

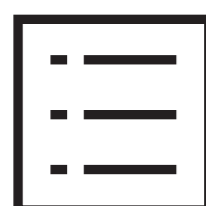
STATE FACILITY UTILITY MANAGEMENT



# Utility Data Management Report FY2023



THE LODGE AT PARIS LANDING  
STATE PARK, BUCHANAN, TN



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This report regarding State facility utility usage, cost, and rate data for State FY2021-FY2023 was prepared by the Tennessee Department of Environment and Conservation's (TDEC) State Facility Utility Management (SFUM) team under the guidance of Tenn. Code Ann. § 4-3-1012(3).



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# About TDEC's SFUM Team

Residing in the **Office of Energy Programs (OEP)** within the **Tennessee Department of Environment and Conservation (TDEC)**, the State Facility Utility Management (SFUM) team provides State government agencies and higher education institutions with actionable energy insights. This empowers facilities across Tennessee to understand and optimize their energy consumption and utility savings.

SFUM was formed in January 2017 following the issuance of Executive Order 63, which transferred the building management statutory responsibilities for State-owned and -managed properties from the Department of General Services (DGS) to TDEC (Tenn. Code Ann. §§ 4-3-1012 and 4-3-1017-1019). Among these responsibilities are the analysis and reporting on the State's aggregate annual energy costs and usage (Tenn. Code Ann. § 4-3-1012(3)). SFUM collects and analyzes data from utility bills for State-owned and -managed facilities to address this requirement.

With the State's Utility Data Management (UDM) platform, the SFUM team, UDM platform users (including facility managers and accounting staff), and other stakeholders can analyze utility data, monitor costs and usage, audit bills, and report on energy efficiency practices across 8,700+ facilities grouped into four organizational categories.

**TABLE 1.1 | State Entities with Owned or Managed Building Stock (by Organization Type)**

	<b>GENERAL GOVERNMENT<sup>1</sup></b>	<b>LOCALLY GOVERNED INSTITUTIONS (LGIs)<sup>2</sup></b>	<b>TENNESSEE BOARD OF REGENTS (TBR)<sup>3</sup></b>	<b>UNIVERSITY OF TENNESSEE (UT) SYSTEM<sup>4</sup></b>
<b>SHARE OF PORTFOLIO</b> (% of square feet)	<b>36%</b>	<b>25%</b>	<b>12%</b>	<b>27%</b>
<b>ASSET PORTFOLIO</b>	<b>25 Agencies</b>	<b>6 Locally Governed Institutions</b>	<b>24 Tennessee Colleges of Applied Technology (TCATs)</b> <b>13 Community Colleges</b>	<b>5 Campuses</b> <b>2 Institutes</b>

<sup>1</sup> See Appendix B for a full list of General Government agencies.

<sup>2</sup> See Appendix C for a full list of LGIs.

<sup>3</sup> See Appendices D and E for a full list of Community Colleges and TCATs, respectively.

<sup>4</sup> See Appendix E for a full list of UT System campuses and institutes.

# Report Objectives

This report communicates the State's utility cost and usage and underscores the capabilities and benefits of the UDM platform, which has simplified data collection, entry, and analysis for State government agencies and higher education institutions.

This report compares utility usage data for State Fiscal Year 2021 (FY2021), Fiscal Year 2022 (FY2022), and Fiscal Year 2023 (FY2023) by organizational group and the six types of utility commodities captured in the UDM platform for the State.

## UTILITY COMMODITIES



**CHILLED WATER**



**ELECTRIC**



**NATURAL GAS**



**PROPANE**



**STEAM**



**WATER/ SEWER**





# UDM Platform

TENNESSEE WELCOME CENTER,  
KINGSPORT, TN

# About the UDM Platform

The UDM platform is a central repository for past and current utility cost and usage data<sup>5</sup> of approximately 8,700 State-owned and -managed facilities. It is predominantly used for utility tracking, reporting, and benchmarking for General Government agencies and Higher Education institutions, as well as bill payment integration for General Government agencies<sup>6</sup>.



LAUNCHED IN

**2019**



SERVING

**74**

General Government agencies and Higher Education institutions

DATA REPRESENTING



**9,200+**  
accounts



**10,800+**  
utility meters



**113M+**  
square feet

## A POWERFUL, EFFICIENT TOOL

Before the UDM platform was available, a significant effort was required to locate utility accounts, gather utility bills, and manually enter data. As a result, utility cost and usage data were rarely analyzed.

Since the platform was introduced, the SFUM team has been providing aggregated data on utility usage and costs for State facilities. This data is aimed at assisting fiscal personnel, building maintenance personnel, utility and facility managers, sustainability professionals, and technical assistance providers in gaining valuable insights into the energy consumption of State-owned and -managed buildings through their utility data.

TENNESSEE STATE CAPITOL BUILDING, NASHVILLE, TN



<sup>5</sup> Cost and usage data for most utilities are predominately captured monthly. Some utility bills are captured on a quarterly or other basis.  
<sup>6</sup> For FY2023, the UDM platform contains utility bill data for 99.99% of the utility meters that, as of March 30, 2024, have been identified for General Government agencies and Higher Education institutions.



# Cost and Usage Data

# Methodology

This section presents an analysis of the State building portfolio, including General Government agencies, LGIs, TBR, and the UT System. It also provides:

- **An overview of differences in utility cost and usage from FY2021 through FY2023.**
- **Utility usage for each organizational type.**

Cost and usage data from the UDM Platform is the primary data source for this report. This sample of data contains utility billing data for known State meters for FY2023, gathered from 74 entities.

Findings are limited to monthly data, as not all State-owned or managed facilities offer data at more frequent intervals.

## Data Collection

The UDM platform receives original bills from utility vendors, 61% of which are processed through bill payment system integration. This simplifies data collection and processing for accounting personnel.

Select institutions (Higher Education and Legislative Branch government departments and agencies, which account for the remaining 39%) are not set up for this integration. As a result, these institutions receive a bill directly issued for payment, and the UDM platform receives a duplicate bill.



OF ALL UTILITY BILLS

**61%**

are processed through  
the UDM platform



The SFUM team relies on the State's agencies, higher education institutions, and utility providers to inform and provide updates regarding new or unused buildings, meters, or accounts. Please notify SFUM of new or unused meters or accounts for your organization by contacting [tdec.sfum@tn.gov](mailto:tdec.sfum@tn.gov).

These updates ensure that an organization's billing process is promptly directed through the proper channels, any issues with vendors are quickly resolved, and cost and consumption data are as accurate as possible to maximize the benefits of UDM reporting features.

## Data Reconciliation and Limitations

The SFUM team analyzes trends using a dataset from 15 different organization group databases within the UDM platform.

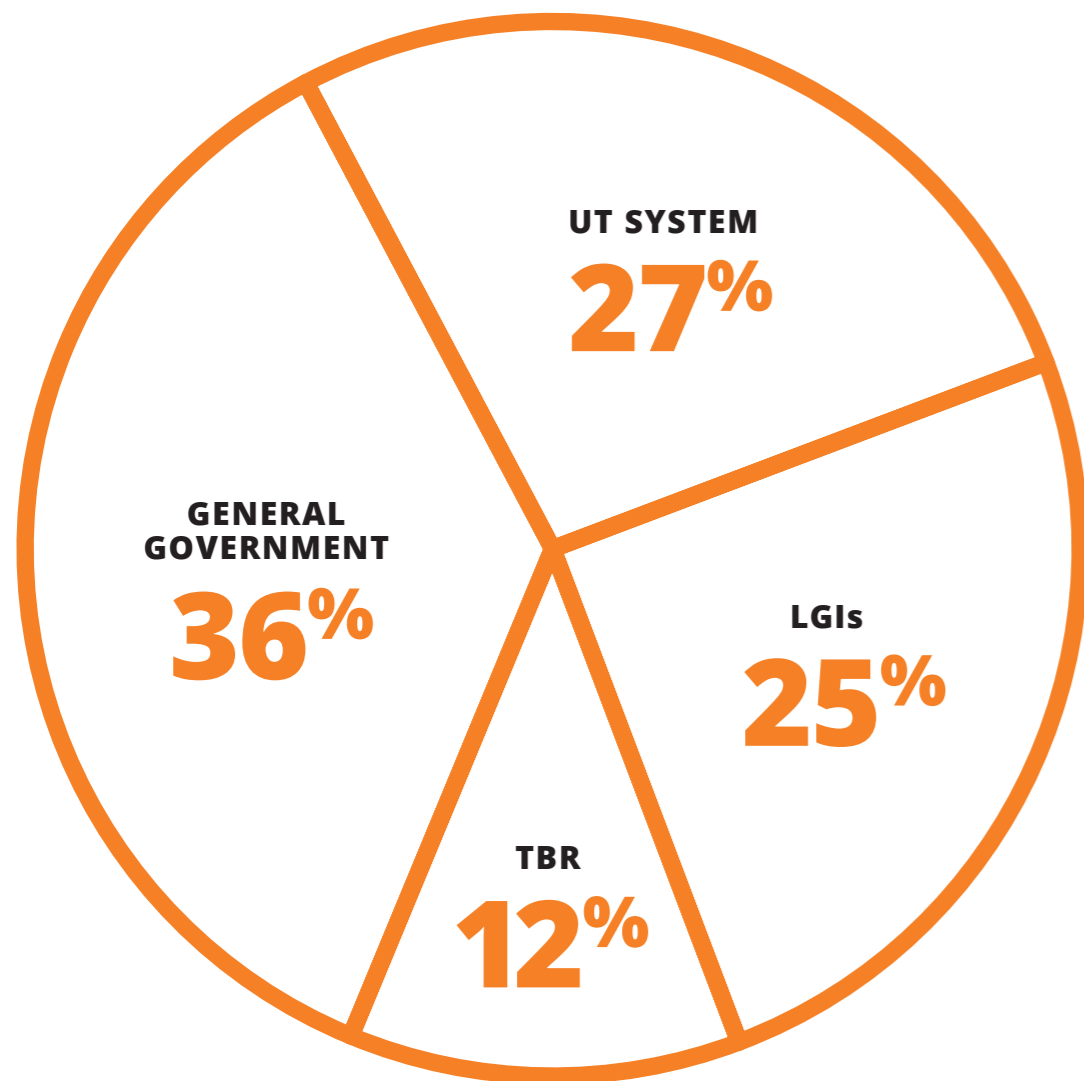
The UDM platform reports utility cost and usage data on a continual basis. As a result, data figures change frequently.

Variations may be due to delayed billing corrections or account updates made by the utility vendor, changes in a duplicate billing process that result in delayed bill obtainment and uploads, or delayed notifications of new or retired accounts which will be retroactively applied to the platform, leading to slight variances in the usage or cost values from different datasets.



# Overall State Portfolio and Observations

FIGURE 3.1 | FY2023 Share of Portfolio by Organizational Group (% of square feet)



TOTAL UTILITY COSTS FOR FY2023

**\$218,278,309**

spent on energy and water utilities across all State-owned and -managed facilities

**6.3%** increase (\$12,853,451) in State utility costs compared to FY2022

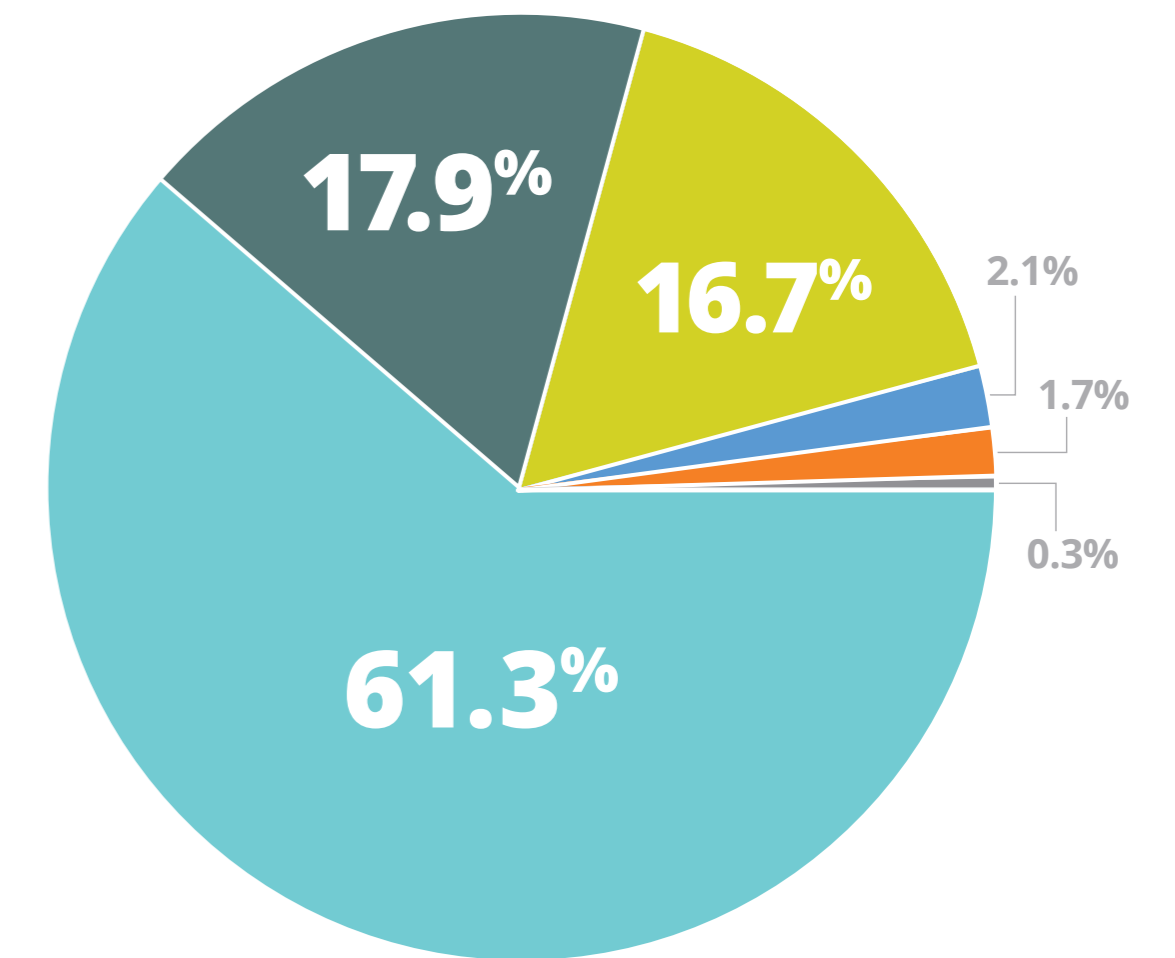
The increase is primarily attributed to rising water/sewer costs and natural gas costs, with the latter affecting both natural gas and electric bills.

TN Total Cost Avoidance: **\$2,315,072**

GREATEST COST AVOIDANCE FROM FY2022 TO FY2023

Environment and Conservation	\$664,662
Correction	\$586,612
Transportation	\$381,733
Military	\$374,425
Mental Health and SAS	\$128,018

FIGURE 3.2 | FY2023 All State Utility Cost Profile by Commodity (% of total cost)<sup>7</sup>



- Chilled Water (\$4,595,474)
- Electric (\$133,818,740)
- Natural Gas (\$36,485,037)
- Propane (\$656,611)
- Steam (\$3,591,686)
- Water/Sewer (\$39,130,761)

<sup>7</sup> Propane is bought on an as needed basis, thus making the amounts highly variable throughout the year.

# FY2021-FY2023 Comparison

**TABLE 3.1 | Change in FY2021-FY2023 in Overall Cost and Overall Usage by Utility**

UTILITY COMMODITY	USAGE CHANGE (%)	TOTAL USAGE CHANGE	COST CHANGE (%)	TOTAL COST CHANGE (\$)
CHILLED WATER	6.7%	1,177,868 ton-hr	10.6%	\$440,262
ELECTRIC	1.8%	21,006,760 kWh	20.6%	\$22,875,455
NATURAL GAS	6.7%	4,519,324 Therms	49.2%	\$12,028,050
PROPANE	45.1%	243,491 Therms	6.7%	\$41,422
STEAM	-3.8%	-7,604 Mlb	25.4%	\$727,565
WATER / SEWER	9.3%	273,959 kgal	17.2%	\$5,734,404

**TOTAL = \$41,847,157**

## KEY TAKEAWAYS



Natural gas costs reflected global market trends, which were influenced by sudden macroeconomic factors in FY2022 and early FY2023 that led to higher global demand for US natural gas exports. However, by the end of FY2023, costs returned to previous levels.



As a result of higher natural gas costs, Tennessee Valley Authority (TVA) increased the amount of Fuel Cost Adjustments charged to its Local Power Companies, who then passed along these charges to their customers, including the State. These adjustments account for the continued higher electricity costs through FY2023 even after the cost of natural gas began to decrease.



The cost of steam is most impacted by the price of natural gas, whereas the cost of chilled water is highly reliant on the price of electricity.



Propane costs were higher in FY2022 due to a limited supply and transportation costs, but returned to previous cost levels in FY2023.



Water/Sewer costs outpaced the increase in use due to local tax and vendor rates adjusting for inflation, energy costs, infrastructure improvements, and new treatment processes.

**The State's overall utility costs increased by 23.7% from FY2021 to FY2023.**

**FY2023 OVERALL UTILITY COSTS**

**\$218,278,309**

**FY2021 OVERALL UTILITY COSTS**

**\$176,431,152**

The increase is primarily attributed to record high market costs and volatility for natural gas and its subsequent effect on other commodities. Other factors include inflation, severe weather events, and climate trends.

# FY2021- FY2023 Utility Usage by Organizational Group



# General Government

TOTAL UTILITY COSTS FOR FY2023

**\$79,266,262**



Electric power  
**62.7%**

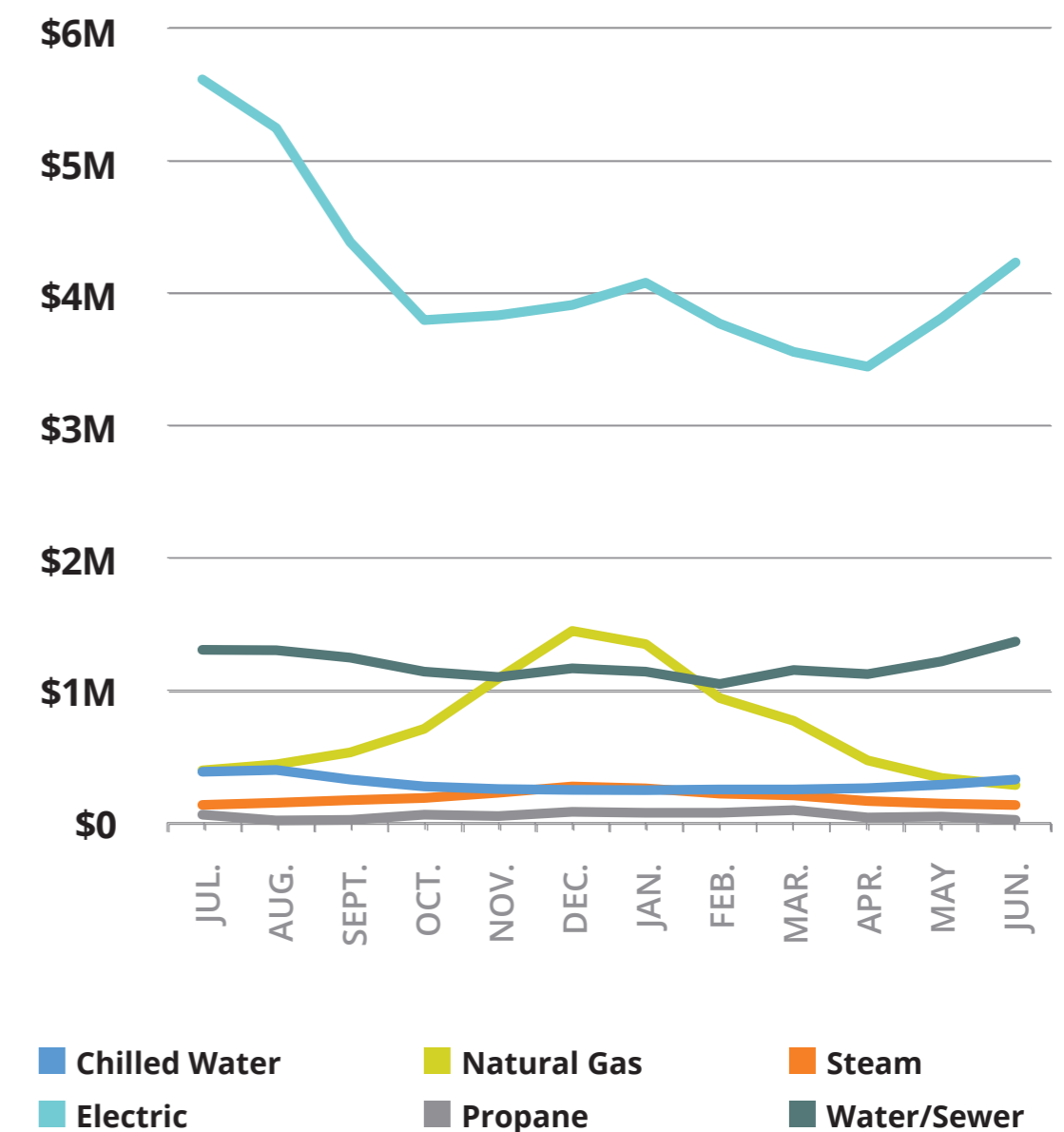


Water/sewer  
**18.1%**

TABLE 3.2 | FY2023 Utility Snapshot by Commodity, General Government

COMMODITY	USAGE	UOM	COST	PERCENT
CHILLED WATER	13,861,795	ton-hr	\$3,534,277	4.46%
ELECTRIC	422,490,165	kWh	\$49,716,936	62.72%
NATURAL GAS	19,613,440	Therms	\$8,778,878	11.08%
PROPANE	774,082	Therms	\$640,005	0.81%
STEAM	109,686	Mlb	\$2,277,037	2.87%
WATER/SEWER	1,129,572	kgal	\$14,319,129	18.06%

FIGURE 3.3 | FY2023 Commodity Cost per Month, General Government



# General Government

## TOTAL UTILITY COST PER YEAR COMPARISON

FY2023



FY2022

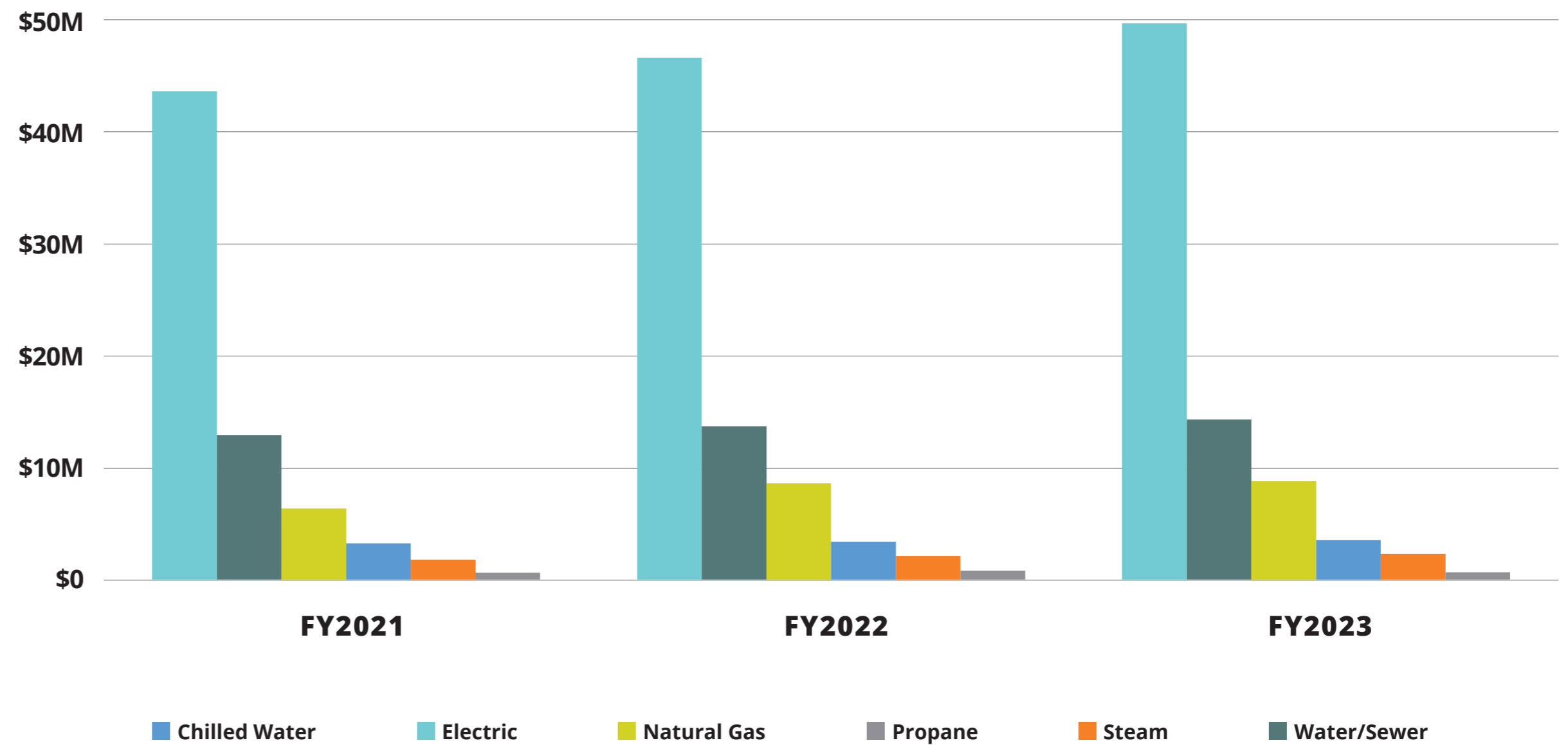


FY2021



WANT MORE DETAILED DATA? EMAIL US >>

FIGURE 3.4 | Commodity Cost per Year Comparison, General Government



# LGIs

TOTAL UTILITY COSTS FOR FY2023

**\$47,759,138**



Electric power  
**55.6%**

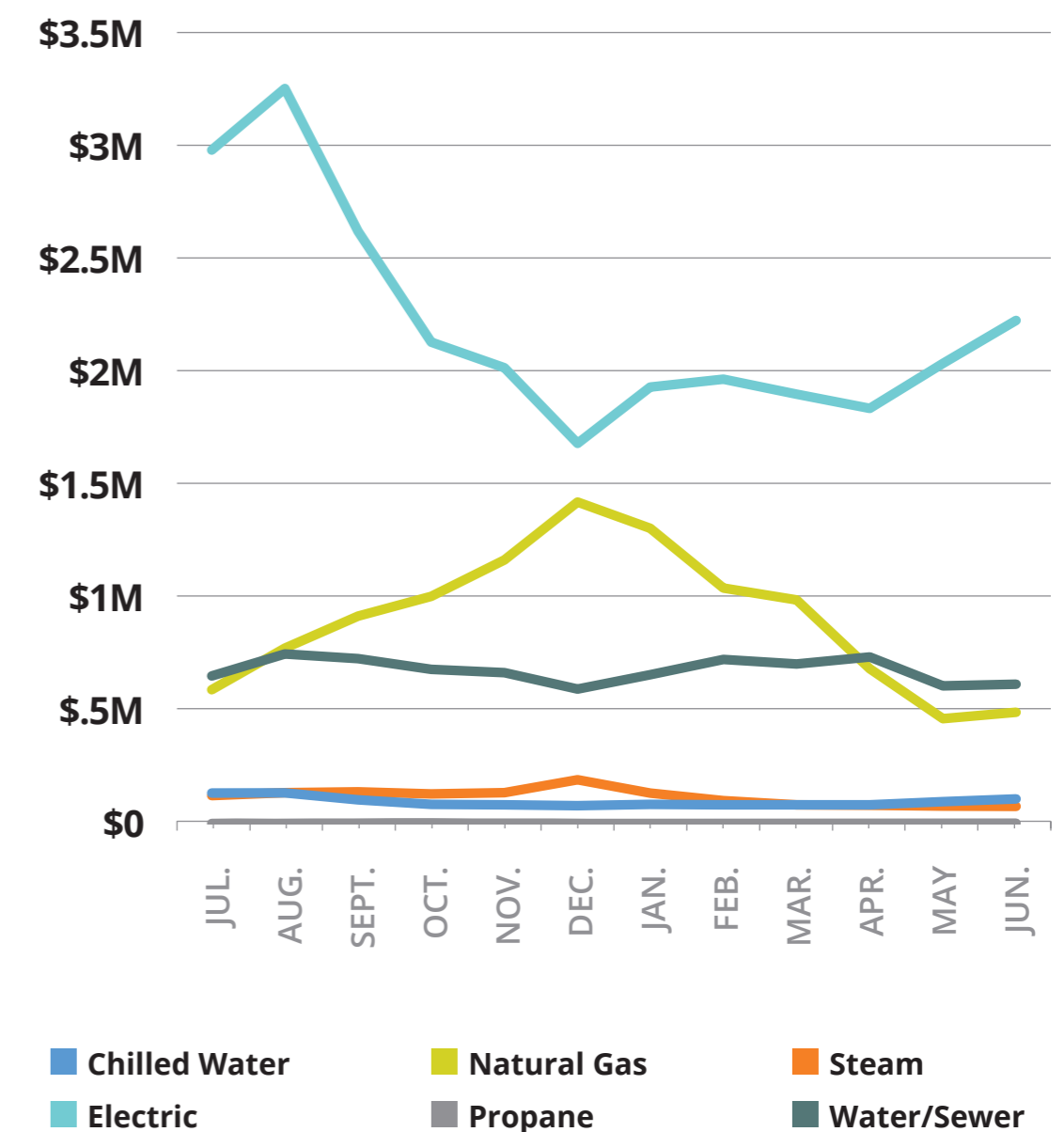


Natural gas  
**22.6%**

TABLE 3.3 | FY2023 Utility Snapshot by Commodity, LGIs

COMMODITY	USAGE	UOM	COST	PERCENT
CHILLED WATER	4,879,499	ton-hr	\$1,061,197	2.22%
ELECTRIC	236,323,327	kWh	\$26,555,632	55.60%
NATURAL GAS	27,130,677	Therms	\$10,776,514	22.56%
PROPANE	9,773	Therms	\$16,506	0.03%
STEAM	82,441	Mlb	\$1,314,648	2.75%
WATER/SEWER	848,351	kgal	\$8,034,641	16.82%

FIGURE 3.5 | FY2023 Commodity Cost per Month, LGIs



# LGIs

## TOTAL UTILITY COST PER YEAR COMPARISON

FY2023



FY2022

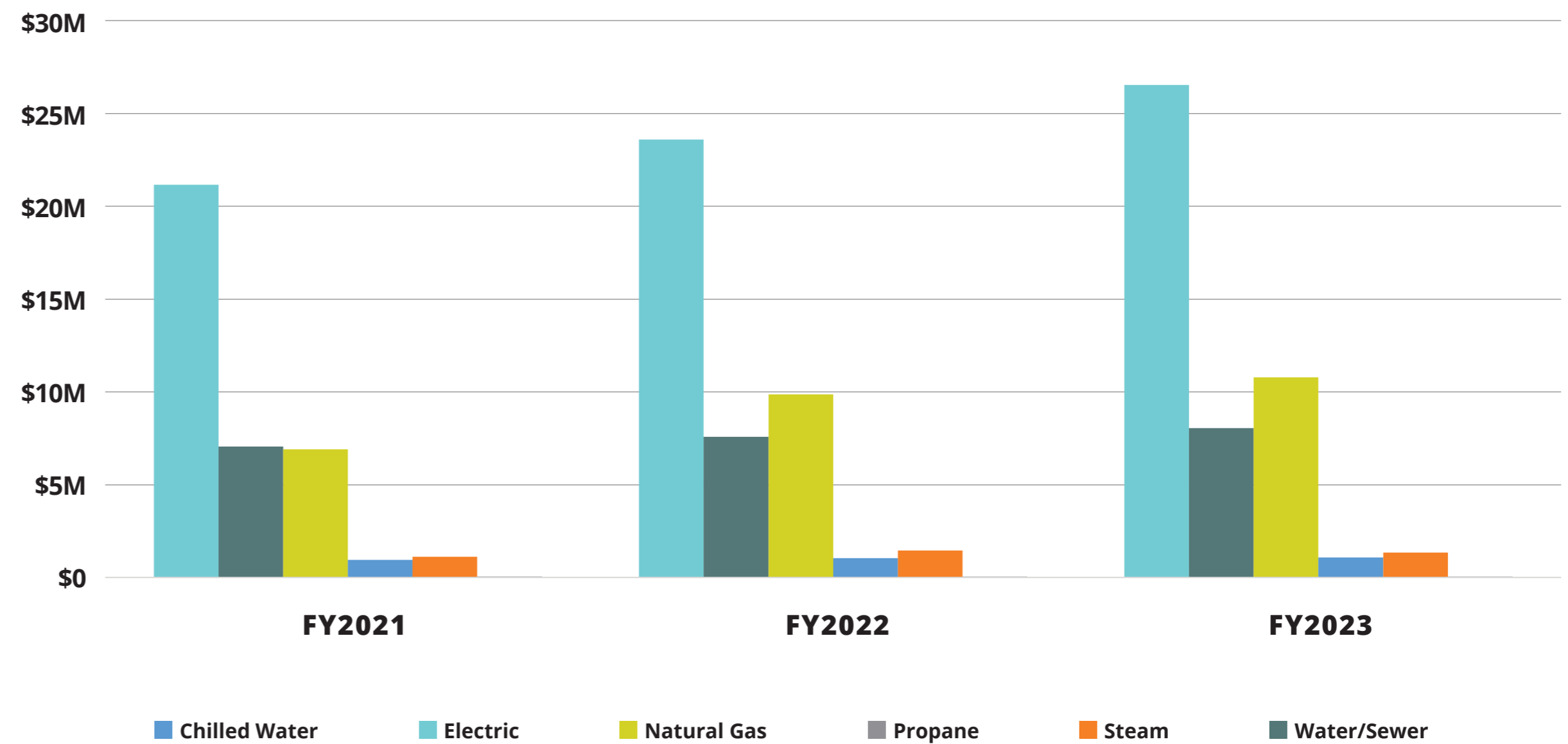


FY2021



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FIGURE 3.6 | Commodity Cost per Year Comparison, LGIs



# TBR

TOTAL UTILITY COSTS FOR FY2023

**\$26,724,146**



Electric power  
**73.6%**

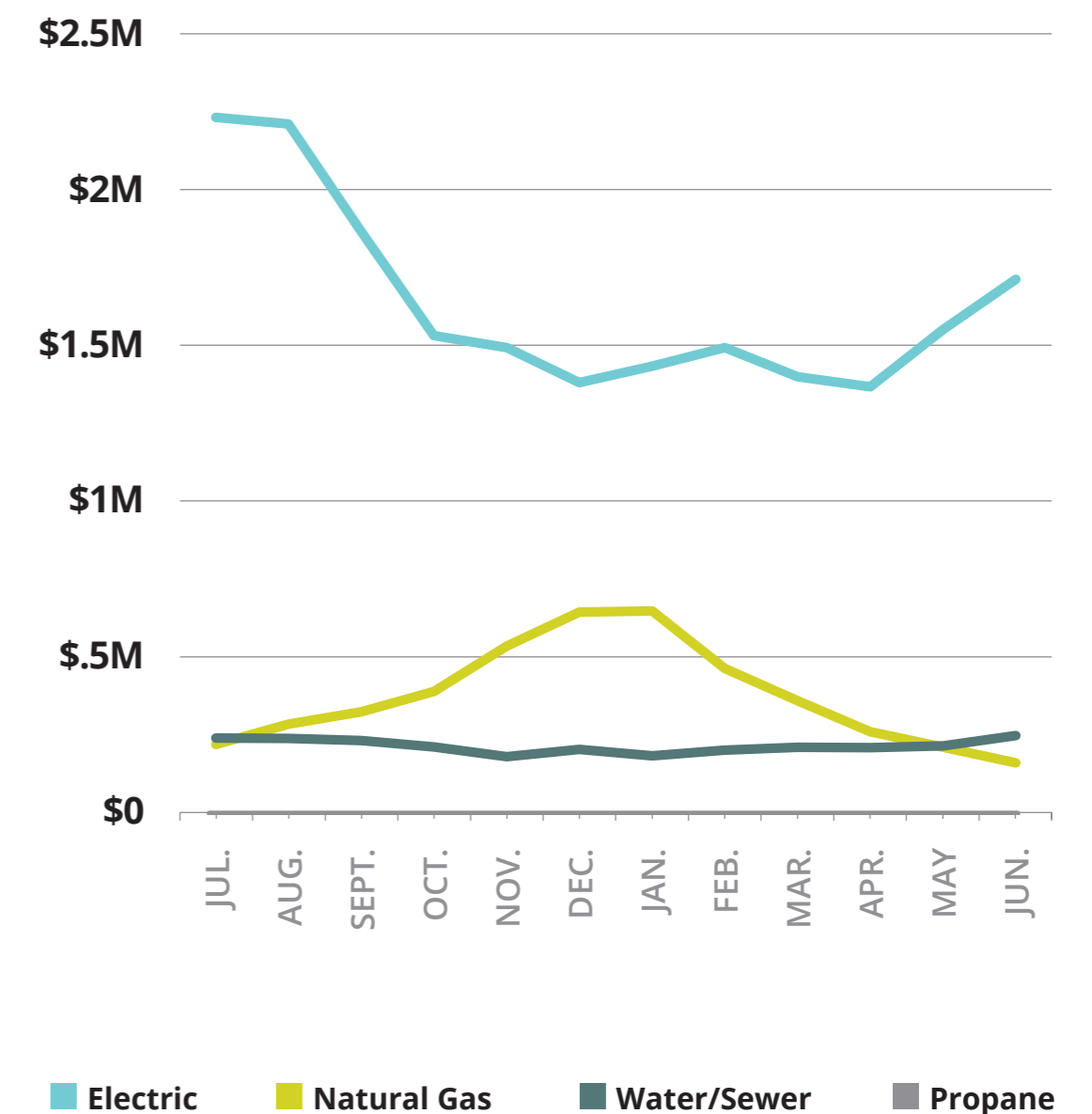


Natural gas  
**16.8%**

TABLE 3.4 | FY2023 Utility Snapshot by Commodity, TBR

COMMODITY	USAGE	UOM	COST	PERCENT
ELECTRIC	170,690,444	kWh	\$19,672,589	73.61%
NATURAL GAS	4,680,559	Therms	\$4,490,583	16.80%
PROPANE	0	Therms	\$100	0.00%
WATER/SEWER	187,749	kgal	\$2,560,874	9.58%

FIGURE 3.7 | FY2023 Commodity Cost per Month, TBR



# TBR

## TOTAL UTILITY COST PER YEAR COMPARISON

FY2023



FY2022

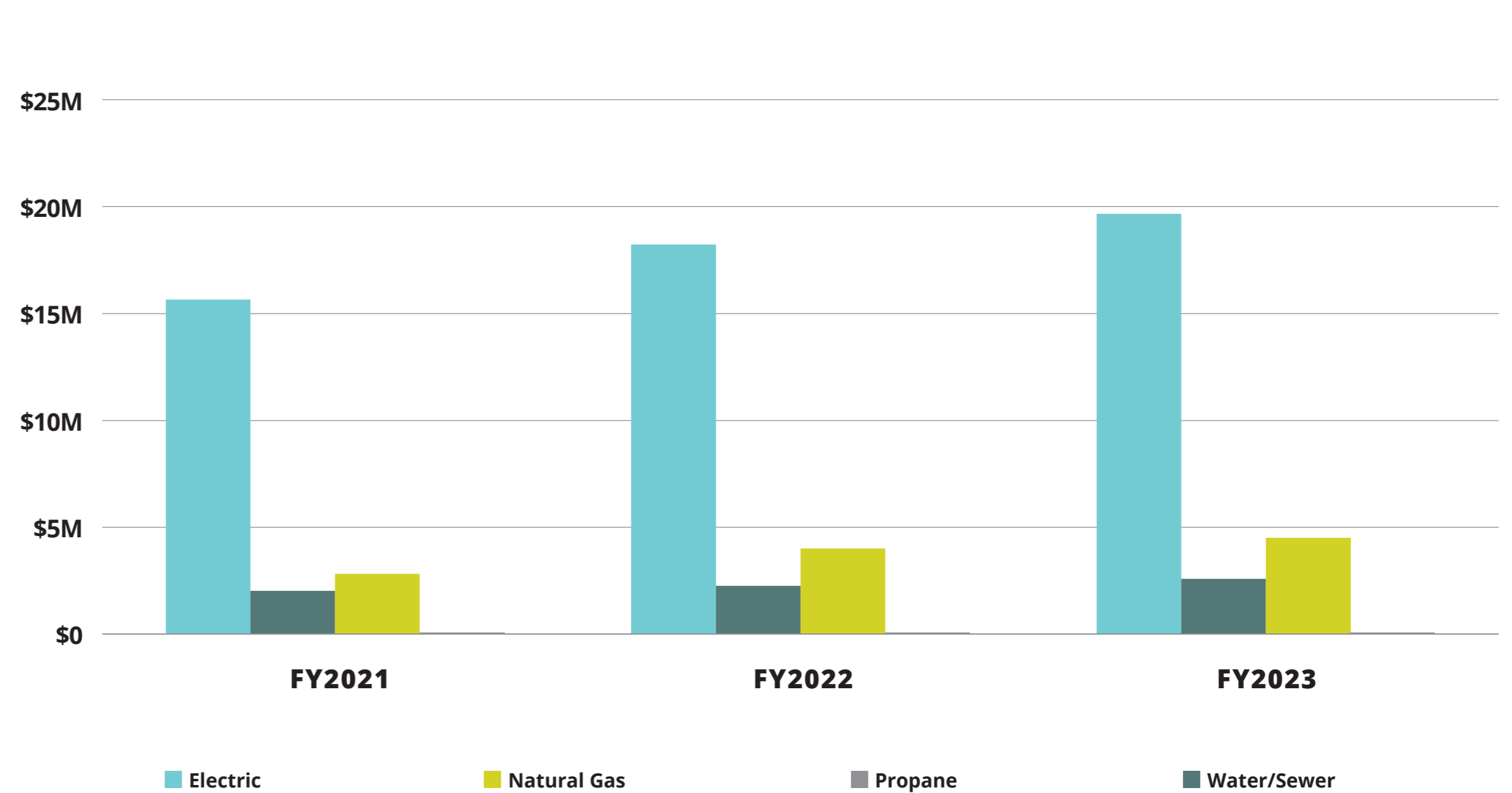


FY2021



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FIGURE 3.8 | Commodity Cost per Year Comparison, TBR



# UT System

TOTAL UTILITY COSTS FOR FY2023

**\$64,528,762**



Electric power  
**58.7%**

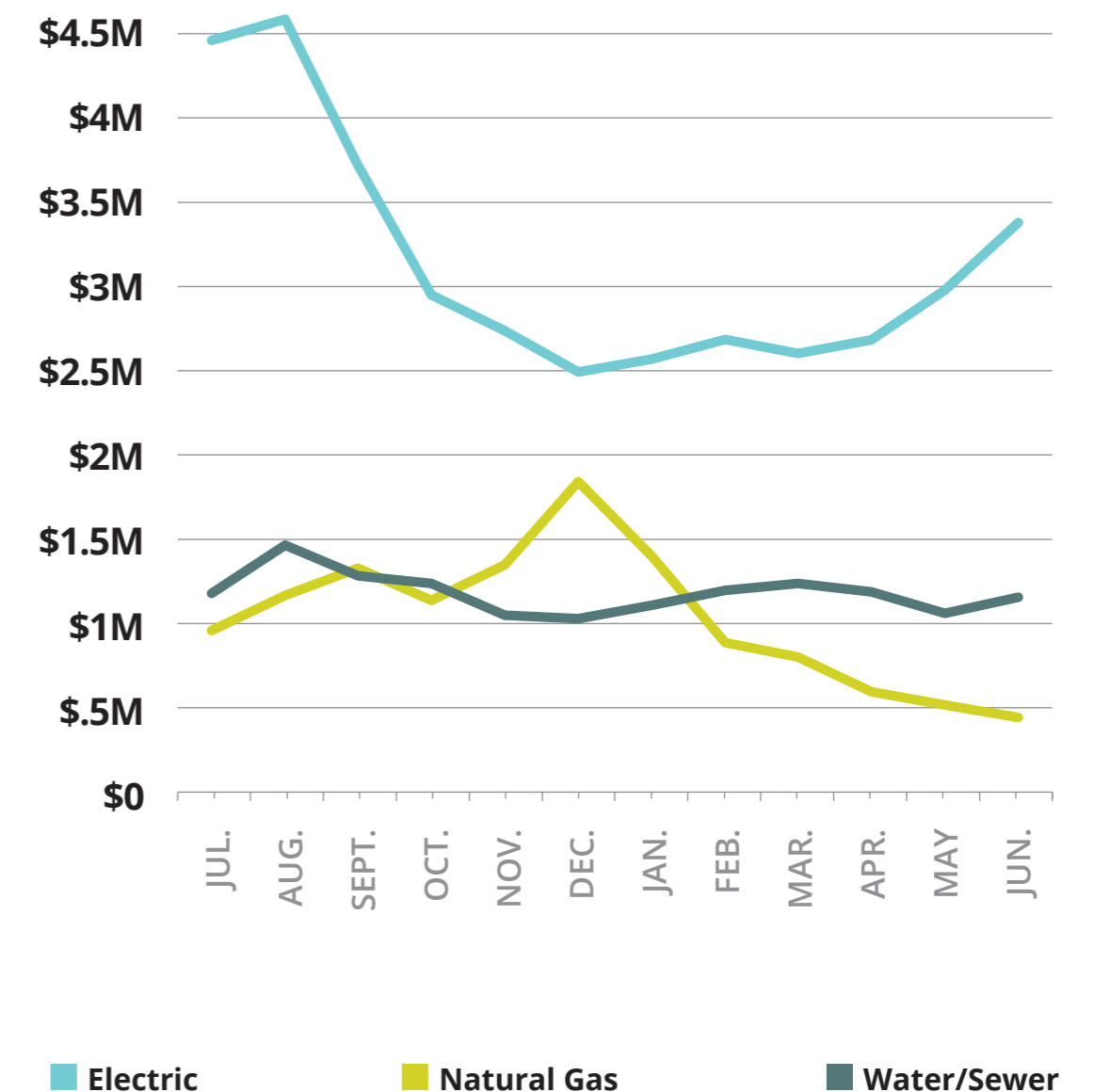


Water/sewer  
**22.0%**

TABLE 3.5 | FY2023 Utility Snapshot by Commodity, UT System

COMMODITY	USAGE	UOM	COST	PERCENT
ELECTRIC	381,910,808	kWh	\$37,873,583	58.69%
NATURAL GAS	20,275,599	Therms	\$12,439,063	19.28%
WATER/SEWER	1,038,902	kgal	\$14,216,117	22.03%

FIGURE 3.9 | FY2023 Commodity Cost per Month, UT System



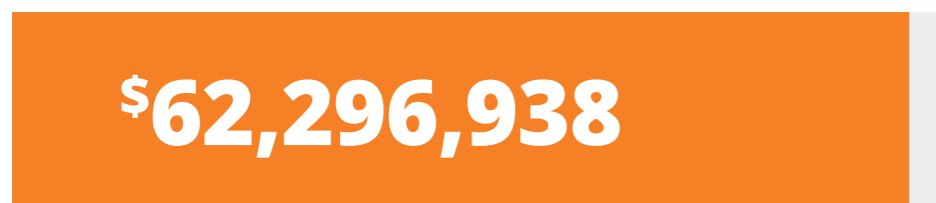
# UT System

## TOTAL UTILITY COST PER YEAR COMPARISON

FY2023



FY2022

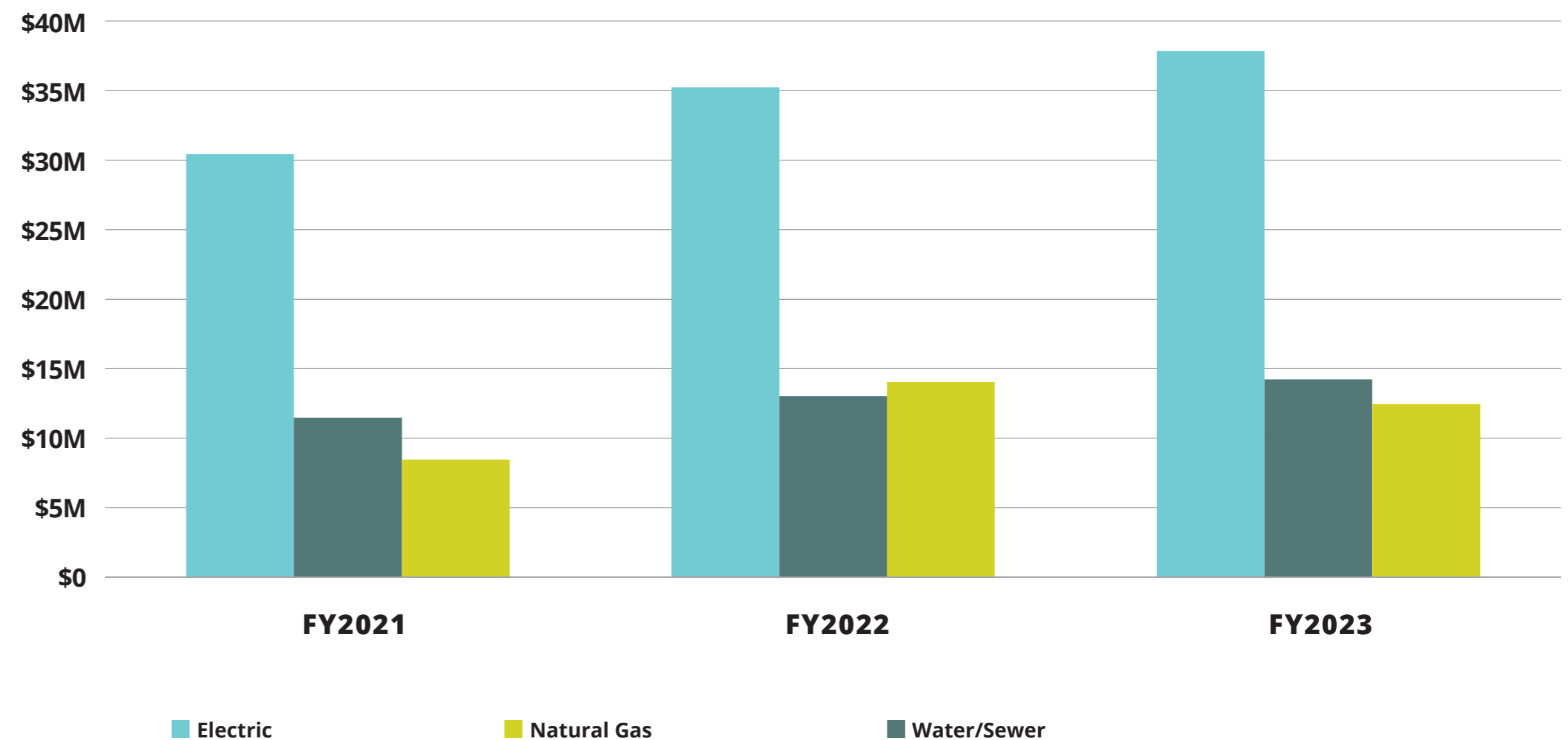


FY2021



WANT MORE DETAILED DATA? EMAIL US >>

FIGURE 3.10 | Commodity Cost per Year Comparison, UT System





# Current Offerings

TENNESSEE STATE LEGISLATIVE PLAZA, NASHVILLE, TN



# Accessing the UDM Platform

The UDM platform is available to all State employees of participating General Government agencies, LGIs, TBR schools, and UT System schools. See **Appendices B – F** for lists of participants.

## READY TO REGISTER?

Please direct questions about this report or requests to become a registered UDM platform user to the SFUM team at [tdec.sfum@tn.gov](mailto:tdec.sfum@tn.gov).

# Energy Liaison Program (ELP)

Launched in January 2023, the ELP is designed to provide resources, training, professional development opportunities, and a peer learning network for State personnel (e.g., facility managers, building maintenance personnel, and sustainability professionals). Leveraging the features and benefits of the UDM platform, the ELP aims to help energy liaisons identify potential energy savings opportunities in their facilities.



Do you or someone you know have interest in becoming an energy liaison? Send a note or referral to the SFUM team at [tdec.sfum@tn.gov](mailto:tdec.sfum@tn.gov).



# Additional Info

AYRES HALL, UT,  
KNOXVILLE, TN

# Appendices

## APPENDIX A

### Utility Usage Calculations

#### TABLE 3.1, P. 11

Change in FY2021-FY2023 in Overall Cost and Overall Usage by Utility

#### Calculations for each utility commodity:

Usage Change (%) =  $(\text{FY2023 usage} - \text{FY2021 usage}) / (\text{FY2021 usage})$

Total Usage Change =  $(\text{FY2023 usage} - \text{FY2021 usage})$

Cost Change (%) =  $(\text{FY2023 cost} - \text{FY2021 cost}) / (\text{FY2021 cost})$

Total Cost Change (\$) =  $(\text{FY2023 cost} - \text{FY2021 cost})$

## APPENDIX B

### List of General Government Agencies<sup>8</sup>

Department of Agriculture

Department of Children's Services

Department of Commerce & Insurance

Department of Correction

Department of Economic & Community Development

Department of Education

Department of Environment & Conservation

Department of General Services

Department of Health

Department of Human Services

Department of Intellectual & Developmental Disabilities

Department of Mental Health & Substance Abuse Services (SAS)

Department of Military

Department of Safety & Homeland Security

Department of Tourist Development

Department of Transportation

Department of Veterans Services

Legislative Services

National Civil Rights Museum

Tennessee Bureau of Investigation

Tennessee District Attorneys General Conference

Tennessee District Public Defenders Conference

Tennessee Rehabilitative Initiative in Correction

Tennessee Secretary of State

Tennessee Wildlife Resources Agency

## APPENDIX C

### List of LGIs

Austin Peay State University

East Tennessee State University

Middle Tennessee State University

Tennessee State University

Tennessee Tech University

University of Memphis

<sup>8</sup>The list of General Government agencies consists only of those that pay utility bills for State-owned and -managed facilities.

## APPENDIX D

## List of TBR Community Colleges

Chattanooga State Community College

Cleveland State Community College

Columbia State Community College

Dyersburg State Community College

Jackson State Community College

Motlow State Community College

Nashville State Community College

Northeast State Community College

Pellissippi State Community College

Roane State Community College

Southwest Tennessee Community College

Volunteer State Community College

Walters State Community College

## APPENDIX E

## List of TBR TCATs

TCAT Athens

TCAT Chattanooga

TCAT Crossville

TCAT Crump

TCAT Dickson

TCAT Elizabethton

TCAT Harriman

TCAT Hartsville

TCAT Hohenwald

TCAT Jacksboro

TCAT Jackson<sup>9</sup>

TCAT Knoxville

TCAT Livingston

TCAT McKenzie

TCAT McMinnville

TCAT Memphis

TCAT Morristown

TCAT Murfreesboro

TCAT Nashville

TCAT Northwest<sup>10</sup>

TCAT Oneida

TCAT Paris

TCAT Pulaski

TCAT Shelbyville

## APPENDIX F

## List of the UT System Facilities

## CAMPUSES

UT Chattanooga

UT Health Science Center at Memphis

UT Knoxville

UT Martin

UT Southern at Pulaski<sup>11</sup>

## SATELLITE CAMPUS

UT Space Institute<sup>12</sup>

## INSTITUTES

UT Institute of Agriculture

<sup>9</sup> TCAT Whiteville became part of TCAT Jackson as of October 2021.

<sup>10</sup> TCAT Covington, along with TCAT Ripley, merged with TCAT Northwest in Fall 2023.

<sup>11</sup> UT Southern at Pulaski was acquired by the UT System in July 2021, and this institution was first included in the FY2022 UDM Report. This is the second year that this institution has been included in the UDM Report.

<sup>12</sup> The Space Institute is a satellite campus for UT Knoxville that is tracked separately.

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## APPENDIX H

## Abbreviations and Acronyms

**DGS** – Department of General Services

**ELP** – Energy Liaison Program

**FY2021** – Fiscal Year 2021  
(July 1, 2020 – June 30, 2021)

**FY2022** – Fiscal Year 2022  
(July 1, 2021 – June 30, 2022)

**FY2023** – Fiscal Year 2023  
(July 1, 2022 – June 30, 2023)

**kgal** – Kilogallon

**kWh** – Kilowatt hour

**LGIs** – Locally Governed Institutions

**Mlb** – Thousand Pounds (of Steam)

**OEP** – Office of Energy Programs

**SAS** – Substance Abuse Services

**SFUM** – State Facility and Utility Management

**TBR** – Tennessee Board of Regents

**TCAT** – Tennessee College of Applied Technology

**TDEC** – Tennessee Department of Environment  
and Conservation

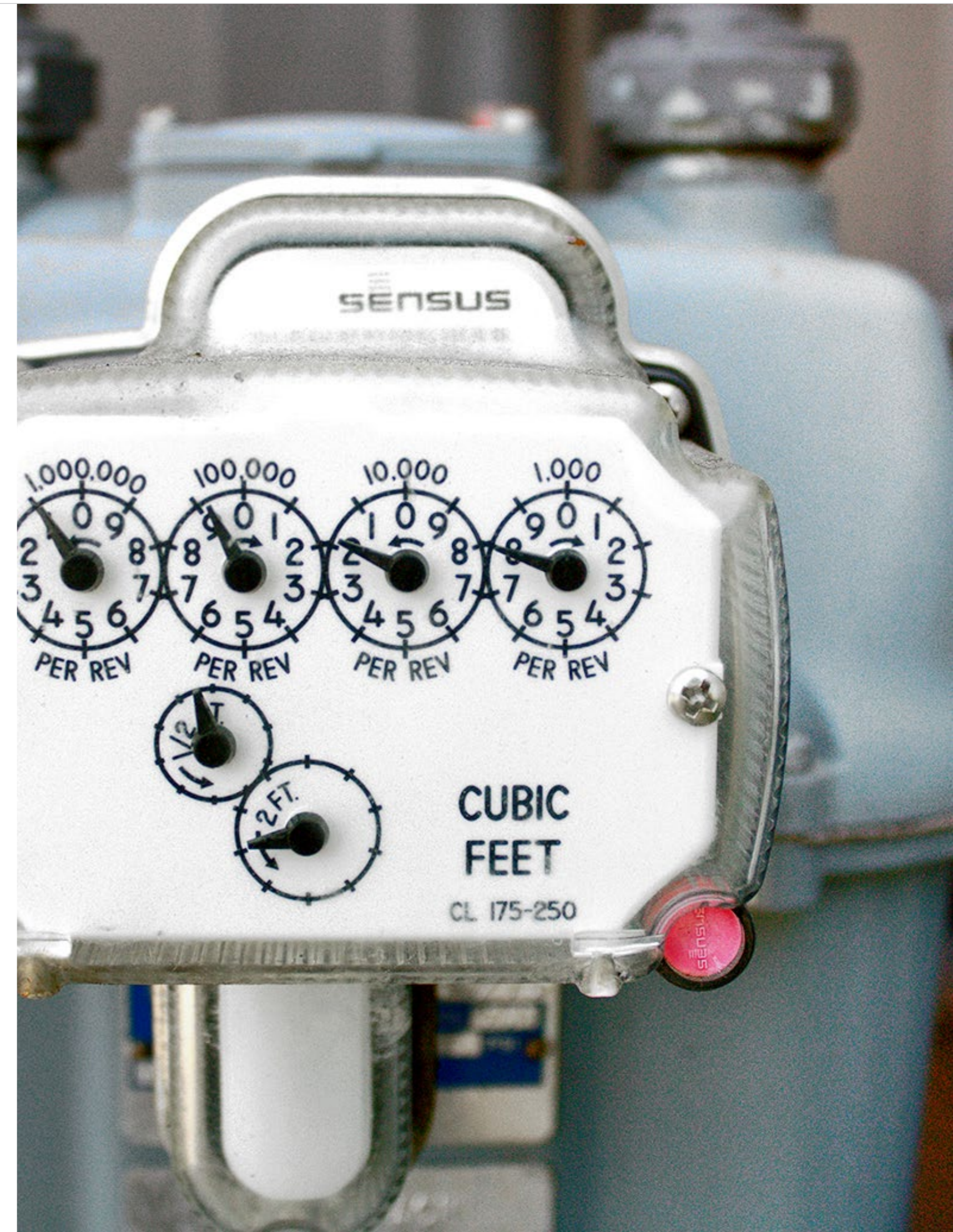
**Therm** – 100,000 British Thermal Units

**ton-hr** – Cooling service equivalent to 12,000  
British Thermal Units

**TVA** – Tennessee Valley Authority

**UDM** – Utility Data Management

**UT** – The University of Tennessee



# Acknowledgments

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OEP SFUM partnered with **Milepost** on the compilation and design of this report.



## IMAGE ATTRIBUTION

Cover photo of The Lodge at Paris Landing State Park by Chad Baumer Photography.

Photo of the Tennessee Welcome Center in Kingsport courtesy of the TN Department of Tourist Development.

Photo of The Lodge at Pickwick Landing by Aerial Innovations Southeast.

Photo of the Ned R. McWherter Library on the University of Memphis campus courtesy of the University of Memphis.