methodology could be applied based on the unit cost of capacity and the estimated daily capacity needs of the new service connection. The estimated capacity needs would be based on the amount determined by GRU's engineering staff to be appropriate.

billing determinants extracted from historic data and forecasts provided by GRU. To the extent actual billing determinants vary from those projected, or future class usage characteristics vary from historical observations, actual revenues may vary from the expected revenues as presented herein.

As discussed in previous sections, in addition to the revenue requirement for the Test Year, a projection of the revenue requirements for FY 2020 through 2023 was made for informational purposes.

Phase-in of the proposed rate plan recognizes the timing of the expected rate changes as well as projected revenue shortfalls under the current rate structure.

d) Wastewater Bill Impact Comparisons

The following tables compare typical monthly bills for residential, small commercial, and large commercial customers at various monthly flow levels. Based on proposed rates, the wastewater bill for a typical residential customer with monthly flow of 6,000 gallons per month will increase by $1.44 per month. **Table 58** presents residential bill impacts. **Table 59** presents small commercial bill impacts. **Table 60** presents large commercial bill impacts.

Table 58 Residential Wastewater Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALLONS)	MONTHLY CHARGES			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Residential - Inside City:						
3/4 Inch	0	$9.10	$3.38	$9.40	($5.72)	$0.30
3/4 Inch	2,000	$21.70	17.87	$22.38	($3.83)	$0.68
3/4 Inch	4,000	$34.30	32.36	$35.36	($1.94)	$1.06
3/4 Inch	6,000	$46.90	46.85	$48.34	($0.05)	$1.44
3/4 Inch	8,000	$59.50	61.34	$61.32	$1.84	$1.82
3/4 Inch	12,000	$84.70	90.31	$87.28	$5.61	$2.58
3/4 Inch	16,000	$109.90	119.29	$113.24	$9.39	$3.34
3/4 Inch	20,000	$135.10	148.27	$139.20	$13.17	$4.10

Table 59 Small Commercial Wastewater Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALLONS)	MONTHLY CHARGES			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Small Commercial - Inside City:						
3/4 Inch	10,000	$72.10	$75.83	$74.30	$3.73	$2.20
3/4 Inch	20,000	$135.10	$148.27	$139.21	$13.17	$4.10
1.0 Inch	40,000	$261.10	$293.15	$271.82	$32.05	$10.72
1.0 Inch	60,000	$387.10	$438.04	$401.62	$50.94	$14.52
1.5 Inch	80,000	$513.10	$582.92	$538.94	$69.82	$25.84
1.5 Inch	100,000	$639.10	$727.80	$668.74	$88.70	$29.64
2.0 Inch	150,000	$954.10	$1,090.01	$1,004.52	$135.91	$50.42
2.0 Inch	200,000	$1,269.10	$1,452.22	$1,329.02	$183.12	$59.92

Table 60 Large Commercial Wastewater Rate Bill Impacts at Current, COS, and Proposed Rates (FY 2019)

METER SIZE	MONTHLY FLOW (GALLONS)	MONTHLY CHARGES			DIFFERENCE FROM EXISTING	
		Existing	COS	Proposed	COS	Proposed
Large Commercial - Inside City:						
3.0 Inch	150,000	$1,090.01	$1,062.80	$135.91	$108.70	$1,090.01
3.0 Inch	200,000	$1,452.22	$1,387.30	$183.12	$118.20	$1,452.22
4.0 Inch	300,000	$2,176.64	$2,073.90	$277.54	$174.80	$2,176.64
4.0 Inch	400,000	$2,901.06	$2,722.90	$371.96	$193.80	$2,901.06
6.0 Inch	600,000	$4,349.90	$4,099.86	$560.80	$310.76	$4,349.90
6.0 Inch	1,000,000	$7,247.58	$6,695.86	$938.48	$386.76	$7,247.58
8.0 Inch	2,000,000	$14,491.77	$13,289.26	$1,882.67	$680.16	$14,491.77
8.0 Inch	6,000,000	$43,468.54	$39,249.26	$5,659.44	$1,440.16	$43,468.54

e) Comparisons with Neighboring Utilities

This section presents comparisons of retail wastewater rates and connection charges for GRU and other regional wastewater systems. When making comparisons for wastewater service, several factors influence the level of rates and charges. Such factors may include:

1. Level of treatment;
2. Anticipated capital improvement programs and capital financing methods;

3. Plant capacity utilization, age of facilities, and assistance in construction by federal or state grants, connection charges, developer contributions, and other sources;

4. General Fund and administrative transfers made to local government entities; and

5. Bond covenants and funding requirements of the rates.

For the utilities included in the rate comparisons, these five factors have not been accounted for in the analyses.

GRU's existing and proposed wastewater rates were compared to six Florida wastewater systems: Clay and Orange Counties; the Cities of Lakeland, Ocala, and Tallahassee; and JEA. The following graphs show this comparison for residential, small commercial and large commercial customers. Figure 38 presents a comparison of average monthly residential bills at 6,000 gallons. Figure 39 presents a comparison of average monthly small commercial bills at 50,000 gallons. Figure 40 presents a comparison of average monthly large commercial bills at 500,000 gallons.

Figure 38 Comparison of Residential Monthly Wastewater Bill for GRU and Six Comparators at 6,000 Gallons

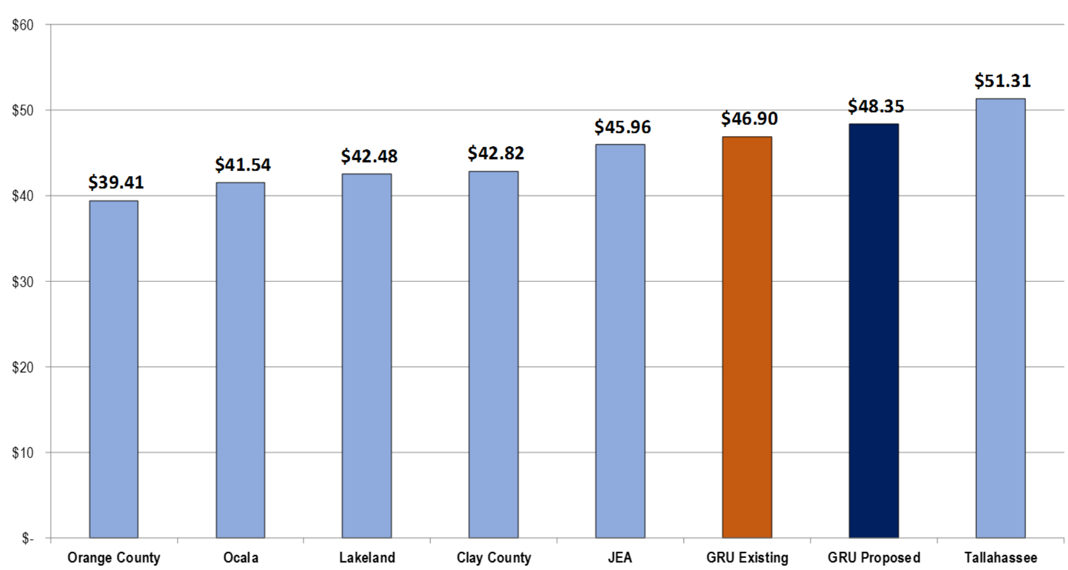


Figure 39 Comparison of Small Commercial Monthly Wastewater Bill for GRU and Six Comparators at 50,000 Gallons

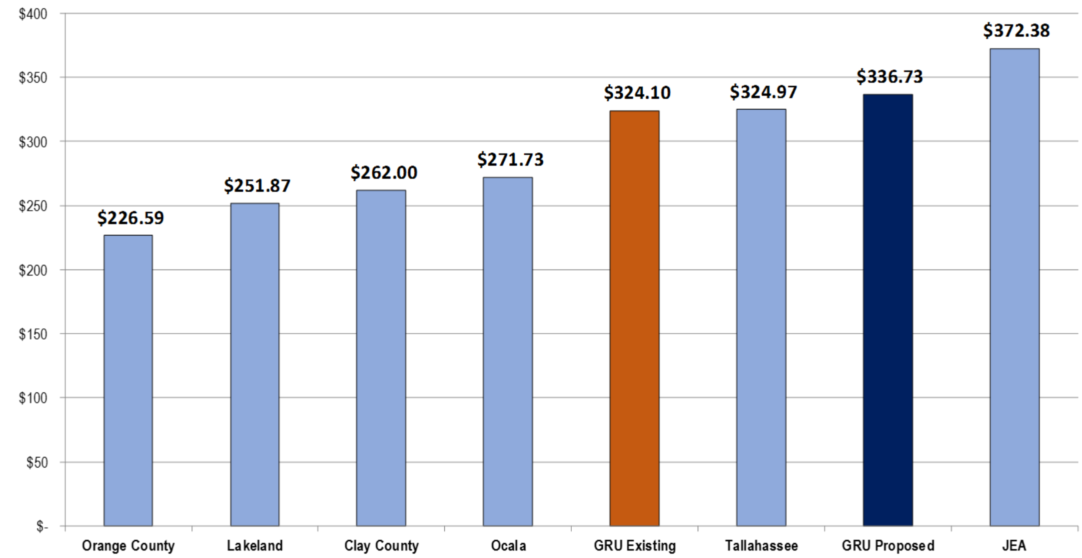
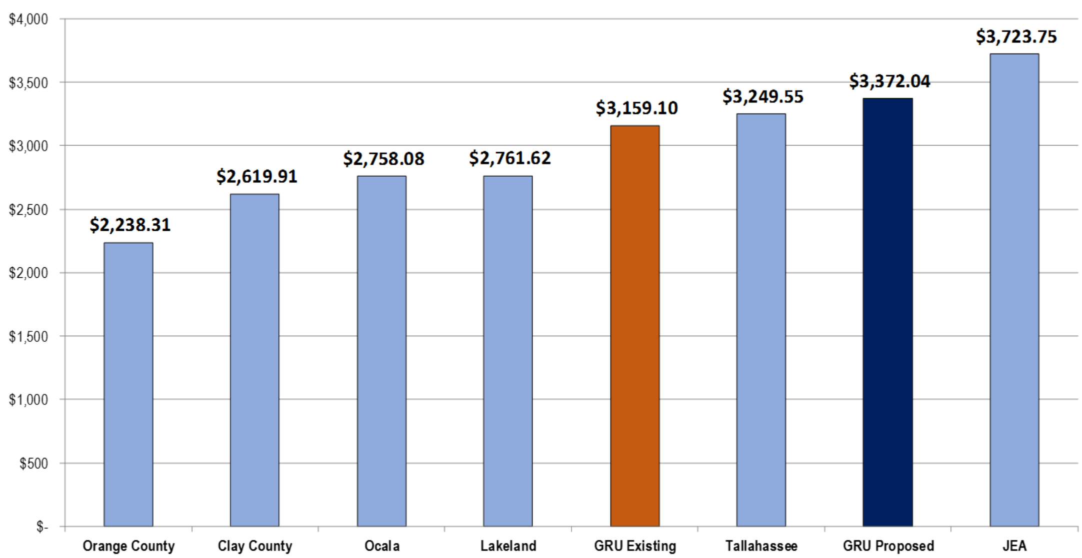


Figure 40 Comparison of Large Commercial Monthly Wastewater Bill for GRU and Six Comparators at 500,000 Gallons



2. WHOLESALE WASTEWATER RESULTS

Willdan recommends no changes to these fees at this time.

3. WASTEWATER SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Wastewater Utility System for GRU's consideration:

1. Adopt the proposed wastewater rates and connection charges presented in this Study.
2. Enact the proposed rates to become effective as of October 1, 2018.
3. Phase up the monthly base charge based AWWA meter equivalency factors.
4. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

Natural Gas Install

V. NATURAL GAS SYSTEM

This Section of the Report presents Study results for GRU's Natural Gas System and is organized as follows. Section A presents system information. Section B presents the COS analysis. Section C presents the rate design. Section D presents results and recommendations.

A. NATURAL GAS SYSTEM INFORMATION

This Section of the report provides natural gas system information including: general, supply, distribution, and consumption characteristics by customer class.

NATURAL GAS SYSTEM

1. GENERAL INFORMATION

NATURAL GAS SYSTEM SERVICE TERRITORY
Gainesville
Alachua
Hawthorne
High Springs
Newberry
Unincorporated Alachua County

The City acquired the 115-square mile natural gas system in January 1990 and currently serves customers in the Cities of Gainesville, Alachua, High Springs, and Newberry, and approximately 30% of unincorporated Alachua County. The City currently has franchise agreements to provide natural gas service to the City of Hawthorne, however sales during the Study period consisted of one customer, Georgia Pacific, that ceased at the end of FY 2014.

The natural gas system consists of underground gas distribution lines, metering and monitoring equipment, odorant injection systems liquid propane systems, and six gate stations at delivery interconnection points with the Florida Gas Transmission Company, LLC. Liquid propane is used to expand GRU's service territory until natural gas system extensions can be made. Current LP sales areas include the Cities of High Springs and Newberry and unincorporated Alachua County—mainly electric customers served by Clay.

2. NATURAL GAS SUPPLY

GRU's natural gas supply is managed by TEA, who purchases, administers entitlements, and executes physical and financial hedging strategies. The natural gas system peaks in the winter, unlike the electric system, creating opportunities to optimize performance and reliability. Purchased gas is transported by FGT's interstate pipeline.

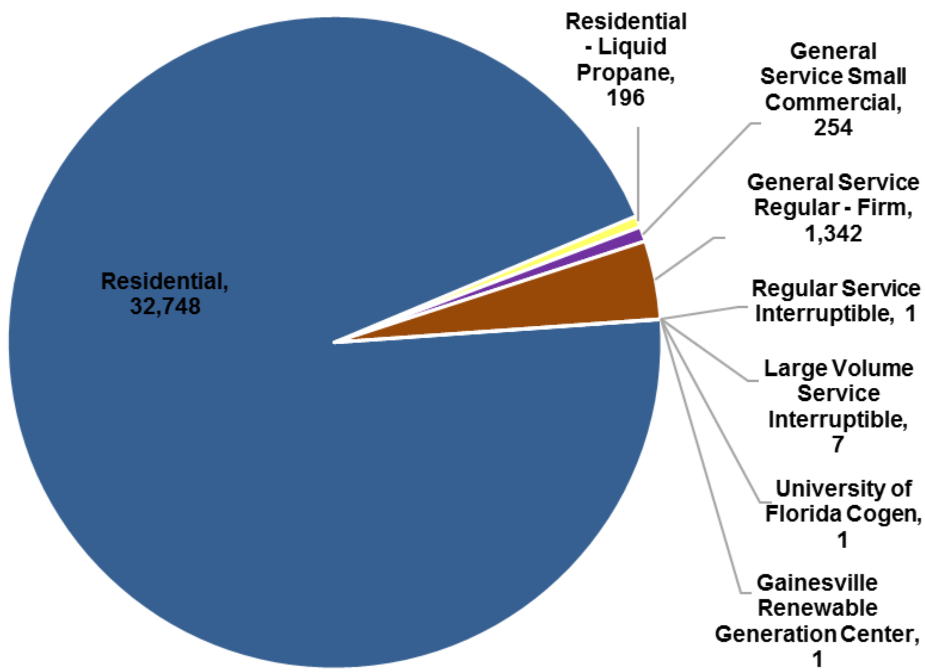
3. NATURAL GAS DISTRIBUTION

GRU's natural gas distribution system consists of 741 miles of mains, of which 72% are polyethylene, and 26% are coated steel. The remaining 2% of mains are uncoated steel, cast iron, or black plastic and are steadily being replaced.

4. USAGE CHARACTERISTICS BY CLASS

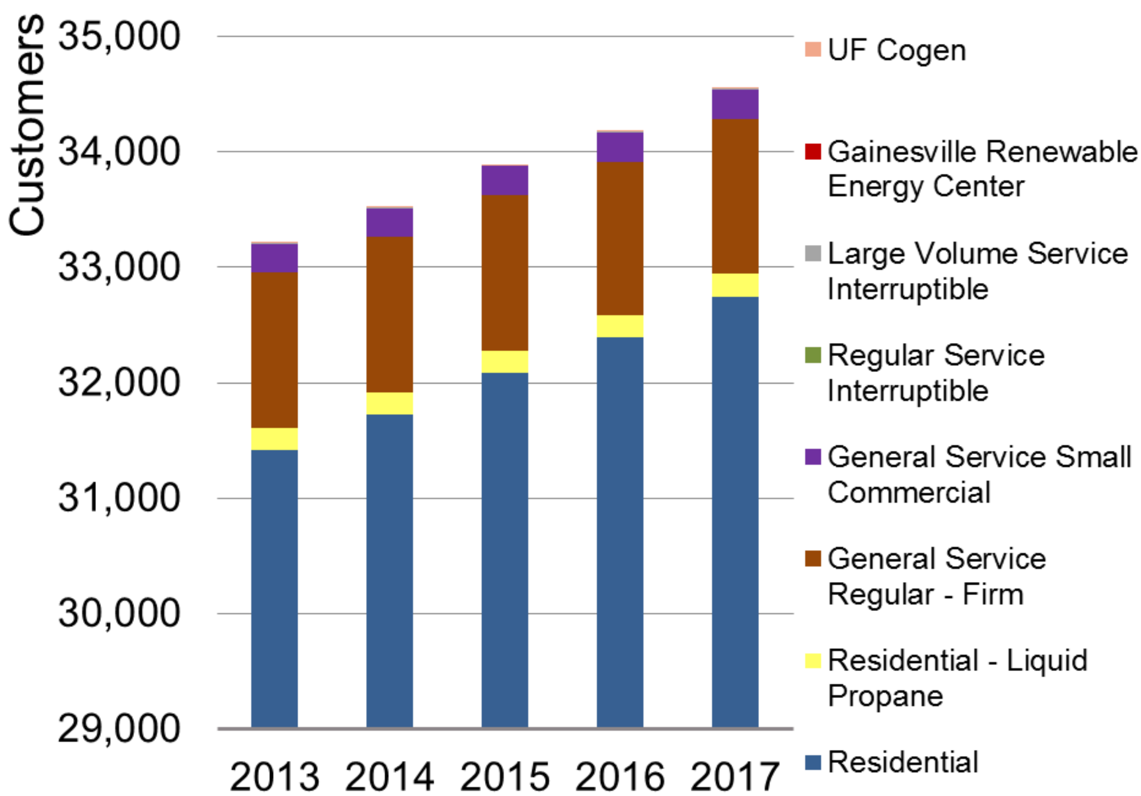
The natural gas system served approximately 34,549 customers in FY 2017, including 196 LP customers as shown in Figure 41.

Figure 41 FY 2017 Natural Gas System Accounts



Residential customers make up 93% of GRU's natural gas accounts and are the source of most historic growth as can be seen in Figure 42 which shows customer accounts by class from FY 2013-2017. Historically regular service firm class customers have competed with residential customers for largest class usage. Over the Study horizon, the residential class is expected to account for more usage than the former class.

Figure 42 Natural Gas System Customers FY 2013-2017[50]



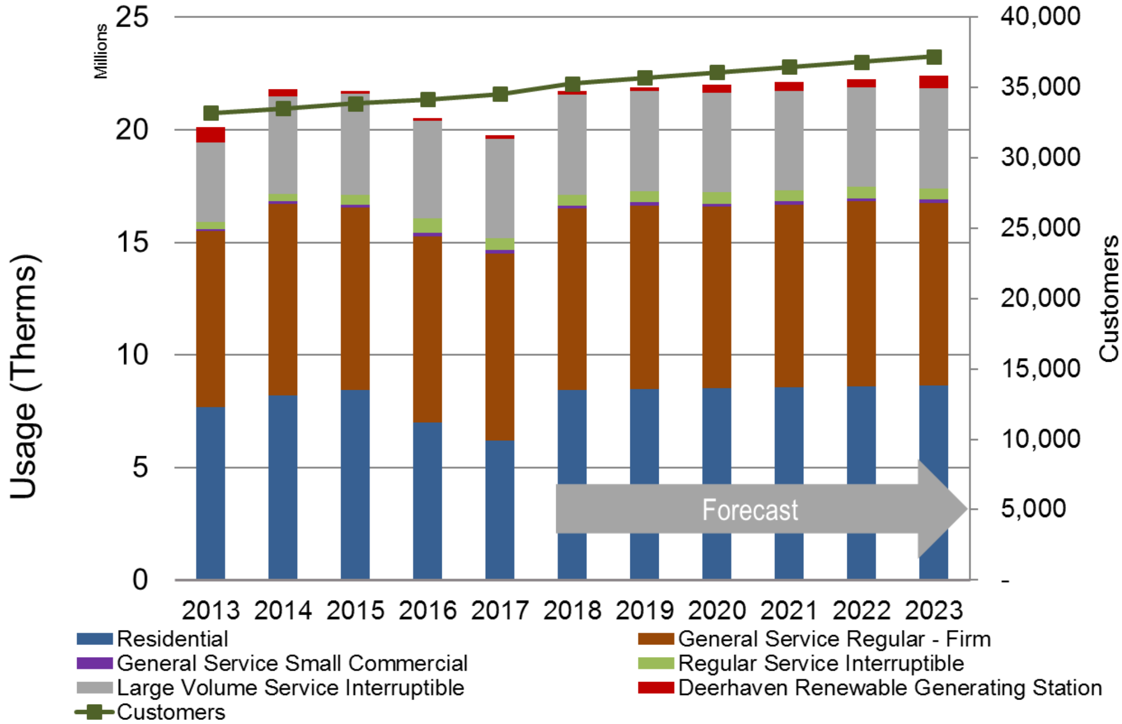
UF transports natural gas to a cogeneration (cogen) facility over GRU's system. Between FY 2013 and FY 2017, an annual average of 37.6 million therms of third-party natural gas were transported by GRU for the UF cogen plant. Over the Study period it was assumed that approximately 32 million therms per year would be transported on behalf of UF.

Approximately 200 LP customers were served in FY 2017. This amount is projected to increase approximately 8% over the Study period to 211 in FY 2023. These customers used an annual average of 43,000 gallons of LP between FY 2013 and 2017. For purposes of the Study, an annual average of 58,600 gallons of LP sales was assumed.

Figure 43 illustrates usage by customer class and total accounts from FY 2013-2023.

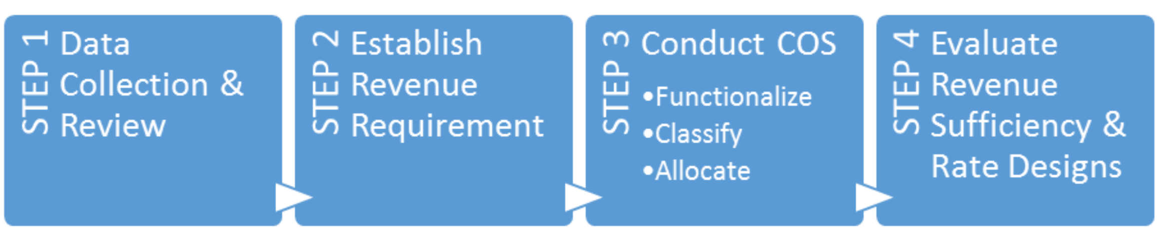
50 The Biomass plant known as the Gainesville Renewable Energy Center or GREC was purchased by the City in November 2017 and renamed the Deerhaven Renewable Generating Station.

Figure 43 Natural Gas System Usage and Customers FY 2013-2023[51]



B. NATURAL GAS COST OF SERVICE ANALYSIS

The COS process used by Willdan follows industry standards and involves the four basic steps described in Section I.A and illustrated below.



This Section of the Study: presents the current budget and revenue requirement; describes the methodology for establishing the Test Year revenue requirement; identifies the Adjustments made to the Fiscal Year revenue requirement to generate the Test Year revenue requirement; functionally unbundles, classifies, and allocates the Test Year revenue requirement; identifies the

[51] Ibid. Usage amounts do not include transportation volumes associated with the UF cogen facility. Liquid propane volumes are not included.

Test Year Billing Determinants; and presents the projected revenue requirement and revenue for FY 2019-2023.

1. CURRENT NATURAL GAS SYSTEM BUDGET AND REVENUE

Willdan used historical budget data provided by GRU for FYs 2013 through 2017 and forecasted budget data for FY 2019 through FY 2023. The FY 2018 budget numbers developed for FY 2019 were used as the starting point for the Test Year revenue requirement for the COS analysis. Figure 44 provides budget and revenue data for FY 2017 through FY 2019.

Figure 44 Natural Gas System Budget and Revenue (FY 2017 to FY 2019)

NATURAL GAS BUDGET COMPONENT	2017	2018	2019
Operating Expenses			
Operating Expenses	$7,179,149	$7,716,185	$7,845,357
Natural Gas Supply	7,419,800	9,591,330	8,797,394
Total Operating Expenses	*$14,598,949*	*$17,307,515*	*$16,642,751*
Other Revenue Requirement			
Existing Debt Service	$4,500,736	$4,151,874	$4,098,283
General Fund Transfer	1,329,794	1,382,405	1,382,405
Utility Plant Improvement Fund (UPIF) CIP Transfer	3,093,726	2,878,702	2,336,923
Total Other Revenue Requirement	*$8,924,256*	*$8,412,981*	*$7,817,612*
Total Revenue Requirement	**$23,523,205**	**$25,720,496**	**$24,460,363**
Revenue from Established Rates			
Residential Revenue (Excluding Embedded Gas)	$8,179,917	$8,667,688	$8,734,874
Non-Residential Revenue (Excluding Embedded Gas)	5,307,036	5,116,091	5,160,214
Surcharge Revenue	489,754	494,397	498,922
Manufactured Gas Plant Recovery Funds	1,069,024	1,208,249	1,216,310
Purchased Gas Adjustment Revenue (Including Embedded Gas from Base Rates)	7,419,800	9,591,330	8,797,394
Total Rate Revenue	*$22,465,531*	*$25,077,755*	*$24,407,714*
Other Revenue Sources and Inflows			
Build America Bonds, U.S. Treasury Cash Subsidy	$614,777	$606,364	$597,516
Other Revenue	1,380,000	1,758,209	1,815,594
Interest Income	147,506	119,792	90,117
Rate Stabilization (to)/from	(1,084,611)	(1,841,624)	(2,450,578)
Total Other Revenue Sources and Inflows	*$1,057,672*	*$642,741*	*$52,649*
Total Revenue and Inflows	$23,523,203	$25,720,496	$24,460,363
Total Surplus or (Deficiency)	($2)	$0	$0

In total, all utility revenues requirements are projected to be approximately $24,460,363 for FY 2019. Revenues and inflows are projected to equal this amount after an outflow of $2,450,578 to the rate stabilization fund.

2. METHODOLOGY

Willdan created the Test Year using a three-step process. First a statement of expenses for the actual FY 2019 operations using GRU's detailed budget data by cost center was created. GRU provided this information based on its FY 2018 budget. Next, adjustments occurring after October 1, 2017, or known and measurable changes, were identified and quantified. Known and measurable changes impact GRU's costs or revenues and have either occurred or are expected to occur during the Study period (FY 2019 through 2023). Finally, the adjustments were applied to the original budget to create the Test Year FY 2019 values.

For the purposes of this Study, FY 2019 is the Test Year upon which the COS and rate design analyses are based. In addition, projected costs and revenues are shown for FY 2020 through 2023.

a) Natural Gas System Test Year Revenue Requirement

Table 61 presents the FY 2019 Budget, Adjustments, and the resulting Test Year 2019 Budget and Revenues. For each adjustment, an explanation follows in Section IV.B.3.

Table 61 Natural Gas System Test Year Revenue Requirement

NATURAL GAS BUDGET COMPONENT	FY 2019	ADJUSTMENTS	TEST YEAR 2019
Operating Expenses			
Operating Expenses	$7,845,357		$7,845,357
Natural Gas Supply	8,797,394		8,797,394
Total Operating Expenses	*$16,642,751*		*$16,642,751*
Other Revenue Requirement			
Existing Debt Service	$4,098,283		$4,098,283
General Fund Transfer	1,382,405		1,382,405
Utility Plant Improvement Fund (UPIF) CIP Transfer	2,336,923		2,336,923
Total Other Revenue Requirement	*$7,817,612*		*$7,817,612*
Total Revenue Requirement	**$24,460,363**		**$24,460,363**

NATURAL GAS SYSTEM

NATURAL GAS BUDGET COMPONENT	FY 2019	ADJUSTMENTS	TEST YEAR 2019
Revenue from Established Rates			
Residential Revenue (Excluding Embedded Gas)	$8,734,874	$32,576	$8,767,450
Non-Residential Revenue (Excluding Embedded Gas)	5,160,214	172,652	5,332,866
Surcharge Revenue	498,922	417	499,339
Manufactured Gas Plant Recovery Funds	1,216,310	($8,731)	1,207,579
Purchased Gas Adjustment Revenue (Including Embedded Gas from Base Rates)	8,797,394	(2,200,134)	6,597,260
Total Rate Revenue	*$24,407,714*	*($2,003,221)*	*$22,404,493*
Other Revenue Sources and Inflows			
Build America Bonds, U.S. Treasury Cash Subsidy	$597,516		597,516
Other Revenue	1,815,594		1,815,594
Interest Income	90,117		90,117
Rate Stabilization (to)/from	(2,450,578)	(2,450,578	$0
Total Other Revenue Sources and Inflows	*$52,649*	*($2,450,578*	*$2,503,227*
Total Revenue and Inflows	**$24,460,363**	**$447,357**	**$24,907,720**
Total Surplus or (Deficiency)	$0		$447,357

b) Natural Gas Supply

Willdan developed the cost of natural gas supply using GRU's projections. Willdan reviewed this data to determine reasonableness, based on historic pricing and future national and regional market forecasts from industry publications. A similar methodology was used for LP.

c) Debt Service

Annual debt service information through FY 2023 was provided by GRU and follows management's expectations of future debt issuances and associated debt service, including long-term bond and commercial paper issuances. Willdan reviewed this data to determine reasonableness, however, no in-depth analysis of the debt plan was conducted and no adjustments to the debt plan were made in terms of size of debt, timing, interest rates, or other parameters.

d) Capital Improvement Program

GRU's capital improvement plan includes debt-funded and revenue-funded expenditures for meters, regulators, station equipment, general plant, and special projects. For Test Year FY 2019, GRU plans approximately $4.5 million in capital improvement projects, with $2.3 million funded by revenues and the remaining funding by debt.

e) Cash Reserves

GRU maintains a rate stabilization fund, with a balance of $74.2 million at the end of FY 2016 according to its Financial Statements, that can be used by all utilities: electric, water, wastewater, and natural gas. GRU has budgeted for an outflow from the natural gas system to the rate stabilization fund of $2.5 million for FY 2019. Willdan has removed this outflow in its Test Year projections, and assumed no transfers are made for future years FY 2020 through FY 2023. This adjustment ensures that the revenue requirement calculation for those years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is an accepted industry practice.

3. FISCAL YEAR, ADJUSTMENTS, AND TEST YEAR

Table 61 on page 137 above presents the FY 2019 Budget, Adjustments, and the resulting Test Year 2019 Budget. The following adjustments for known and measurable changes were made to the budget to develop the Test Year revenue requirement.

a) Rate Revenue Adjustments

Base rate, purchased gas adjustment, manufactured gas plant recovery and surcharge revenues were adjusted to reflect inflows at expected FY 2019 billing determinants times current rates, effective October 1, 2017, resulting in an overall decrease in revenues of $2 million.

b) Rate Stabilization Fund Transfer Adjustment

GRU has budgeted for an outflow from natural gas revenues to the rate stabilization fund of $2.5 million for FY 2019. Willdan has removed this inflow in its Test Year projections, and for future years FY 2020 through FY 2023, no transfers between the rate stabilization fund and other natural gas system funds to pay for expenses have been assumed. This adjustment ensures that the revenue requirement calculation for all years clearly reflects utility expenditures against revenues. Willdan recognizes that GRU may wish to rely upon the rate stabilization fund to smooth or delay rate changes, which is a generally-accepted industry practice

c) Overall Impact of Adjustments

Adjusting the budget for known and measurable changes increased revenues and net inflows by $447,357 or $24.9 million in total.

4. FUNCTIONAL UNBUNDLING, CLASSIFICATION, AND ALLOCATION

The natural gas system Test Year revenue requirement was then functionally unbundled, classified, and allocated to customer class to determine the cost of service by rate class.

a) Functional Unbundling of Natural Gas System Revenue Requirement

GRU costs were unbundled into Supply, Transportation, Distribution, Customer, and Direct Assign functions—the primary services provided by GRU's natural gas utility to its retail and wholesale customers.

- **Supply:** costs associated with natural gas supply
- **Transportation:** costs associated with transporting natural gas from FGT
- **Distribution:** costs associated with delivering gas to customers
- **Customer:** the costs associated with metering, billing and providing other services to customers (e.g. printing, delivering and collecting utility bills, recordkeeping, etc.)
- **Direct Assign:** costs associated with LP supply and O&M

Table 62 presents the functionally unbundled revenue requirement for the test Year FY 2019.

Table 62 Functionally Unbundled Natural Gas System Test Year Revenue Requirement

ELECTRIC BUDGET COMPONENT	TEST YEAR FY 2019 ($000)
Bundled Revenue Requirement	**$24,460**
Less Other Revenue Sources and Inflows	3,003
Total Revenue Requirement	**$21,458**
Functionally Unbundled Revenue Requirement	
Supply	$5,845
Transportation	1,801
Distribution	6,552
Customer	7,149
Direct Assign	110
Total Revenue Requirement	**$21,458**

b) Classification of Natural Gas System Costs

The functionalized natural gas system revenue requirement was then classified between fixed, and variable costs.

- **Fixed:** costs that do not vary with the amount of gas and LP usage or transportation
- **Variable:** costs that vary with the amount of gas and LP usage or transportation

The functionalized, classified revenue requirement allocated to customer class is shown in Table 63.

Table 63 Classification of Functionalized Natural Gas System Test Year Revenue Requirement

ELECTRIC BUDGET COMPONENT	FIXED ($000)	VARIABLE ($000)	TOTAL ($000)
Supply	$0	$5,845	$5,845
Transportation	0	1,801	1,801
Distribution	6,552	0	6,552
Customer	7,149	0	7,149
Direct Assign	25	86	110
Total Revenue Requirement	**$13,726**	**$7,732**	**$21,458**

c) Allocation of Natural Gas System Costs

The functionalized, classified, revenue requirement was then allocated to customer classes. After consideration of various possible allocation factors, the following were used:

- **Commodity Volumes:** the relative ratio of the class natural gas commodity usage
- **Transport Volumes:** the relative ratio of the class natural gas transport usage
- **Distribution Volumes:** the relative ratio of the class natural gas distribution system usage
- **Propane Volumes:** the relative ratio of the class natural LP usage
- **Weighted Customers:** the relative ratio of class customer count, weighted for larger and single customer classes to ensure an equitable assignment of costs

A summary of the allocators used by component appears in **Table 64**.

Table 64 Summary of Natural Gas System Cost Allocation Factors by Classified, Functional Cost Component

NATURAL GAS COST CATEGORY	FIXED COST	VARIABLE COST
Supply	Commodity Volumes	Commodity Volumes
Transportation	Transport Volumes	Transport Volumes
Distribution	Commodity Volumes	Distribution Volumes
Customer	Weighted Customers	Weighted Customers
Direct Assign	Propane Volumes	Propane Volumes

The functionalized, classified, revenue requirement allocated to customer classes is shown in **Table 65**.

Table 65 Allocation of Functionalized, Classified Natural Gas Revenue Requirement to Customer Classes

NATURAL GAS CUTOMER CLASS	FIXED	VARIABLE	TOTAL
Residential			
Supply	$-	$2,263,214	$2,263,214
Transportation	-	283,136	283,136
Distribution	2,537,038	-	2,537,038
Customer	4,167,308	-	4,167,308
Total Residential	*$6,704,346*	*$2,546,350*	*$9,250,696*
Residential Liquid Propane			
Supply	$-	$85,608	$85,608
Distribution	24,771		24,771
Customer	24,899		24,899
Total Residential Liquid Propane	*$49,671*	*$85,608*	*$135,278*
General Service Small Commercial			
Supply	$-	$39,817	$39,817
Transportation	-	4,981	4,981
Distribution	44,635	-	44,635
Customer	32,049	-	32,049
Total General Service Small Commercial	*$76,684*	*$44,799*	*$121,483*
General Service Regular - Firm			
Supply	$-	$2,182,568	$2,182,568
Transportation	-	273,047	273,047
Distribution	2,446,635	-	2,446,635
Customer	2,034,795	-	2,034,795
Total General Service Regular - Firm	*$4,481,430*	*$2,455,615*	*$6,937,045*

NATURAL GAS CUTOMER CLASS	FIXED	VARIABLE	TOTAL
Regular Service Interruptible			
Supply	$-	$133,975	$133,975
Transportation	-	16,761	16,761
Distribution	150,184	-	150,184
Customer	1,231	-	1,231
Total Regular Service Interruptible	*$151,415*	*$150,735*	*$302,151*
Large Volume Service Interruptible			
Supply	$-	$1,183,681	$1,183,681
Transportation	-	148,083	148,083
Distribution	1,326,894	-	1,326,894
Customer	851,630	-	851,630
Total Large Volume Service Interruptible	*$2,178,523*	*$1,331,764*	*$3,510,287*
Deerhaven Renewable Generating Station			
Supply	$-	$41,960	$41,960
Transportation	-	5,249	5,249
Distribution	47,036	-	47,036
Customer	18,469	-	18,469
Total DHRGS	*$65,505*	*$47,209*	*$112,715*
University of Florida Cogeneration Plant			
Supply	$-	$-	$-
Transportation	-	1,069,673	1,069,673
Distribution	-	-	-
Customer	18,469	-	18,469
Total UF Cogeneration Plant	*$18,469*	*$1,069,673*	*$1,088,142*
TOTAL ALL RATE CLASSES	**$13,726,043**	**$7,731,754**	**$21,457,797**

5. FY 2019-2023 NATURAL GAS BILLING DETERMINANTS

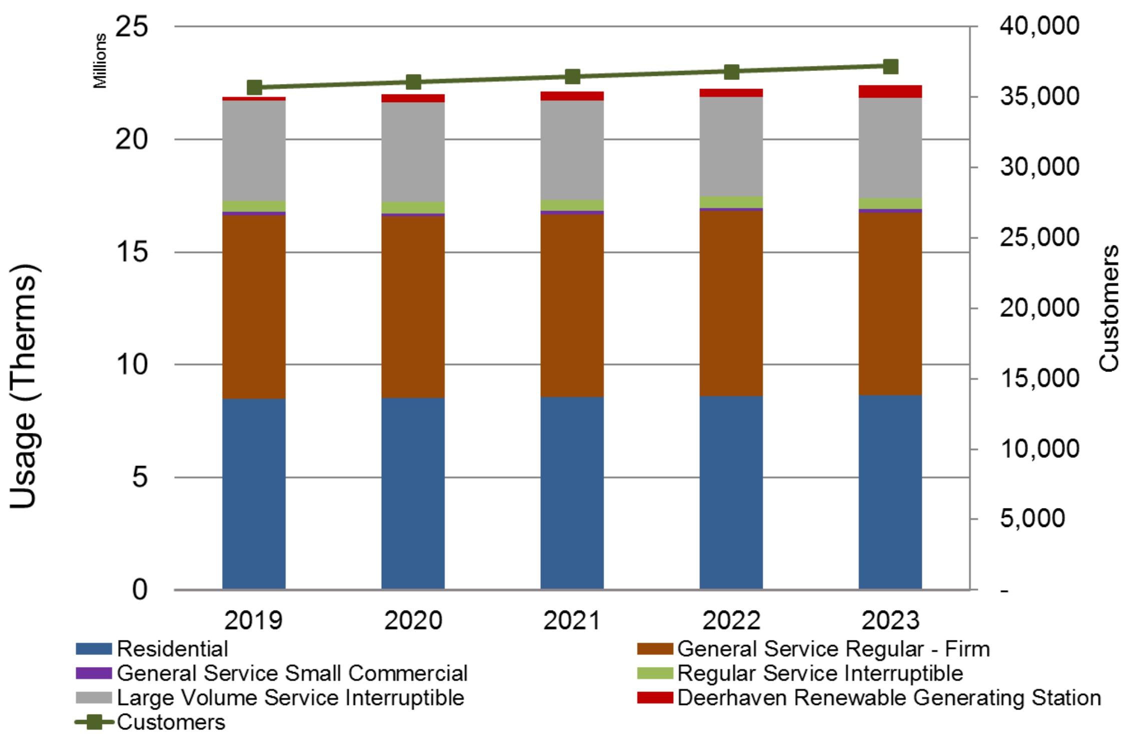
Table 66 presents customer accounts, usage in therms and gallons, and transport volumes by customer class for the Test Year FY 2019. **Figure 45** presents natural gas system usage by class and customers for FY 2019-2023.

Over the Study period it was assumed that approximately 32 million therms per year would be transported on behalf of UF to its cogeneration facility. For purposes of the Study, an annual average usage of 58,600 gallons of LP sales was assumed.

Table 66 Natural Gas Test Year Billing Determinants by Customer Class

NATURAL GAS CUSTOMER CLASS	CUSTOMER ACCOUNTS	USAGE (THERMS)
Residential	33,846	8,470,217
General Service Small Commercial	260	149,019
General Service Regular - Firm	1,377	8,168,396
Regular Service Interruptible	1	501,408
Large Volume Service Interruptible	7	4,430,000
Deerhaven Renewable Generating Station	1	157,037
Total All Rate Classes	35,492	21,876,078
		TRANSPORT (THERMS)
University of Florida Cogeneration Plant	1	32,000,000
		USAGE (GALLONS)
Residential Liquid Propane	202	58,074

Figure 45 Natural Gas System Usage and Customers by Class FY 2019-2023



6. FY 2019-2023 PROJECTED REVENUE REQUIREMENT & REVENUES AT CURRENT RATES

Using the billing determinants developed for FY 2019 through FY 2023, Willdan calculated annual FY revenues at current rates and compared them against cost projections. This comparison informs the expected base and purchased gas adjustment (PGA) rate increases/decreases required over time to meet projected revenue requirements. **Table 67** shows the revenue requirement and associated rate revenue at current rates for the FY 2019 through FY 2023 period.

Table 67 Natural Gas System Revenue Requirement and Revenues at Current Rates FY 2019-2023 ($000)

NATURAL GAS BUDGET COMPONENT	2019	2020	2021	2022	2023
Operating Expenses					
Operating Expenses	$7,845	$8,002	$8,162	$8,326	$8,492
Natural Gas Supply	8,797	9,061	9,333	9,613	9,901
Total Operating Expenses	*$16,643*	*$17,064*	*$17,495*	*$17,939*	*$18,394*
Other Revenue Requirement					
Existing Debt Service	$4,098	$4,154	$4,821	$4,927	$4,630
General Fund Transfer	1,382	1,405	1,427	1,450	1,473
Utility Plant Improvement Fund (UPIF) CIP Transfer	2,337	2,093	1,937	1,949	1,943
Total Other Revenue Requirement	*$7,818*	*$7,652*	*$8,186*	*$8,326*	*$8,046*
Total Revenue Requirement	**$24,460**	**$24,715**	**$25,681**	**$26,265**	**$26,440**
Revenue from Established Rates					
Residential Revenue (Excluding Embedded Gas)	$8,767	$8,834	$8,901	$8,968	$9,032
Non-Residential Revenue (Excluding Embedded Gas)	5,333	5,298	5,320	5,365	5,331
Surcharge Revenue	499	502	506	509	512
Manufactured Gas Plant Recovery Funds	1,208	1,204	1,209	1,217	1,214
Purchased Gas Adjustment Revenue (Including Embedded Gas from Base Rates)	6,597	6,623	6,657	6,699	6,724
Total Rate Revenue	*$22,404*	*$22,461*	*$22,593*	*$22,760*	*$22,814*
Other Revenue Sources and Inflows					
Build America Bonds, U.S. Treasury Cash Subsidy	$598	$588	$578	$567	$556
Other Revenue	1,816	1,875	1,937	2,002	2,069
Interest Income	90	109	93	113	93
Rate Stabilization (to)/from	$0	$0	$0	$0	$0
Total Other Revenue Sources and Inflows	*$2,503*	*$2,573*	*$2,608*	*$2,683*	*$2,719*
Total Revenue and Inflows	**$24,908**	**$25,034**	**$25,201**	**$25,442**	**$25,532**
Total Surplus or (Deficiency)	$447	$319	($480)	($822)	($907)

As can be seen from this data, the natural gas system is projected to generate surplus revenues for FY 2019 and 2020, after which deficits occur. Absent either rate increases or infusion of money from the rate stabilization fund, forecasted revenues are not sufficient to cover the natural gas system revenue requirement by $480,000, $822,000, and $907,000 in FY 2021, 2022, and 2023, respectively.

C. NATURAL GAS SYSTEM RATE DESIGN

This section presents: the Study approach to rate design, and GRU's current retail natural gas rate structures.

1. APPROACH

The first step in the rate design process is to determine the cost to serve each customer class based on consumption, demand/fixed cost, and customer service. This information was obtained through the COS analysis discussed above. In addition to the COS analysis, various considerations drive the rate design process including existing rate structures, magnitude of required changes, and elasticity of demand, as well as traditional principles as discussed in Section I.A.4 on page 6. The existing rate structure is important because customers are accustomed to it; rate design changes could result in sudden and unexpected cost increases, negatively impacting customers. Public policy decisions can also: influence rate design; dictate class cross subsidies; impact the level of fixed (such as the customer charge) versus variable or consumption-based charges (such as the purchased gas charge), and determine the period over which new rates are implemented. Finally, rates should be designed to send proper pricing signals to consumers, while taking into account the degree to which rate levels influence consumption (positively and negatively). However, for purposes of this Study, the most critical driver for rate design was to ensure revenue adequacy: that proposed rates generate adequate revenue to meet the financial needs of GRU.

2. NATURAL GAS SYSTEM RETAIL RATE STRUCTURE

This section discusses GRU's current rate structures for retail customers and compares them to the cost-based rates derived from the COS analysis and proposed rates.

a) Current Natural Gas Retail Rates

GRU currently has the following main natural gas system customer classes:

- Residential
- General Service Small Commercial
- General Service Firm
- Large Volume

Additionally, GRU's natural gas system has special rate classes for residential LP, the UF cogeneration plant, and DHRGS (the biomass plant formerly known as GREC, see footnote 15). Also, one customer receives service under GRU's General Service Interruptible rate schedule.

An overview of current rate designs for these four and the special rate classes follows immediately after the discussion of special rate charges. GRU's natural gas customers pay two special rate components: the Manufactured Gas Plant Recovery (MGPR) charge and the PGA.

- **Manufactured Gas Plant Recovery Charge:** All customers receiving natural gas commodity service pay a special charge associated with recovering the cost of environmental remediation of the "blue water gas" manufacturing site that originally served customers. The current MGPR rate is $0.0556 per therm.
- **Purchased Gas Adjustment:** All customers receiving natural gas commodity service pay a special charge associated with recovering the cost of natural gas and LP above the levels embedded in base usage rates. The current PGA, which can change monthly, is $0.23 per therm; the PGA amount is in addition to $0.06906 per therm embedded in the base usage rate. The current PGA for LP customers, which can change monthly, is $0.98 per gallon; the LP PGA amount is in addition to $0.15882 per gallon embedded in the base usage rate.

A Florida Gross Receipts Tax, at the rate of 2.5% is applied to all rate revenue including surcharge revenue, using an index of 2.564 provided by the State of Florida. Depending on customer location, a 10% City utility tax (within the City limits of Gainesville), or 10% County utility tax is applied to all rate revenue, except the PGA revenue and including surcharge revenue, plus the Florida Gross Receipts Tax. All taxes are pass-throughs and are not used by GRU to meet its revenue requirement. Customers within the City of Alachua pay a 6% Franchise Fee, applied to all rate revenue except the PGA revenues, Florida Gross Receipts Tax, and the surcharge; the franchise fee is also a pass-through for GRU.

Customers outside of City limits also pay a 10% surcharge applied to all rate revenue and the Florida Gross Receipts Tax, except the PGA revenue. Surcharge revenue is used by GRU to meet revenue requirements.

Descriptions of GRU's retail natural gas rate structures follow. Customers choose the general service rate schedule under which they wish to receive service.

- **Residential:** GRU's Residential class rate structure consist of two basic components: a monthly customer charge ($9.75 per customer per month), and a volumetric usage charge ($0.63 per therm). In addition, residential customers pay the PGA, MFGP charge, and applicable taxes, surcharges, and franchise fees.

- **General Service Small Commercial:** GRU's General Service Small Commercial class rate structure consist of two basic components: a monthly customer charge ($20.00 per customer per month), and a volumetric usage charge ($0.62 per therm). In addition, customers pay the PGA, MFGP charge, and applicable taxes, surcharges, and franchise fees.
- **General Service Firm:** GRU's General Service Firm class rate structure consist of two basic components: a monthly customer charge ($45.00 per customer per month), and a volumetric usage charge ($0.44 per therm). In addition, customers pay the PGA, MFGP charge, and applicable taxes, surcharges, and franchise fees.
- **Large Volume:** GRU's Large Volume class rate structure consist of two basic components: a monthly customer charge ($400.00 per customer per month), and a volumetric usage charge ($0.27 per therm). Customers are billed the usage charge monthly based on the greater of actual consumption and 30,000 therms. In addition, customers pay the PGA, MFGP charge, and applicable taxes, surcharges, and franchise fees.

Descriptions of GRU's special natural gas rate structures follow.

- **Residential Liquid Propane:** GRU's Residential LP class rate structure consists of two basic components: a monthly customer charge ($9.75 per customer per month), and a volumetric usage charge ($0.72 per gallon basic gas use, $0.79 per gallon with seven-year recovery period, and $0.75 per gallon with a greater than seven-year recovery period). In addition, customers pay the PGA and applicable taxes, surcharges, and franchise fees.
- **University of Florida Cogeneration Plant:** UF pays a two-part rate consisting of a monthly customer charge ($300.00) and volumetric transportation charge ($0.01 per therm).
- **Deerhaven Renewable Generating Station:** The biomass plant formerly known as GREC (see footnote 15) pays the PGA based on volumes used.

b) Cost-Based Natural Gas Retail Rates

Willdan summed the customer-allocated cost of service to create the total cost to serve each class. Individual fixed, volumetric, and customer cost components were then divided by associated billing determinants within each class to develop unitized costs, for example volumetric costs per therm, and customer costs per customer per month.

Table 68 shows current natural gas rates versus Test Year 2019 COS rates and proposed rates by class.

Table 68 Natural Gas System Current, Cost-Based, and Proposed Rates

NATURAL GAS CUSTOMER CLASS (Charges in $/Therm Unless Noted)	CURRENT RATES FY 2018	TEST YEAR COS RATES	DIFFERENCE CURRENT RATES FROM COS		PROPOSED RATES	DIFFERENCE CURRENT RATES FROM PROPOSED	
Residential							
Customer Charge ($/Month)	$9.75	$10.26	($0.51)	-5%	$9.75	$-	0%
Usage Charge (Net Embedded Fuel)	$0.56094	$0.27735	$0.28	102%	$0.56094	$-	0%
Embedded Fuel Cost (Natural Gas)	$0.06906	$0.06906	$-	0%	$0.06906	$-	0%
Purchased Gas Adjustment	$0.23000	$0.19814	$0.03	16%	$0.23000	$-	0%
Manufactured Gas Plant Cost	$0.05560	$0.05560	$-	0%	$0.05560	$-	0%
Residential Liquid Propane							
Customer Charge ($/Month)	$9.75	$10.26	($0.51)	-5%	$9.75	$-	0%
Usage Charge (Net Embedded Fuel Basic $/Gallon)	$0.56094	$0.42655	$0.13	32%	$0.56094	$-	0%
Embedded Fuel Cost ($/Gallon)	$0.15882	$0.15882	$-	0%	$0.15882	$-	0%
Purchased Gas Adjustment ($/Gallon)	$0.97500	$1.31530	($0.34)	-26%	$0.97500	$-	0%
General Service Small Commercial							
Customer Charge ($/Month)	$20.00	$10.26	$9.74	95%	$20.00	$-	0%
Usage Charge (Net Embedded Fuel)	$0.55094	$0.27735	$0.27	99%	$0.55094	$-	0%
Embedded Fuel Cost (Natural Gas)	$0.06906	$0.06906	$-	0%	$0.06906	$-	0%
Purchased Gas Adjustment	$0.23000	$0.19814	$0.03	16%	$0.23000	$-	0%
Manufactured Gas Plant Cost	$0.05560	$0.05560	$-	0%	$0.05560	$-	0%
General Service Regular – Firm							
Customer Charge ($/Month)	$45.00	$123.13	($78.13)	-63%	$45.00	$-	0%
Usage Charge (Net Embedded Fuel)	$0.37094	$0.27735	$0.09	34%	$0.37094	$-	0%
Embedded Fuel Cost (Natural Gas)	$0.06906	$0.06906	$-	0%	$0.06906	$-	0%
Purchased Gas Adjustment	$0.23000	$0.19814	$0.03	16%	$0.23000	$-	0%
Manufactured Gas Plant Cost	$0.05560	$0.05560	$-	0%	$0.05560	$-	0%

NATURAL GAS CUSTOMER CLASS (Charges in $/Therm Unless Noted)	CURRENT RATES FY 2018	TEST YEAR COS RATES	DIFFERENCE CURRENT RATES FROM COS		PROPOSED RATES	DIFFERENCE CURRENT RATES FROM PROPOSED	
Regular Service Interruptible							
Customer Charge ($/Month)	$400.00	$10,260.60	($9,860.60)	-96%	$400.00	$-	0%
Usage Charge (Net Embedded Fuel)	$0.20094	$0.27735	($0.08)	-28%	$0.20094	$-	0%
Embedded Fuel Cost (Natural Gas)	$0.06906	$0.06906	$-	0%	$0.06906	$-	0%
Purchased Gas Adjustment	$0.23000	$0.19814	$0.03	16%	$0.23000	$-	0%
Manufactured Gas Plant Cost	$0.05560	$0.05560	$-	0%	$0.05560	$-	0%
Large Volume Service Interruptible							
Customer Charge ($/Month)	$400.00	$102.61	$297.39	290%	$400.00	$-	0%
Usage Charge (Net Embedded Fuel)	$0.32484	$0.27735	$0.05	17%	$0.32484	$-	0%
Embedded Fuel Cost (Natural Gas)	$0.06906	$0.06906	$-	0%	$0.06906	$-	0%
Purchased Gas Adjustment	$0.23000	$0.19814	$0.03	16%	$0.23000	$-	0%
Manufactured Gas Plant Cost	$0.05560	$0.05560	$-	0%	$0.05560	$-	0%
Deerhaven Renewable Generating Station							
Customer Charge ($/Month)	$-	$1,539.09	($1,539.09)	-100%	$-	$-	0%
Usage Charge	$-	$0.03343	($0.03)	-100%	$-	$-	0%
Purchased Gas Adjustment	$0.23000	$0.26720	($0.04)	-14%	$0.23000	$-	0%
University of Florida Cogen Plant							
Customer Charge ($/Month)	$300.00	$1,539.09	($1,239.09)	-81%	$300.00	$-	0%
Transportation Charge	$0.01000	$0.03343	($0.02)	-70%	$0.01000	$-	0%

c) Revenues at Current, Cost of Service, and Proposed Rates

Table 69 shows current rate revenues versus Test Year 2019 COS and proposed revenues by class. Based on these results, GRU is over-collecting its natural gas COS by $447,000 overall. Residential, General Service Small Commercial, and Large Volume Interruptible rate classes are paying more than COS.

Table 69 Natural Gas System Current, COS and Proposed Rate Revenues

NATURAL GAS CUSTOMER CLASS	CURRENT FY 2018 ($000)	COS ($000)	CHANGE FROM COS ($000)		PROPOSED ($000)	CHANGE FROM PROPOSED ($000)	
Residential							
Non-Gas	$9,182	$6,987	$2,195	31%	$9,182	$0	0%
Embedded Gas	$585	$585	$0	0%	$585	$0	0%
PGA	$1,948	$1,678	$270	16%	$1,948	$0	0%
Total	$11,715	$9,251	$2,465	27%	$11,715	$0	0%

NATURAL GAS SYSTEM

NATURAL GAS CUSTOMER CLASS	CURRENT FY 2018 ($000)	COS ($000)	CHANGE FROM COS ($000)		PROPOSED ($000)	CHANGE FROM PROPOSED ($000)	
Residential Liquid Propane							
Non-Propane	$56	$25	$31	126%	$56	$0	0%
Embedded Propane	$9	$9	$0	0%	$9	$0	0%
PGA	$57	$101	($45)	-44%	$57	$0	0%
Total	$122	$135	($13)	-10%	$122	$0	0%
General Service Small Commercial							
Non-Gas	$153	$82	$71	87%	$153	$0	0%
Embedded Gas	$10	$10	$0	0%	$10	$0	0%
PGA	$34	$30	$5	16%	$34	$0	0%
Total	$197	$121	$76	63%	$197	$0	0%
General Service Regular – Firm							
Non-Gas	$4,228	$4,754	($527)	-11%	$4,228	$0	0%
Embedded Gas	$564	$564	$0	0%	$564	$0	0%
PGA	$1,879	$1,618	$260	16%	$1,879	$0	0%
Total	$6,671	$6,937	($266)	-4%	$6,671	$0	0%
Regular Service Interruptible							
Non-Gas	$1,170	$2,327	($1,157)	-50%	$1,170	$0	0%
Embedded Gas	$306	$306	$0	0%	$306	$0	0%
PGA	$1,019	$878	$141	16%	$1,019	$0	0%
Total	$2,495	$3,510	($1,016)	-29%	$2,495	$0	0%
Large Volume Service Interruptible							
Non-Gas	$196	$168	$27	16%	$196	$0	0%
Embedded Gas	$35	$35	$0	0%	$35	$0	0%
PGA	$115	$99	$16	16%	$115	$0	0%
Total	$346	$302	$43	14%	$346	$0	0%
Deerhaven Renewable Generating Station							
Non-Gas	$0	$2	($2)	-100%	$0	$0	0%
PGA	$36	$42	($6)	-14%	$36	$0	0%
Total	$36	$113	($77)	-68%	$36	$0	0%
University of Florida Cogeneration Plant							
Transportation Charge	$324	$1,088	($765)	-70%	$324	$0	0%

NATURAL GAS CUSTOMER CLASS	CURRENT FY 2018 ($000)	COS ($000)	CHANGE FROM COS ($000)		PROPOSED ($000)	CHANGE FROM PROPOSED ($000)	
Total Natural Gas							
Non-Gas	$15,252	$15,477	($226)	-1%	$15,252	$0	0%
Embedded Gas	$1,500	$1,500	$0	0%	$1,500	$0	0%
PGA	$5,031	$4,345	$686	16%	$5,031	$0	0%
Total	$21,783	$21,323	$461	2%	$21,783	$0	0%
Total Liquid Propane							
Non-Gas	$56	$25	$31	126%	$56	$0	0%
Embedded Gas	$9	$9	$0	0%	$9	$0	0%
PGA	$57	$101	($45)	-44%	$57	$0	0%
Total	$122	$135	($13)	-10%	$122	$0	0%
TOTAL REVENUE	**$21,905**	**$21,458**	**$447**	**2%**	**$21,905**	**$0**	**0%**

d) Non-Rate Charges and Fees

GRU has two types of Non-Rate Charges and fees: connection charges and other non-rate charges.

i) Connection Charges

GRU's connection charges for natural gas service range between $36 for Residential customers to $100 for Nonresidential Service.

ii) Other Non-Rate Charges

Total other non-rate charges, including express service fees and penalties for failure to show, were $224,655 for FY 2017.

D. NATURAL GAS SYSTEM RESULTS AND RECOMMENDATIONS

This section presents the results of the retail rate analysis followed Study recommendations. Evaluation of taxes, surcharges, Surtaxes, Franchise Fees, and other similar assessments are outside the scope of this Study.

1. NATURAL GAS SYSTEM RETAIL RESULTS

This section presents retail results, proposed rate changes, revenue sufficiency analysis, billing impact analysis, comparison with neighboring utilities, and recommendations.

Based on Study results for the Test Year 2019, at current rates an overall decrease of 1.8% in total rate revenue would be required to match revenue requirements with revenues.

a) Proposed Retail Rates

No changes to retail rates for any rate class is proposed.

b) Non-Rate Charges and Fees

Willdan recommends no changes to these fees at this time.

c) Revenue Adequacy of Proposed Rates

The proposed retail rates have been designed to recover revenues equal to the Test Year revenue requirement presented in Section I.A.2. Rates were designed based on billing determinants extracted from historic data and forecasts provided by GRU. To the extent actual billing determinants vary from those projected, or future class usage characteristics vary from historical observations, actual revenues may vary from the expected revenues as presented herein.

As discussed in previous sections, in addition to the revenue requirement for the Test Year, a projection of the revenue requirements for FY 2020 through 2023 was made for informational purposes.

d) Natural Gas Bill Impact Comparisons

The following tables show the bill impacts of current rates, cost-based rates, and, if applicable, proposed rates for four main natural gas retail rate classes: Residential, General Service Small Commercial, General Service Firm, and Large Volume customers for the average customer usage within each class.

Table 70 compares an average monthly Residential natural gas bill at the average class usage level. **Figure 46** compares bills at different usage levels for the Residential customer class under current, COS-based, and proposed rates.

Table 70 Residential Natural Gas Monthly Bill Impact Comparison Residential Natural Gas

NATURAL GAS RATE COMPONENT	BILLING UNITS	CURRENT FY 2018		COS		PROPOSED	
		Unit Rate	Revenue	Unit Rate	Revenue	Unit Rate	Revenue
Service Charge	1	$9.75	$9.75	$10.26	$10.26	$9.75	$9.75
Usage Charge	21	$0.6300	$13.14	$0.3464	$7.22	$0.6300	$13.14
MGPR	21	$0.0556	$1.16	$0.0556	$1.16	$0.0556	$1.16
PGA	21	$0.2300	$4.80	$0.1981	$4.13	$0.2300	$4.80
Total	**-**	**$1.3831**	**$28.84**	**$1.0921**	**$22.78**	**$1.3831**	**$28.84**
Change ($)					($6.07)		$0
Change (%)					-24.01%		0%

Figure 46 Residential Natural Gas Bill Impact and Rate Comparison

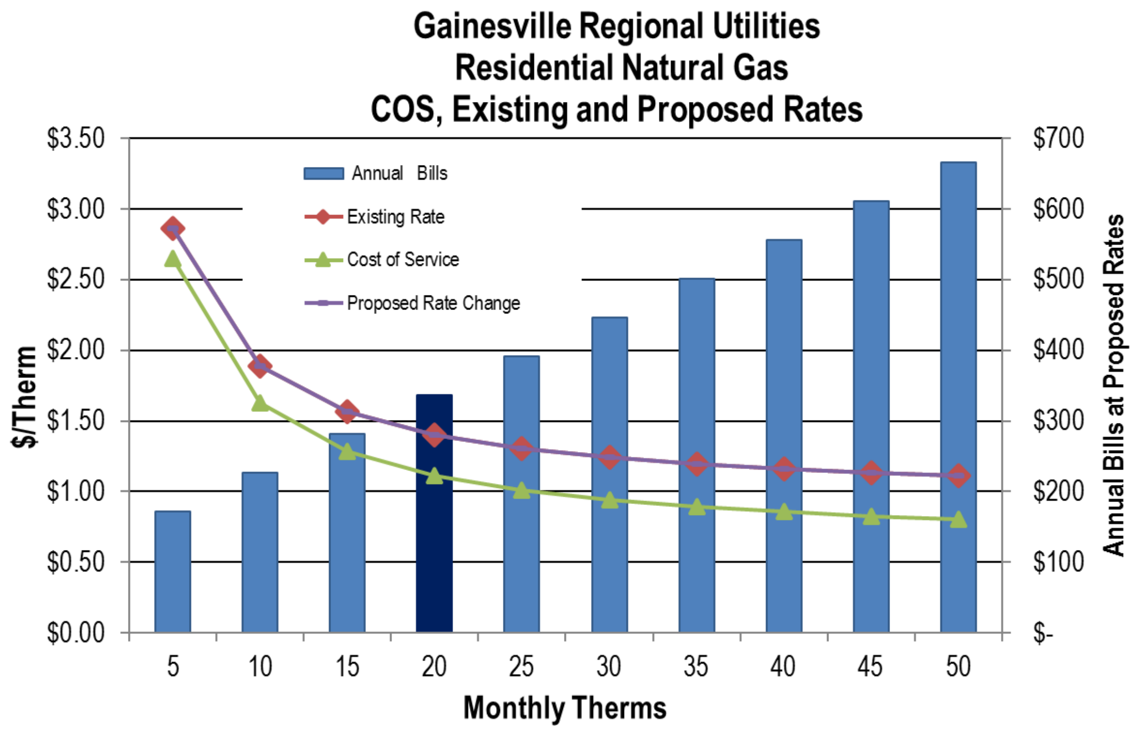


Table 71 compares an average monthly General Service Small Commercial natural gas bill at the average class usage level. Figure 47 compares bills at different usage levels for the General Service Small Commercial customer class under current, COS-based, and proposed rates.

Table 71 General Service Small Commercial Natural Gas Monthly Bill Impact Comparison

NATURAL GAS RATE COMPONENT	BILLING UNITS	CURRENT FY 2018		COS		PROPOSED	
		Unit Rate	Revenue	Unit Rate	Revenue	Unit Rate	Revenue
Service Charge	1	$20.00	$20.00	$10.26	$10.26	$20.00	$20.00
Usage Charge	48	$0.62000	$29.58	$0.34641	$16.53	$0.62000	$29.58
MGPR	48	$0.05560	$2.65	$0.05560	$2.65	$0.05560	$2.65
PGA	48	$0.23000	$10.97	$0.19814	$9.45	$0.23000	$10.97
Total		**$1.32**	**$63.21**	**$0.82**	**$38.89**	**$1.32**	**$63.21**
Change ($)					($24.31)		$0
Change (%)					-38.47%		0%

Figure 47 General Service Small Commercial Natural Gas Bill Impact and Rate Comparison

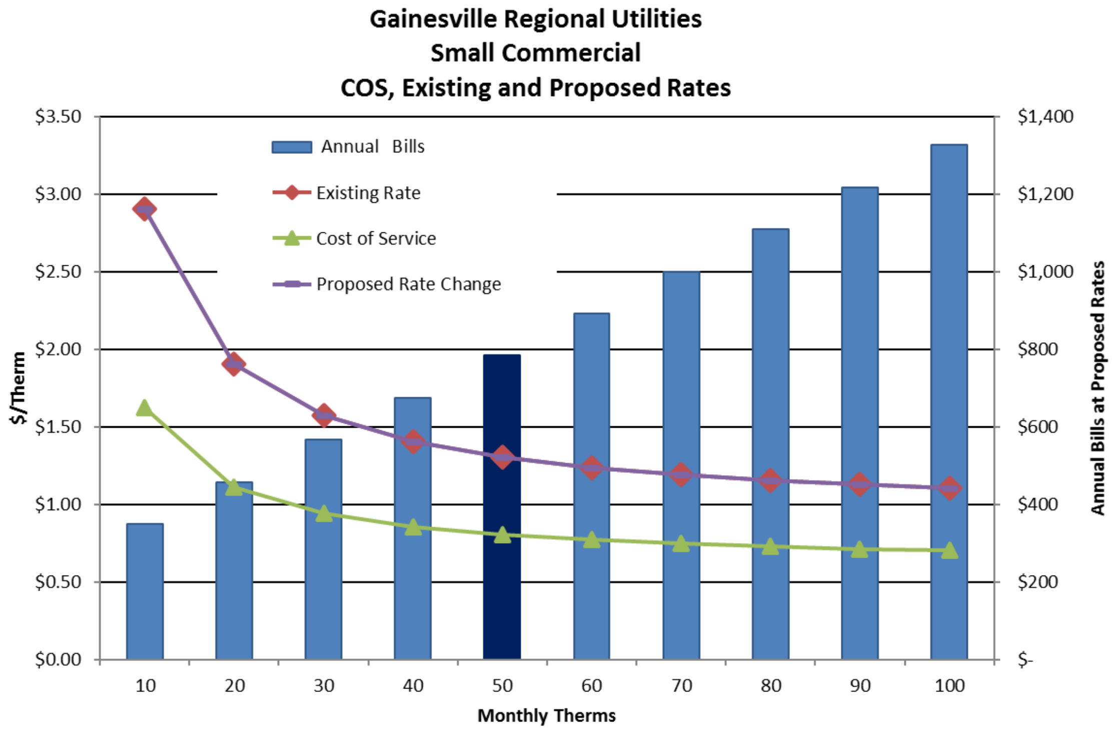


Table 72 compares an average monthly General Service Commercial natural gas bill at the average class usage level. Figure 48 compares bills at different usage levels for the General Service Commercial customer class under current, COS-based, and proposed rates.

Table 72 General Service Commercial Natural Gas Monthly Bill Impact Comparison

NATURAL GAS RATE COMPONENT	BILLING UNITS	CURRENT FY 2018 Unit Rate	CURRENT FY 2018 Revenue	COS Unit Rate	COS Revenue	PROPOSED Unit Rate	PROPOSED Revenue
Service Charge	1	$45.00	$45.00	$123.13	$123.13	$45.00	$45.00
Usage Charge	494	$0.44000	$217.48	$0.34641	$171.22	$0.44000	$217.48
MGPR	494	$0.05560	$27.48	$0.05560	$27.48	$0.05560	$27.48
PGA	494	$0.23000	$113.68	$0.19814	$97.93	$0.23000	$113.68
Total		**$0.82**	**$403.65**	**$0.85**	**$419.77**	**$0.82**	**$403.65**
Change ($)					$16.12		$0
Change (%)					3.99%		0%

Figure 48 General Service Commercial Natural Gas Bill Impact and Rate Comparison

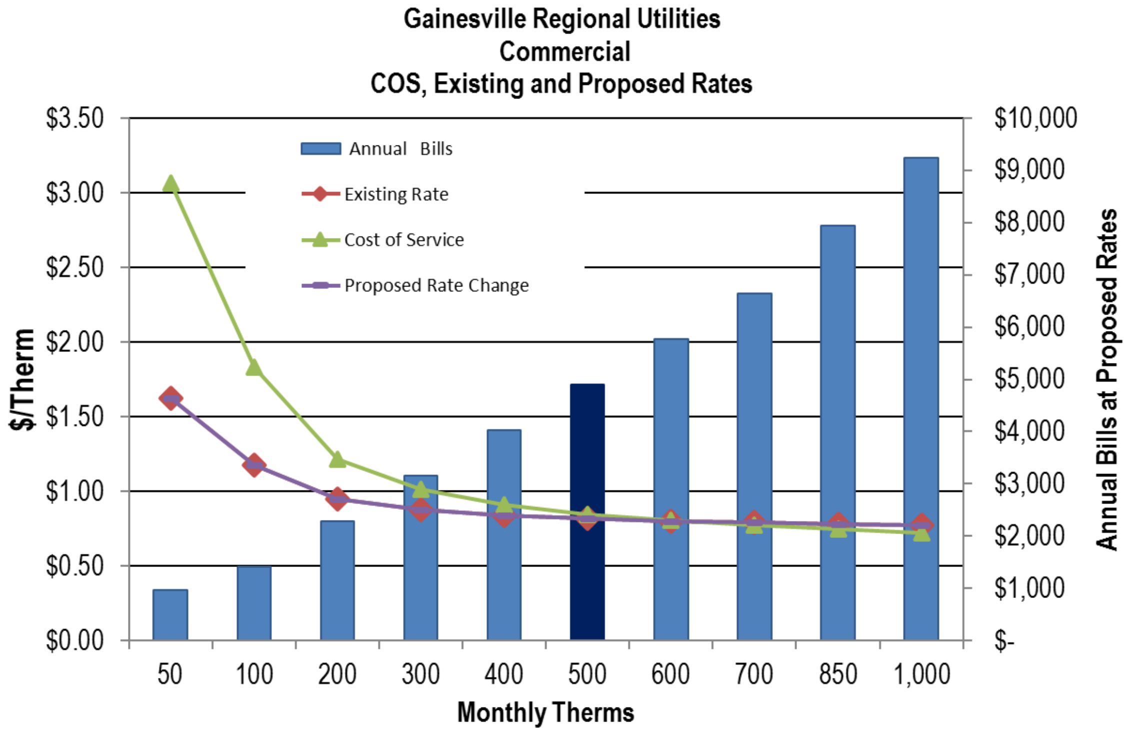
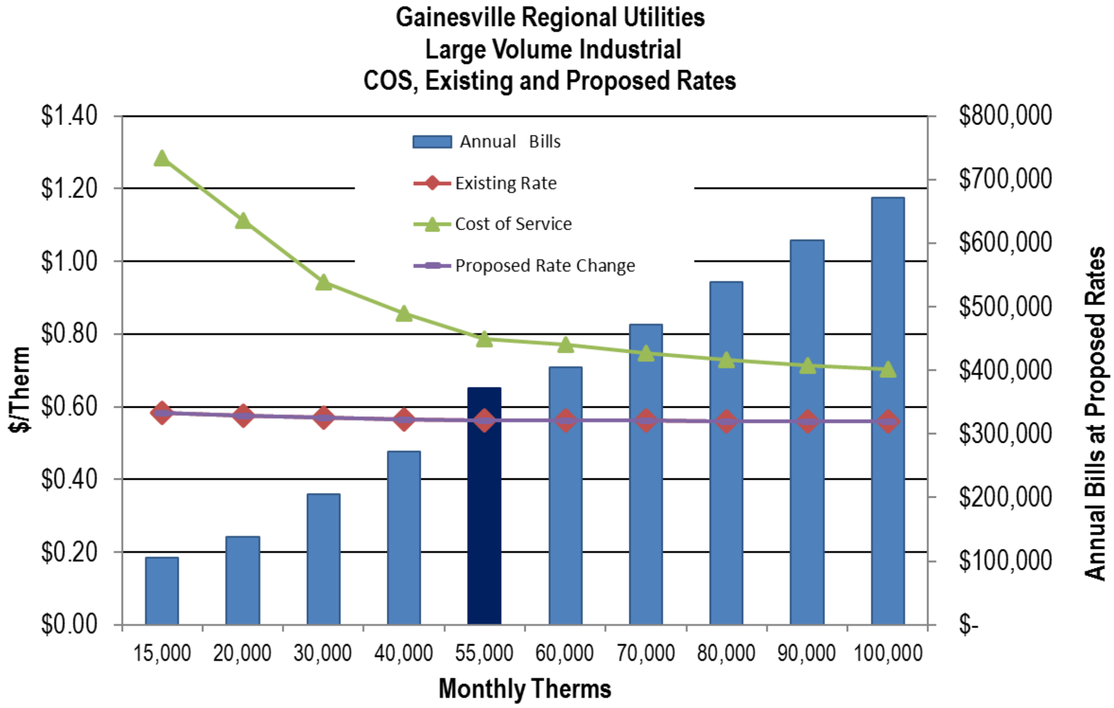


Table 73 compares an average monthly Large Volume natural gas bill at the average class usage level. Figure 49 compares bills at different usage levels for the Large Volume customer class under current, COS-based, and proposed rates.

Table 73 Large Volume Natural Gas Monthly Bill Impact Comparison

NATURAL GAS RATE COMPONENT	BILLING UNITS	CURRENT FY 2018		COS		PROPOSED	
		Unit Rate	Revenue	Unit Rate	Revenue	Unit Rate	Revenue
Service Charge	1	$400.00	$400.00	$10,260.60	$10,260.60	$400.00	$400.00
Usage Charge	53,373	$0.27000	$14,410.84	$0.34641	$18,489.21	$0.27000	$14,410.84
MGPR	53,373	$0.05560	$2,967.57	$0.05560	$2,967.57	$0.05560	$2,967.57
PGA	53,373	$0.23000	$12,275.90	$0.19814	$10,575.24	$0.23000	$12,275.90
Total		**$0.56**	**$30,054.31**	**$0.79**	**$42,292.62**	**$0.56**	**$30,054.31**
Change ($)					$12,238.30		$0
Change (%)					40.72%		0%

Figure 49 Large Volume Natural Gas Bill Impact and Rate Comparison



e) Comparisons with Neighboring Utilities

GRU's existing and proposed residential, small commercial, commercial and large volume service rates have been compared with six neighboring utilities, including investor owned, municipal, and cooperative utilities: Florida Public Utilities, Fort Pierce Utilities Authority, Okaloosa Gas, Pensacola Energy, the City of Tallahassee, and TECO Peoples Gas. The following graphs compare GRU's existing and proposed rates with those of neighboring utilities for residential, general service small commercial, general service commercial and large volume customers.

Figure 50 presents a comparison of average monthly residential bills at a usage level of 20 therms. Figure 51 presents a comparison of average monthly general service small commercial bills at a usage level of 50 therms. Figure 52 presents a comparison of average monthly general service commercial bills at a usage level of 500 therms. Figure 53 presents a comparison of average monthly large volume bills at a usage level of 55,000 therms.

Figure 50 Natural Gas Neighboring Utility Residential Monthly Bill Comparison

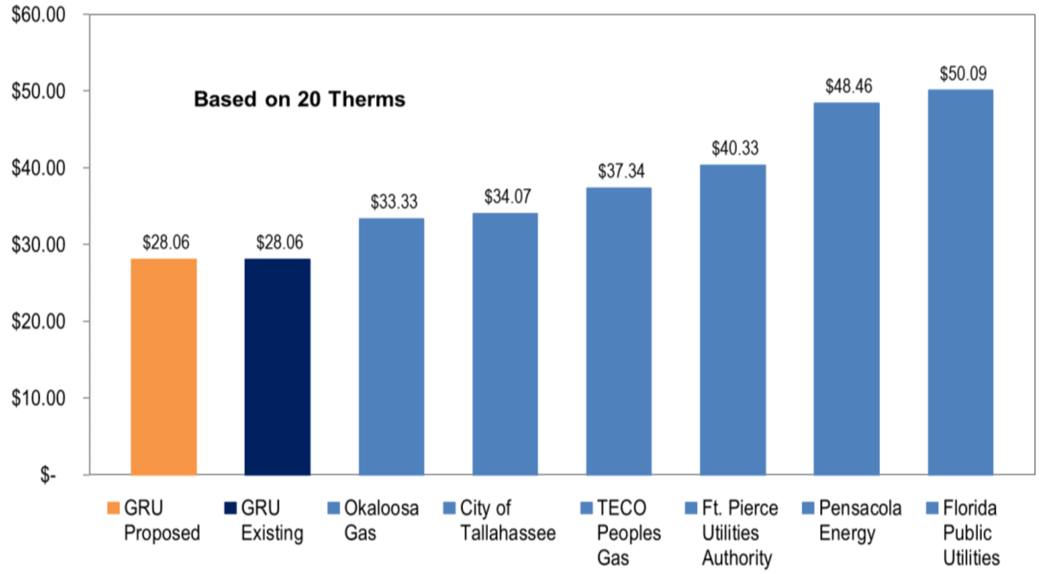


Figure 51 Natural Gas Neighboring Utility General Service Small Commercial Monthly Bill Comparison

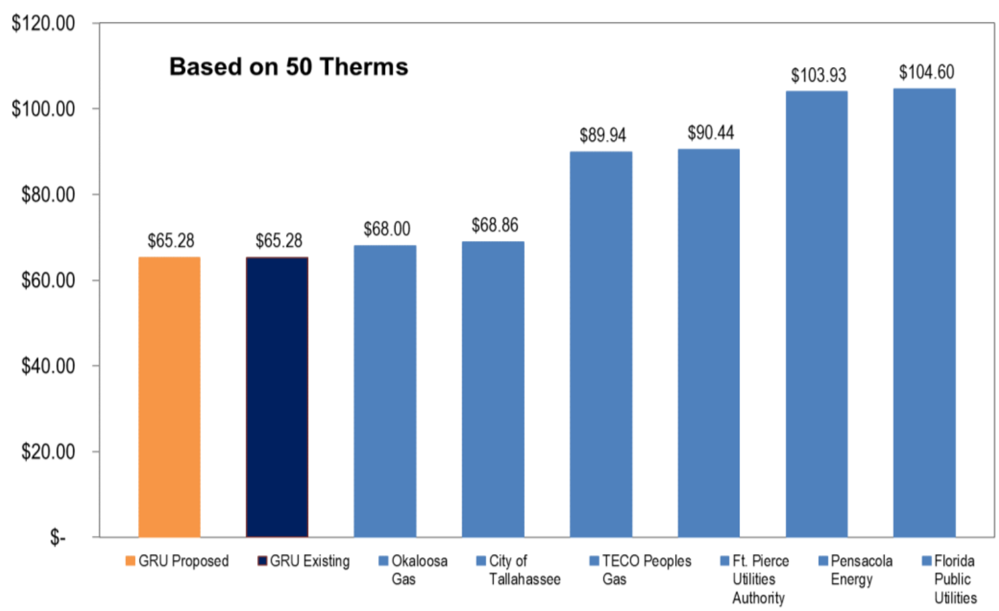


Figure 52 Natural Gas Neighboring Utility General Service Commercial Monthly Bill Comparison

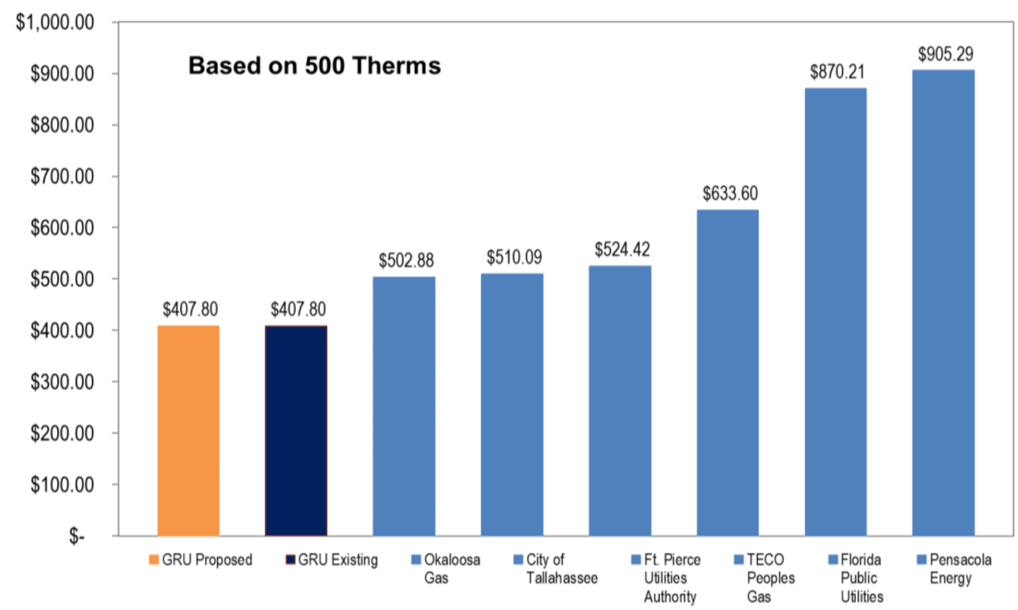
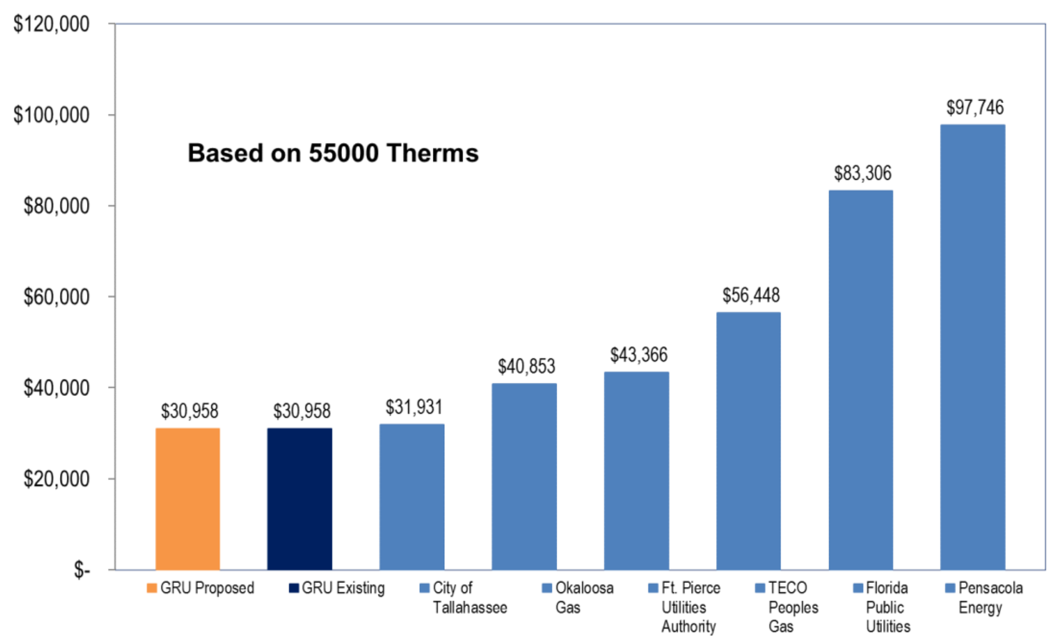


Figure 53 Natural Gas Neighboring Utility Large Volume Monthly Bill Comparison



2. NATURAL GAS SYSTEM RECOMMENDATIONS

Based on the Study conducted as summarized in this report, Willdan offers the following recommendations concerning the Natural Gas Utility System for GRU's consideration:

1. Move retail rate classes towards cost-based rates over time to the extent possible.
2. Maintain competitive rates to provide systemwide benefits.
3. Update the rate analysis annually by reviewing assumptions and projections, and make adjustments as required to maintain the financial integrity of the utility system.

Deerhaven Renewable Generating Station

VI. CONSOLIDATED SYSTEM RESULTS

This section presents consolidated results for all four systems and includes system revenues, capital improvements and debt, customer growth, and overall bill impacts.

A. SYSTEM REVENUE

Based on Study consolidated results for all four utility systems—electric, water, wastewater, and natural gas—for the Test Year 2019, at current rates an overall decrease of 5.9% in total rate revenue would be required to match revenue requirements with revenues.

Figure 54 presents consolidated Test Year revenues for all four utility systems at current, COS, and proposed rates by residential and non-residential source. Table 74 summarizes the consolidated results for all four utility systems and presents revenues under current, COS, and proposed rates. GRU's Test Year FY 2019 total revenues at current rates less its total revenue requirement yields a surplus of $23.4 million, after incorporating non-rate revenues, surcharge revenues, and other inflows. This amount primarily consists of over collection of revenues within the Electric system of $21.7 million, driven primarily by the DHRGS transaction.

Figure 54 Test Year Consolidated Revenues at Current, Cost of Service and Proposed Rates

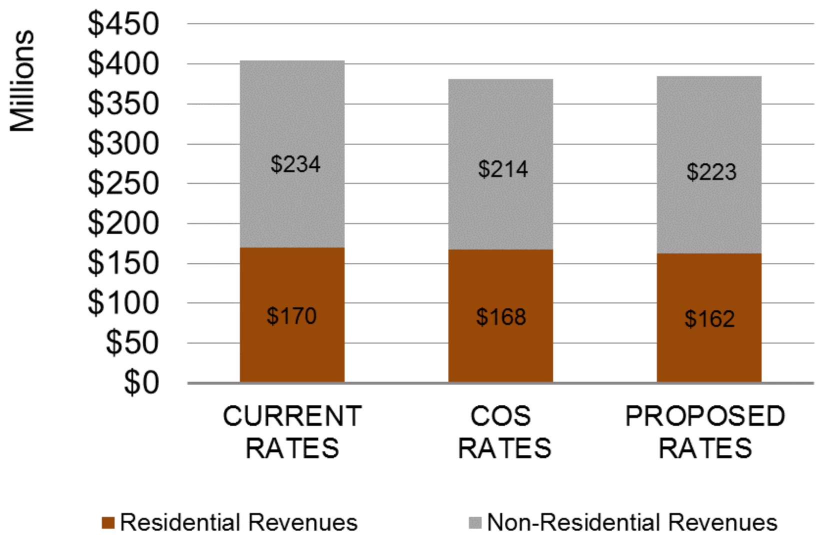


Table 74 Test Year Consolidated Utility Revenues at Current, Cost of Service, and Proposed Rates ($000)

CATEGORY	TEST YEAR CONSOLIDATED REVENUES BY RATE ASSUMPTION ($000)						
	CURRENT RATES	COS RATES	CURRENT v. COS		PROPOSED RATES	PROPOSED v. CURRENT	
Residential Revenues	$169,994	$167,596	$2,398	1.43%	$162,175	($7,819)	-4.60%
Non-Residential Revenues	234,225	214,166	20,059	9.37%	223,225	(11,000)	-4.70%
TOTAL REVENUES	$404,219	$381,762	$22,457	5.88%	$385,400	($18,819)	-4.66%
Net Revenue Requirement	***$380,799***	***$380,799***	***$0***	***0.00%***	***$380,799***	***($0)***	***0.00%***
Total Surplus/(Deficiency)	$23,420	$963	$22,457	2331.98%	$4,601	($18,819)	-80.35%

B. CAPITAL IMPROVEMENTS AND SYSTEM DEBT

Table 75 shows the Utility Plant Improvement Fund (UPIF) transfers for each utility system to fund capital improvements, the annual percentage change for years FY 2020 through FY 2023, and the portion of total revenue requirements attributable to these transfers. These transfers are projected to grow from $41.5 million in FY 2019 to $44.6 million in FY 2023, accounting for 11% of total revenue requirements each year.

Table 75 Consolidated Annual Utility Plant Improvement Fund Transfers FY 2019 – 2023 ($000)

UTILITY SYSTEM	TEST YEAR 2019	FY 2020	FY 2021	FY 2022	FY 2023
Electric	$22,815	$24,215	$24,940	$26,056	$26,982
Water	7,158	7,019	6,964	7,038	7,000
Wastewater	9,190	8,907	8,756	8,864	8,688
Natural Gas	2,337	2,093	1,937	1,949	1,943
TOTAL	**$41,500**	**$42,234**	**$42,597**	**$43,907**	**$44,612**
Growth Over Previous Year		1.8%	0.9%	3.1%	1.6%
Net Revenue Requirement	*$380,799*	*$399,219*	*$405,169*	*$409,624*	*$417,086*
% of Revenue Requirement	*11%*	*11%*	*11%*	*11%*	*11%*

Table 76 shows the annual debt service for each utility system, the annual percentage change for years FY 2020 through FY 2023, and the portion of total revenue requirements attributable to annual debt service. Annual debt service obligations are projected to grow from $91.3 million in FY 2019 to $102.8 million FY 2023, accounting for 24% to 25% of total revenue requirements, depending on the year.

Table 76 Consolidated Annual Debt Service FY 2019 – 2023 ($000)

UTILITY SYSTEM	TEST YEAR 2019	FY 2020	FY 2021	FY 2022	FY 2023
Electric	$71,303	$78,191	$75,686	$75,324	$76,334
Water	7,180	7,452	9,392	9,744	9,512
Wastewater	8,709	8,865	12,132	12,571	12,305
Natural Gas	4,098	4,154	4,821	4,927	4,630
TOTAL	**$91,291**	**$98,662**	**$102,031**	**$102,565**	**$102,781**
Growth Over Previous Year		8.1%	3.4%	0.5%	0.2%
Net Revenue Requirement	*$380,799*	*$399,219*	*$405,169*	*$409,624*	*$417,086*
% of Revenue Requirement	*24%*	*25%*	*25%*	*25%*	*25%*

C. CUSTOMER GROWTH

Figure 55 illustrates customers by utility system for FY 2019 through 2023. Table 77 shows the annual average customer accounts for each utility system, the annual percentage change for years FY 2020 through FY 2023. Total customer accounts are expected to grow between 1.0 and 1.1% annually, depending on the year. Total customers for all systems are expected to grow by 4.2% over the period.

Figure 55 Consolidated Customers by System FY 2019 – 2023

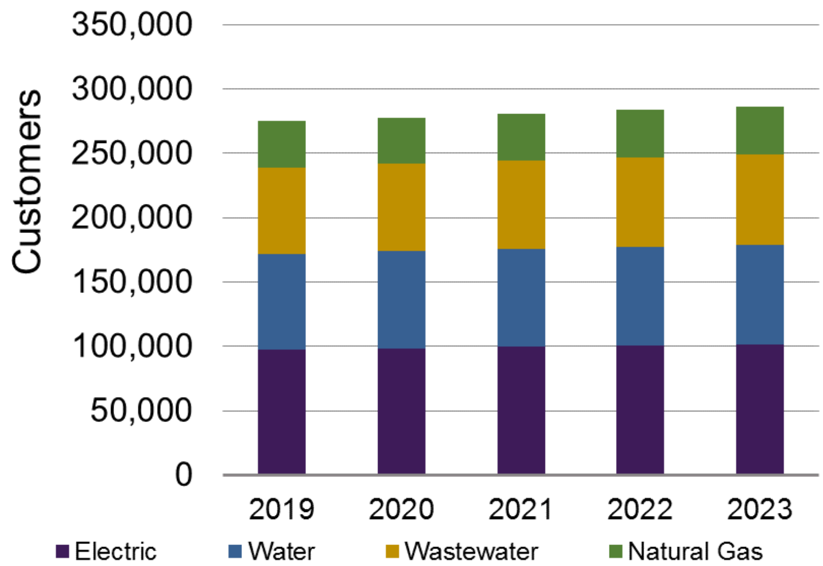


Table 77 Consolidated Annual Average Customer Accounts by System

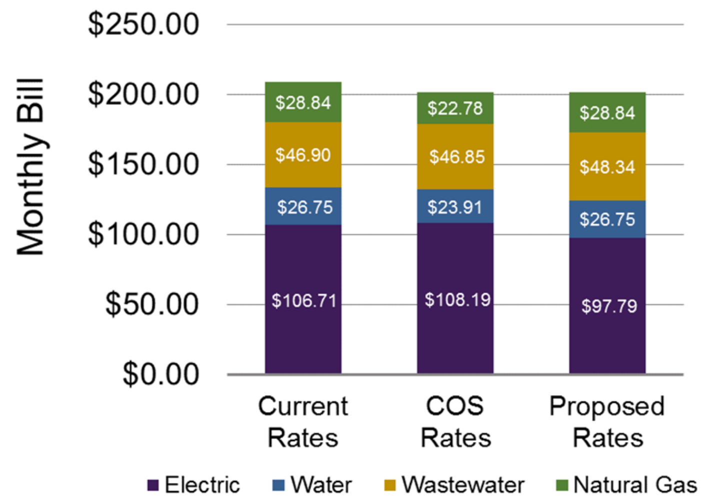
UTILITY SYSTEM	Test Year 2019	FY 2020	FY 2021	FY 2022	FY 2023	TOTAL CHANGE
Electric	97,669	98,556	99,430	100,291	101,139	3.55%
Water	74,261	75,136	76,002	76,852	77,690	4.62%
Wastewater	67,268	68,068	68,858	69,636	70,400	4.66%
Natural Gas	35,695	36,083	36,465	36,842	37,212	4.25%
TOTAL	274,893	277,843	280,756	283,621	286,441	4.20%
Growth Over Previous Year		1.1%	1.0%	1.0%	1.0%	

D. OVERALL BILL IMPACTS

This section presents total monthly bill impacts at average customer usage based on current, COS, and proposed rates for Residential, Small Commercial, and Large Customers.

Figure 56 presents the total monthly Residential bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a residential customer's monthly bill would be 3.6% lower than under current rates.

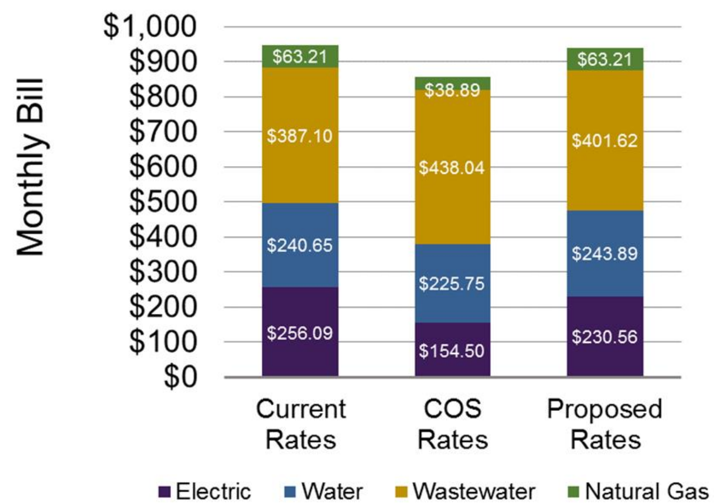
Figure 56 Residential Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 3.6% lower than current rates.

Figure 57 presents the total monthly Small Commercial bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a small commercial customer's monthly bill would be 0.8% lower than under current rates.

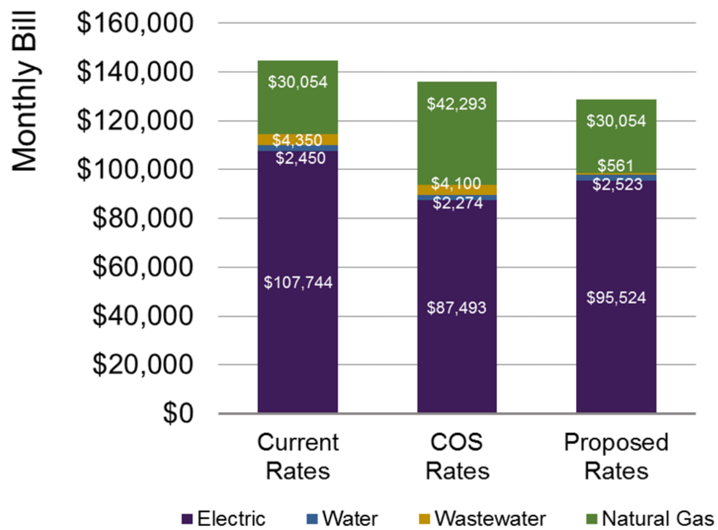
Figure 57 Small Commercial Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 0.8% lower than current rates.

Figure 58 presents the total monthly Large Customer bill based on current, COS, and proposed rates. Under proposed rates, at average consumption, a large customer's monthly bill would be 11% lower than under current rates.

Figure 58 Large Customer Overall Bill Impact at Current, COS, and Proposed Rates (Test Year)



Total proposed rates are 11% lower than current rates.

APPENDIX A

Water and Wastewater Connection Charges

WILLDAN
FINANCIAL SERVICES

Appendix A Water and Wastewater Connection Charges

A-I. INTRODUCTION

This Appendix discusses the assumptions and methodology used to develop connection charges for GRU's water and wastewater services.

A-II. WATER CONNECTION CHARGES

In both the water and wastewater utility industries, connection charges may be referred to different terms including impact fees, capacity fees, capacity reservation charges, system development fees, facility fees, capital connection charges or other such terminology. In general, a connection charge is a one-time charge implemented as a means of recovering (in whole or part) the costs associated with capital investments made by the utility to make its service available to future users of the system. Such capital costs generally include the construction of facilities as well as engineering, surveys, land, financing, legal and administrative costs. It is common practice in the water and wastewater utilities for systems to implement connection charges (or other similar charges) to establish a supplemental source of funding for future capital projects. This practice mitigates the need for existing customers to pay for system expansions entirely through increased user rates. GRU's existing water connection charges are provided in Table A-1.

Table A-1 Water Existing Minimum Connection Charge

CONNECTION TYPE	TRANSMISSION AND DISTRIBUTION CONNECTION CHARGE	WATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WATER CONNECTION CHARGE
Minimum Connection Charge	($)	($)	($)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$448.00	$675.00	$1,123.00
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$448.00	$675.00	$1,123.00
Nonresidential connections with an estimated annual average daily flow of less than or equal to 280 gallons per day	$448.00	$675.00	$1,123.00

WATER CONNECTION CHARGES

CONNECTION TYPE	TRANSMISSION AND DISTRIBUTION CONNECTION CHARGE	WATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WATER CONNECTION CHARGE
Flow Based Connection Charge [*]	($/GPD ADF)	($/GPD ADF])	($/GPD ADF)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$1.60	$2.41	$4.01
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$1.60	$2.41	$4.01
Nonresidential connections with an estimated annual average daily flow of greater than 280 gallons per day	$1.60	$2.41	$4.01
Multi-family connections	$1.60	$2.41	$4.01
[*] The greater of: the charge per unit flow (in $/GPD ADF) multiplied by the estimated annual average daily flow (ADF); and the minimum connection charge.			

A. Recoverable Costs

The development of capacity-related fees often includes the recovery of both existing utility assets, as well as future capital improvements to the system. In addressing the recovery of existing asset costs, GRU provided a detailed, itemized listing of the water system facilities (the Water Asset Listing) currently in service. The Water Asset Listing contains the original cost of each item, the date placed in service, and the accumulated depreciation. The current replacement cost of each asset is calculated using construction cost indices contained in the Handy-Whitman Index of Public Utility Construction Costs for the South Atlantic Region. The accumulated depreciation is then deducted for each asset item to arrive at replacement cost new less depreciation, or RCNLD.

For the purpose of the connection charge analyses developed herein, the existing assets are categorized based on the major components of treatment and transmission. The treatment component includes water treatment facilities plus the accompanying supply and storage facilities. The transmission component consists of major water mains and pumping facilities. Since localized distribution facilities are generally contributed by developers or funded from other sources (i.e., assessments, direct customer payments, etc.), these facilities are not included for recovery through capacity-related charges such as connection charges. The purpose of a connection charge is to recover the costs of major facilities that provide a systemwide benefit, therefore a minimum cost threshold of

WATER CONNECTION CHARGES

$100,000 was established for inclusion of an asset in the calculation. Any asset less than $100,000 was not considered to be a "major" facility addition/improvement. In addition, all lines less than 10-inch in diameter, as well as non-capacity items such as meters, vehicles, equipment and tools are not deemed to provide systemwide benefits and are excluded from the charge. A summary of the RCNLD of the existing assets included for recovery from the water connection charge is provided in the following Table A-2.

Table A-2 Water Asset Replacement Cost New Less Depreciation

ASSET CLASS DESCRIPTION	ORIGINAL COST, ADJUSTED FOR INVESTMENTS ABOVE $100,000	CURRENT COST ADJUSTMENT	REPLACEMENT COST NEW LESS DEPRECIATION (RCNLD)
SrcSup-Land/LandRts	$1,850,583	$3,471,537	$5,322,119
TrtPlt-Land/LandRts	0	0	0
TrnDst-Land/LandRts	817,940	5,414,763	6,232,702
GenPlt-Land/LandRts	517,318	62,078	579,396
TrtPlt-Struc&Imprv	13,773,205	5,985,443	19,758,648
SrcSup-Struct&Imprv	374,542	50,368	424,910
PmpPlt-Struct&Imprv	4,173,272	3,529,647	7,702,919
TrnDst-Struct/Imp	0	0	0
GenPlt-Struct/Imp	7,361,093	2,277,382	9,638,475
SrcSup-WellsSpgs	7,875,124	(666,486)	7,208,638
SrcSup-Mains/Valvs	1,150,841	2,479,586	3,630,428
PmpPlt-ElecPumpEqp	7,537,572	3,285,961	10,823,533
PmpPlt-DiscelPumpEqp	3,311,759	(36,273)	3,275,487
TrtPlt - Equipment	18,263,306	3,625,119	21,888,425
TrnDst-Resvr/Stapipe	2,475,258	7,531,979	10,007,237
TrnDst-Mns/Valves	127,183,423	804,144,602	931,328,025
FrePrt-Mains	3,291,776	5,874,661	9,166,437
TrnDst-Serv Lines	17,324,561	64,506,114	81,830,675
TrnDst-Meters	12,893,381	17,249,283	30,142,664
TrnDst-Meter Install	3,156,649	18,101,992	21,258,641
FrePrt-Hydrants	9,418,642	83,241,391	92,660,033
GenPlt- Furn & Equip	1,607,157	(1,607,157)	0
GenPlt-TranspEqp	0	0	0
GenPlt-Tls,Shp, Garg	0	0	0
GenPlt-Lab Equip	0	0	0
GenPlt-PwrOpEqp	705,701	(359,929)	345,772
GenPlt-Comm Equip	0	0	0
GenPlt-Misc Equip	0	0	0
Grand Total	**$245,063,103**	**$1,028,162,060**	**$1,273,225,163**

WATER CONNECTION CHARGES

Since the purpose of a capacity-related charge is to fund projects related to new customer growth, the analysis includes future capital improvement projects and applicable additions to system capacity, if any. GRU has adopted a capital improvement program (CIP) that provides a listing of individual projects and anticipated construction costs for the next five-fiscal-year planning period. Similar to the rationale for excluding certain existing assets from recovery through capacity-related fees, the CIP project costs included for capital recovery in the analysis consist of only those projects associated with system-wide treatment and transmission upgrades or expansions. As such, projects related to general maintenance (i.e. renewal and replacement of existing facilities) or localized facilities that benefit only certain customers are excluded from recovery through the connection charges. The CIP and resulting identification of assumed growth-related projects are summarized in Table A-3.

Table A-3 Water Capital Improvement Plan Allocation

PROJECT DESCRIPTION	FY 2018 – FY 2022 TOTAL EXPENDITURE ($)	ALLOCATION PERCENTAGE (%)			ALLOCATION AMOUNT ($)		
		EXPAND/ UPGRADE FACILITIES	RENEW & REPLACE EXISTING FACILITIES	OTHER	EXPAND/ UPGRADE FACILITIES	RENEW & REPLACE EXISTING FACILITIES	OTHER
Water Treatment Plant	$20,235,000	100.00%	0.00%	0.00%	$0	$20,235,000	$0
Distribution & Storage Tanks	925,000	0.00%	50.00%	50.00%	0	462,500	462,500
Transmission and Distribution Systems	5,835,000	0.00%	50.00%	50.00%	0	2,917,500	2,917,500
Fire Support System Enhancements	345,000	0.00%	50.00%	50.00%	0	172,500	172,500
Transmission Distribution Extension	630,000	100.00%	0.00%	0.00%	630,000	0	0
Relocation for Road Construction	1,670,000	0.00%	0.00%	100.00%	0	0	1,670,000
Backflow Prevention Devices	0	0.00%	0.00%	100.00%	0	0	0
Meter & Service Laterals	10,130,000	0.00%	50.00%	50.00%	0	5,065,000	5,065,000
Special Projects	3,667,500	100.00%	0.00%	0.00%	3,667,500	0	0
Contributed Plant	2,750,000	0.00%	0.00%	100.00%	0	0	2,750,000
General Plant	2,427,585	0.00%	0.00%	100.00%	0	0	2,427,585
Contingency Reserves	250,000	0.00%	0.00%	100.00%	0	0	250,000
Land & Land Rights	112,000	0.00%	0.00%	100.00%	0	0	112,000
Operating & Administrative Allocation	5,361,153	0.00%	0.00%	100.00%	0	0	5,361,153
TOTAL	$54,338,238				$4,297,500	$28,852,500	$21,188,238

B. Debt Service Credit

Utilities commonly fund major capital improvements and expansion projects with debt (e.g. loans, bond issues, commercial paper, etc.). Generally, debt service payments associated with bond issues are recovered through the monthly user rates and charges applied to all system customers, as well as from other available revenue sources (including connection charges). To reduce the potential for new customers to pay twice for capital facilities (i.e. by paying a connection charge and then paying for debt service on expansion projects through monthly user rates), the connection charge analysis developed herein includes a debt service credit. This credit is equal the remaining principal balance on all outstanding debt that is allocated to the water system. The debt service credit is then allocated between treatment and transmission components based on the ratio of asset costs as previously addressed.

C. Calculation Methodology

The cost of major system facilities as well as system capacities were used to calculate an estimated cost per unit (gallon) of capacity. As previously addressed, the Murphree water treatment plant has a permitted capacity of 54.0 MGD (max day). While the permitted flow capacity is provided in terms of the maximum flow amount, the development and application of connection charges are based on average flow requirements. As such, the max day capacity was assumed to be approximately 1.5 times the available capacity on an ADF basis. Further, the analysis assumes an average line-loss factor of 10.0% to adjust for unaccounted-for water flows.

In developing the connection charges, the unit costs per gallon of capacity are applied to a common Level of Service (LOS) standard to establish the applicable charge per Equivalent Residential Unit (ERU). For purposes of applying the LOS, an ERU is representative of a single-family residential dwelling unit receiving water service from a 5/8x3/4-inch metered connection. GRU has an adopted policy that sets 1 ERU level of service at 280 GPD of water system capacity and this amount was used for developing the applicable charge per ERU.

Table A-4 summarizes the calculation of water connection charges. Based on this methodology, water facility costs total $5.003 per gallon of water capacity, of which $1.645 represents treatment and $3.358 represents transmission, after rounding down to avoid over-collection.

WATER CONNECTION CHARGES

Table A-4 Calculation of Water Connection Charges

DESCRIPTION	AMOUNT
CALCULATION OF RECOVERABLE CAPITAL FACILITIES	
Existing Facilities:	
Treatment Facilities	$72,523,530
Transmission Facilities	315,325,335
Subtotal	$387,848,865
Capital Improvement Program:	
Treatment Facilities	$3,667,500
Transmission Facilities	630,000
Subtotal	$4,297,500
Combined Existing Plus Capital Improvement Program:	
Treatment Facilities	$76,191,030
Transmission Facilities	315,955,335
Subtotal	$392,146,365
Less Debt Service Principal:	
Treatment Facilities	($22,212,053)
Transmission Facilities	(96,575,869)
Subtotal	($118,787,922)
Net Capital Costs:	
Treatment Facilities	$53,978,977
Transmission Facilities	219,379,466
Net Recoverable Capital Costs	$273,358,443
CALCULATION OF AVAILABLE SYSTEM CAPACITY (MGD)	
Daily Treatment Capacity (MGD):	
Murphree Plant Rated Capacity	54.00
Adjustment for Sustained Peak Capacity	0.00
Total Sustained Peak Capacity	54.00
Average Day Capacity Adjustment:	
Treatment Capacity Based on Max/Avg Day Factor (1.5)	36.00
Less Line Loss Capacity Adjustment (10%)	-3.60
Estimated Treatment Capacity	32.40
Estimated Transmission System Capacity:	
Transmission: Treatment Capacity Factor	2.0
Estimated Transmission Capacity	64.80

WATER CONNECTION CHARGES

DESCRIPTION	AMOUNT
ESTIMATED COST PER GALLON OF CAPACITY[52]	
Treatment ($/Gallon)	$1.67
Transmission ($/Gallon)	3.39
Total Cost Per Gallon of Capacity	$5.06
Assumed Standard Level of Service Per ERU (GPD of Capacity)	*280*
CALCULATION OF PROPOSED CAPACITY CHARGE PER ERU (ROUNDED)	
Treatment Facilities	$460
Transmission Facilities	940
Total Combined Charge	**$1,400**

Table A-5 presents the proposed water connection charges by meter size based on the respective ERU factor. ERU factors were based on meter equivalency factors established by the American Water Works Association. In situations where the application of the meter-based fees would result in the collection of fees significantly different than the potential demand requirement, a special charge calculation methodology may be applied based on the unit cost of capacity and the estimated daily capacity needs of the new service connection. The estimated capacity needs would be based on the amount determined by GRU's engineering staff to be appropriate.

Table A-5 Proposed Water Connection Charges by Meter Size

METER SIZE	METER BASED ERU FACTOR	CONNECTION CHARGE
3/4 Inch	1.00	$1,400
1.0 Inch	2.50	$3,500
1.5 Inch	5.00	$7,000
2.0 Inch	8.00	$11,200
3.0 Inch	16.00	$22,400
4.0 Inch	25.00	$35,000
6.0 Inch	50.00	$70,000
8.0 Inch	80.00	$112,000

[52] Prior to rounding down to avoid over-collection.

A-III. WASTEWATER CONNECTION CHARGES

GRU's existing minimum wastewater connection charges are provided in **Table A-6** and only apply to those connection types listed in the left column. Connection types exceeding these minimum criteria pay flow-based connection charges.

Table A-6 Current Wastewater Connection Charges (FY 2018)

CONNECTION TYPE	COLLECTION CONNECTION CHARGE	WASTEWATER TREATMENT PLANT CONNECTION CHARGE	TOTAL WASTEWATER CONNECTION CHARGE
Minimum Connection Charge	($)	($)	($)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$744.00	$2,554.00	$3,298.00
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$744.00	$2,554.00	$3,298.00
Nonresidential connections with an estimated annual average daily flow of less than or equal to 280 gallons per day	$744.00	$2,554.00	$3,298.00
Flow Based Connection Charge [*]	($/GPD ADF)	($/GPD ADF])	($/GPD ADF)
Single family residential connections without fire sprinkler system with three-quarter inch or smaller meter	$2.66	$9.12	$11.78
Single family residential connections with fire sprinkler system with one inch or smaller water meter	$2.66	$9.12	$11.78
Nonresidential connections with an estimated annual average daily flow of greater than 280 gallons per day	$2.66	$9.12	$11.78
Multi-family connections	$2.66	$9.12	$11.78
[*] The greater of: the charge per unit flow (in $/GPD ADF) multiplied by the estimated annual average daily flow (ADF); and the minimum connection charge.			

A. Recoverable Costs

The development of capacity-related fees often includes the recovery of both existing utility assets, as well as future capital improvements to the system. In addressing the recovery of existing asset costs, the utility provided a detailed, itemized listing of the wastewater system facilities (the Wastewater Asset Listing) currently in service. The Wastewater Asset Listing contains the original cost of each item, the date placed in service, and the accumulated depreciation. The current replacement cost of each asset is calculated using construction cost indices contained in the Handy-Whitman Index of Public Utility Construction Costs for the South Atlantic Region. The accumulated depreciation is then deducted for each asset item to arrive at RCNLD.

For the connection charge analyses, the existing assets are categorized based on the major components of Treatment and Transmission. The treatment component includes the wastewater treatment facilities and accompanying disposal facilities. The transmission component consists of major sewer collection lines, force mains, lift stations and pumping facilities. Since localized collection facilities are generally contributed by developers or funded from other sources (i.e., assessments, direct customer payments, etc.), these facilities are not included for recovery through capacity-related charges such as connection charges. The purpose of a connection charge is to recover the costs of major facilities that provide a systemwide benefit, therefore a minimum cost threshold of $100,000 was established for inclusion of the asset in the calculation. Any asset less than $100,000 was not considered to be a "major" facility addition/improvement. In addition, all lines less than 10-inch in diameter, as well as non-capacity items such as laterals, vehicles, equipment, and tools are not considered to provide systemwide benefits and were excluded. A summary of the RCNLD of the existing assets included for recovery from the wastewater connection charge is provided in Table A-7.

Table A-7 Wastewater Asset Replacement Cost New Less Depreciation

ASSET CLASS DESCRIPTION	ORIGINAL COST, ADJUSTED FOR INVESTMENTS ABOVE $100,000	CURRENT COST ADJUSTMENT	REPLACEMENT COST NEW LESS DEPRECIATION (RCNLD)
SrcSup-Land/LandRts	$1,048,881	$6,943,595	$7,992,476
TrtPlt-Land/LandRts	0	0	0
TrnDst-Land/LandRts	1,499,391	8,265,414	9,764,805
GenPlt-Land/LandRts	0	0	0
TrtPlt-Struc&Imprv	659,680	70,617	730,297
SrcSup-Struct&Imprv	45,260,189	12,864,473	58,124,662

ASSET CLASS DESCRIPTION	ORIGINAL COST, ADJUSTED FOR INVESTMENTS ABOVE $100,000	CURRENT COST ADJUSTMENT	REPLACEMENT COST NEW LESS DEPRECIATION (RCNLD)
PmpPlt-Struct&Imprv	3,531,673	789,433	4,321,107
TrnDst-Struct/Imp	7,752,172	1,110,612	8,862,784
GenPlt-Struct/Imp	28,668,922	162,918,849	191,587,771
SrcSup-WellsSpgs	118,414,162	266,258,251	384,672,412
SrcSup-Mains/Valvs	21,606,048	86,304,529	107,910,577
PmpPlt-ElecPumpEqp	768,749	4,562	773,311
PmpPlt-DiscelPumpEqp	5,560,129	1,638,771	7,198,899
TrtPlt - Equipment	10,097,820	7,274,272	17,372,092
TrnDst-Resvr/Stapipe	377,258	12,225	389,483
TrnDst-Mns/Valves	0	0	0
FrePrt-Mains	29,739,068	54,003,338	83,742,405
TrnDst-Serv Lines	42,538,284	19,176,287	61,714,571
TrnDst-Meters	1,511,110	(1,511,110)	0
TrnDst-Meter Install	0	0	0
FrePrt-Hydrants	0	0	0
GenPlt- Furn & Equip	0	0	0
GenPlt-TranspEqp	0	0	0
GenPlt-Tls,Shp, Garg	3,923,491	(1,924,411)	1,999,081
GenPlt-Lab Equip	0	0	0
GenPlt-PwrOpEqp	0	0	0
GenPlt-Comm Equip	$1,048,881	$6,943,595	$7,992,476
GenPlt-Misc Equip	0	0	0
Grand Total	$322,957,026	$624,199,708	$947,156,734

Since the purpose of a capacity-related charge is to fund projects related to new customer growth, the analysis includes future capital improvement projects and applicable additions to system capacity, if any. GRU has adopted a CIP that provides a listing of individual projects and anticipated construction costs for the next five-fiscal-year planning period. Similar to the rationale for excluding certain existing assets from recovery through capacity-related fees, the CIP project costs included for capital recovery in the analysis consist of only those projects associated with system-wide treatment and transmission upgrades or expansions. As such, projects related to general maintenance (i.e. renewal and replacement of existing facilities) or localized facilities that benefit only certain customers are excluded from recovery through the connection charges. The CIP and resulting identification of assumed growth-related projects are summarized in the following Table A-8.

Table A-8 Wastewater Capital Improvement Plan Allocation

PROJECT DESCRIPTION	FY 2018 – FY 2022 TOTAL EXPENDITURE ($)	ALLOCATION PERCENTAGE (%)			ALLOCATION AMOUNT ($)		
		EXPAND/ UPGRADE FACILITIES	RENEW & REPLACE EXISTING FACILITIES	OTHER	EXPAND/ UPGRADE FACILITIES	RENEW & REPLACE EXISTING FACILITIES	OTHER
Water Reclamation Facility	$26,870,000	100.00%	0.00%	0.00%	$0	$26,870,000	$0
Reclaimed Water Systems	0	100.00%	0.00%	0.00%	0	0	0
Lift Stations	0	100.00%	0.00%	0.00%	0	0	0
WW Collection System Expansions	50,000	100.00%	0.00%	0.00%	50,000	0	0
Forcemain Systems	90,000	100.00%	0.00%	0.00%	90,000	0	0
Gravity Collection Systems	225,000	0.00%	50.00%	50.00%	0	112,500	112,500
Relocation for Road Construction	0	0.00%	0.00%	100.00%	0	0	0
Service Laterals	355,000	0.00%	50.00%	50.00%	0	177,500	177,500
Special Projects	300,000	100.00%	0.00%	0.00%	300,000	0	0
Contributed Plant	200,000	0.00%	0.00%	100.00%	0	0	200,000
General Plant	32,000	0.00%	0.00%	100.00%	0	0	32,000
Contingency Reserves	70,000	0.00%	0.00%	100.00%	0	0	70,000
Land & Land Rights	2,500,000	0.00%	0.00%	100.00%	0	0	2,500,000
Operating & Administrative Allocation	70,000	0.00%	0.00%	100.00%	0	0	70,000
TOTAL	$30,762,000				$440,000	$27,160,000	$3,162,000

B. Debt Service Credit

Utilities commonly fund major capital improvements and expansion projects with debt (e.g. loans, bond issues, commercial paper, etc.). Generally, debt service payments associated with bond issues are recovered through the monthly user rates and charges applied to all system customers, as well as from other available revenue sources (including connection charges). To reduce the potential for new customers to pay twice for capital facilities (i.e. by paying a connection charge and then paying for debt service on expansion projects through monthly user rates), the connection charge analysis developed herein includes a debt service credit. This credit is equal the remaining principal balance on all outstanding debt that is allocated to the wastewater system. The debt service credit is then allocated between treatment and transmission components based on the ratio of asset costs as previously addressed.

C. Calculation Methodology

The cost of major system facilities as well as the system capacities were used to calculate an estimated cost per unit (gallon) of capacity. GRU's two wastewater treatment facilities have a combined capacity of 22.4 MGD. Wastewater treatment capacity is permitted at average daily flow levels and the capacity does not have to be converted. However, as with the line loss in the water system, the wastewater system is impacted by inflow and infiltration into the wastewater collection system. The impact of inflow and infiltration reduces the level of capacity available for use by existing and future system customers. The analysis performed herein assumes an average inflow and infiltration factor of 15.0% to adjust for unaccounted-for wastewater flows.

In developing the connection charges, the unit costs per gallon of capacity are applied to a common LOS standard in order to establish the applicable charge per ERU. For purposes of applying the LOS, an ERU is representative of a single-family residential dwelling unit receiving wastewater service via a 5/8x3/4-inch water metered connection. GRU has an adopted policy that sets 1 ERU level of service at 280 GPD of wastewater system capacity. This amount was used for developing the applicable connection charge per ERU.

Table A-9 summarizes the calculation of wastewater connection charges. Based on this methodology, wastewater facility costs total $13.070 per gallon of wastewater capacity, of which $5.285 represents treatment and $7.785 represents transmission, after rounding down to avoid over-collection.

Table A-9 Calculation of Wastewater Connection Charges

DESCRIPTION	AMOUNT
CALCULATION OF RECOVERABLE CAPITAL FACILITIES	
Existing Facilities:	
Treatment Facilities	$137,424,790
Transmission Facilities	405,711,009
Subtotal	$543,135,799
Capital Improvement Program:	
Treatment Facilities	$300,000

WASTEWATER CONNECTION CHARGES

DESCRIPTION	AMOUNT
Transmission Facilities	140,000
Subtotal	$27,310,000
Combined Existing Plus Capital Improvement Program:	
Treatment Facilities	$137,724,790
Transmission Facilities	405,851,009
Subtotal	$543,575,799
Less Debt Service Principal:	
Treatment Facilities	($36,686,555)
Transmission Facilities	(108,307,528)
Subtotal	($144,994,083)
Net Capital Costs:	
Treatment Facilities	$101,038,235
Transmission Facilities	297,543,481
Net Recoverable Capital Costs	$398,581,716
CALCULATION OF AVAILABLE SYSTEM CAPACITY (MGD)	
Daily Treatment Capacity (MGD):	
Main Street Water Reclamation Facility (MSWRF)	7.50
Kanapaha Water Reclamation Facility (KWRF)	14.90
Total Capacity of Water Treatment Facilities (MGD)	22.40
Capacity-to-Actual Adjustment Factor	1.0
Assumed Treatment Capacity	22.40
I & I Capacity Adjustment	15.0%
Estimated Treatment Capacity	19.04
Estimated Transmission System Capacity:	
Transmission: Treatment Capacity Factor	2.0
Estimated Transmission Capacity	38.08
ESTIMATED COST PER GALLON OF CAPACITY[53]	
Treatment ($/Gallon)	$5.31
Transmission ($/Gallon)	7.81
Total Cost Per Gallon of Capacity	$13.12
Assumed Standard Level of Service Per ERU (GPD of Capacity)	*280*
CALCULATION OF PROPOSED CAPACITY CHARGE PER ERU (ROUNDED)	
Treatment Capacity Charge	1,480
Transmission Capacity Charge	2,180
Total Combined Charge	**$3,660**

[53] Prior to rounding down to avoid over-collection.

WASTEWATER CONNECTION CHARGES

Table A-10 presents proposed wastewater connection charges by meter size. The proposed capacity fees are based on the respective ERU factor. ERU factors were based on meter equivalency factors established by the American Water Works Association. In situations where the application of the meter-based fees would result in the collection of fees significantly different than the potential demand requirement, a special charge calculation methodology may be applied based on the unit cost of capacity and the estimated daily capacity needs of the new service connection. The estimated capacity needs would be based on the amount determined by the GRU's engineering staff to be appropriate.

Table A-10 Proposed Wastewater Connection Charges by Meter Size

METER SIZE	METER BASED ERU FACTOR	CONNECTION CHARGE
3/4 Inch	1.00	$3,660
1.0 Inch	2.50	$9,150
1.5 Inch	5.00	$18,300
2.0 Inch	8.00	$29,280
3.0 Inch	16.00	$58,560
4.0 Inch	25.00	$91,500
6.0 Inch	50.00	$183,000
8.0 Inch	80.00	$292,800

This page intentionally left blank.

GAINESVILLE REGIONAL UTILITIES

WILLDAN

200 South Orange Avenue, Suite 1550
Orlando, Florida 32801
407.793.7036 | Fax: 888.326.6864
www.willdan.com