State of Tennessee Utility Data Management (UDM)

Facility Management Refresher Training
January 27, 2021
About SFUM

The State Facility Utility Management (SFUM) section is part of the Office of Energy Programs (OEP) within TN Department of Environment and Conservation (TDEC).

SFUM was formed January 1, 2017 in response to Executive Order 63 transferring to TDEC the building management statutory responsibilities for State-owned and managed properties (Tenn. Code Ann. §§ 4-3-1012 and 4-3-1017-1019) previously held by the Department of General Services.

SFUM is responsible for several utility savings and building energy management initiatives, including the following:

- Development and maintenance of an online Utility Data Management (UDM) platform for State-owned and managed facilities.
- Oversight of energy efficiency projects under the EmPower TN initiative, designed to reduce energy consumption and utility costs for participating State facilities through the implementation of energy efficient technologies and/or energy management systems.
- Provision of no-cost technical assistance to State agencies and public higher education facilities to promote the implementation of energy management, energy efficiency, and/or renewable energy projects that meet the needs, budgets, and priorities of participating entities.
Meet the SFUM team

- Jeremy McBride, Senior Data Analyst & Energy Consultant, Jeremy.McBride@tn.gov
- Natalie Dallriva, Energy Analyst, Natalie.Dallriva@tn.gov
- Greg Jones, Data Entry & Platform Maintenance Specialist, Greg.S.Jones@tn.gov
- Ryan Stanton, Sr. Consultant for Strategic Energy Initiatives, Ryan.K.Stanton@tn.gov
- Rick Kumar-Rathor, Energy Consultant, Rick.Kumar-Rathor@tn.gov
- Russell Tedrow, Grants Analyst 2, Russell.V.Tedrow@tn.gov
The UDM platform data is captured and stored by the State’s third-party vendor EnergyCAP, Inc. The platform stores data for utility costs and usage for approximately 8,000 State-owned and managed facilities (approximately 105 million square feet). UDM is predominantly used for utility tracking, reporting, benchmarking, and bill payment integration for General Government agencies. UDM also stores historical data and provides ongoing data feeds for all known and active State utility accounts.
EnergyCAP

INTRODUCTION

John Pierce
Assistant VP, Project Management Office

ENERGYCAP
Value

- Weather normalizations
- EUI-energy utilization index
- Carbon footprint reporting
- Public dashboards
- Benchmarking
- Maps & snapshots
- M&V cost avoidance calculations
- Performance vs. targets
- Energy, utilities, & sustainability reporting
Value

Ongoing building commissioning

Onsite renewables tracking

Manage onsite generation and distribution

Smart meter interval data

Identification of potential problems

Building Operations
Login

Supported Internet Browsers:

- Chrome
- Firefox
- Edge

Navigate to: https://my.energycap.com

Enter Username (TN email address)

Enter Password

Enter Datasource of tennessee

Check “Remember Me”

Log In

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1. Click the User Icon (top right corner)
Select “Display Preferences”

2. Update your display preferences

Display Preferences

<table>
<thead>
<tr>
<th>Primary Display</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings and Organizations</td>
<td>English</td>
</tr>
<tr>
<td>Meters</td>
<td>Date Format</td>
</tr>
<tr>
<td>Accounts</td>
<td>MM/DD/YYYY</td>
</tr>
<tr>
<td>Other Data Types</td>
<td>Time zone</td>
</tr>
<tr>
<td></td>
<td>(UTC) Coordinated Universal Time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bill List Page Length</th>
<th>Time Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 bills/page</td>
<td>24 Hour (13:00)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trend Charts</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>of Data</td>
</tr>
</tbody>
</table>

3. Click Save
Navigating EnergyCAP

Search & Hyperlinks

Navigation Overview

Module Overview

EnergyCAP Object Properties
1. Click the Search Icon (top right corner)

2. Enter the search value.

3. Click hyperlink

<table>
<thead>
<tr>
<th>50 meters</th>
<th>50 accounts</th>
<th>50 facilities</th>
<th>11 cost centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1020 Jack Son Hill Road - ELE</td>
<td>237881-133253 3082602 / Serial number: 237881-133253 3082602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1020 Jack son Hill Road - WS</td>
<td>0076-09008-001-WS / Serial number: NO METER NUMBER United States</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1050 Jack son Hill Rd - ELE</td>
<td>237895-133263-3082612</td>
<td></td>
<td></td>
</tr>
<tr>
<td>115 E Jack son Blvd # 4 - ELE</td>
<td>248962001-ELE / Serial number: 302492</td>
<td></td>
<td></td>
</tr>
<tr>
<td>115 E Jack son Blvd # 6 - ELE</td>
<td>248962002-ELE / Serial number: 302336</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Navigation Overview

- **Hierarchy Structure**
- **Module Navigation**
- **Settings and View Options**
- **Secondary Navigation**
- **Primary Navigation Bar**
- **Search**

The image illustrates a screenshot of an EnergyCAP dashboard for the State of Tennessee - General Government, with various features and options highlighted. The dashboard includes:

- A sidebar for navigation options such as Create and Settings.
- A central section that displays data summaries such as Total Cost Summary and Daily Cost, with graphs and charts.
- A secondary navigation area with links to different categories like General Government, General Services, Capitol Complex, etc.
- A search function located at the top right corner.

The dashboard is designed to provide a comprehensive view of energy usage and costs for different government entities, allowing for detailed analysis and reporting.
Navigation Overview
Dashboard
Customizable overview of EnergyCAP data
Buildings & Meters

Facility Data

Data Organized by Organization/Building

Meters Attached to Building or Organization
Buildings & Meters - Building Properties

Includes:
- Build Date
- Floor Area
- Primary Use
- ENERGY STAR Rating
- Custom Fields
- Place Group Assignments

Link to Google Maps

Link to Weather Data Depot

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Buildings & Meters - Meter Properties

Includes:
- Linked Account(s)
- Linked Vendor
- Units of Measure
- GL Subcode Values
- Custom Fields
- Meter Group Assignments
Buildings & Meters - Module Menu

Includes:
- Cost Avoidance
- Services and Tools
- ENERGY STAR
- Settings
- Hierarchy
- Manage Options
- View Options
- List Options
Buildings & Meters - Module Menu

Manage Buildings and Organizations
Edit, move, or delete buildings and Organizations

Contact SFUM to suggest changes!
Accounts

Accounting Data

Data Organized by Cost Center

Accounts Attached to Cost Centers
Accounts – Account Properties

Includes:

Vendor Information
Linked Meter(s)
Assigned Rates
Custom Fields
Accounts – Module Menu

Includes:
- Settings
- Hierarchy
- Manage Options
- View Options
- List Options
Bills/Bill Processing

- Enter/Import Bills
- Create Bill Lists
- Share Bill Lists
- Manage Batches
Compare similar meters and buildings with default and customized groupings.
Vendors & Rates

Analyze spending by vendor or rate.
Includes:
- Settings
- Hierarchy
- List Options
- View Options
Over 350 reports help you analyze data from utility bills, setup information, interval data and Cost Avoidance.
Users can:

Configure and save reports

Share reports with others
  Anyone can update a shared report
  If the owner is made inactive the shared report is still available

Email a report to a user or group
How do you find a report?
Recent Reports
For quick access, your most recent reports are listed in this section, most recent report shown first.

Recommended Reports
These reports are selected by your administrator and placed in this group for easy access.
Search by report name, or description. Filter reports being shown by Object, Output File Type, Topic, Format, Other Attributes, or only ones with Charts.
Apply Report Filters

- **Recommended**
  - Billing Period
  - Account is Active
  - Bill is Void
  - Billing Period
  - Include Accruals
  - Topmost Place Name

- **Optional**
  - Topmost Place Name
  - Account is Active

**Data Displayed**
- includes Account Charges
- equals Active
- equals Void
- equals greater than or equal to July 2018
- equals Memphis ANG (Air Memphis) - PYKL

**Additional Filters**
- Actual
  - Yes
  - No
- Active
  - Inactive
- Void
  - Not Void

**Remove Filter**
Excel option is useful when you want to sort and manipulate the data within the report.
Save Report

Name: Summary by Commodity

Code: Report-04

Description:
Executive summary of Commodity use and cost across the database. Can also be filtered to provide Commodity use and cost for Buildings, Cost Centers or Place Types. Includes pie charts for energy use and cost as well as tabular summaries for each Commodity. Per area calculations are available when displaying Building or Place Type summaries. Actual, Calendarized, and Baseline data are also available for Commodity summaries.
Configure and save frequently used reports:

Select the report.

Configure the filters.

Select Save

Change the name or description, this is especially helpful when sharing the report with others.
Reports that have been configured, saved and shared with one, or several user groups. Certain user roles have permission to share.

Filters are modificable by the user.
Email options

Email Report

Report
Summary by Commodity - Report-04

Recipients

john.piercc@energycap.com × jeremy.mcbride@tn.gov ×

Emails will be sent from EnergyCAP Reports (no-reply@energycap.com)

Subject
REPORT: Summary by Commodity - Report-04

Message
Please see the attached report.

Attachment file type
PDF

Only send report if data is available

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Helpful reports
Executive Summary Reports

Search for "executive", or Filter Format to “Executive Summary”, to see a list of one page summary reports.

These reports often have a graph at the top with supporting details below.
Provides an executive summary of Commodity consumption and costs.

Displays pie charts and a table of results.
Energy Management Report Guide

14 recommended Energy Management reports and important filters
Energy Management Report Guide

Report-22 Monthly Building Manager Report

Recommended Use
An all-inclusive and comprehensive single page monthly report for building managers, showing use, cost, and performance vs. last year (or any prior base year).


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<table>
<thead>
<tr>
<th>Report Code</th>
<th>Report Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report-22</td>
<td>Monthly Building Manager Report</td>
</tr>
<tr>
<td>Report-10</td>
<td>Two Year Comparison</td>
</tr>
<tr>
<td>Report-04</td>
<td>Summary by Commodity</td>
</tr>
<tr>
<td>Report-13</td>
<td>Bill Analysis</td>
</tr>
<tr>
<td>Report-19</td>
<td>Monthly Utility Use and Cost Spreadsheet</td>
</tr>
<tr>
<td>Report-26</td>
<td>Use and Cost Summary</td>
</tr>
<tr>
<td>Report-23</td>
<td>Energy Conservation Program</td>
</tr>
<tr>
<td>Report-14</td>
<td>Cost Avoidance</td>
</tr>
<tr>
<td>Report-01</td>
<td>Monthly Trends Comparing Year-to-Year</td>
</tr>
<tr>
<td>Report-02</td>
<td>Ranking Report (by Building Cost/Area)</td>
</tr>
<tr>
<td>Report-02</td>
<td>Ranking Report (by Meter Unit Cost)</td>
</tr>
<tr>
<td>Report-21</td>
<td>Monthly Comparison</td>
</tr>
<tr>
<td>Report-06</td>
<td>Year-over-Year Comparison</td>
</tr>
<tr>
<td>Report-08</td>
<td>Monthly Trends – One Page per Year</td>
</tr>
</tbody>
</table>
Report Help

SSRS reports

SSRS reports are faster, more flexible, and provide enhanced reporting capabilities that include hyperlinks to EnergyCAP objects.

An Energy Management report guide is also available to help you know which report best suits your needs and provides helpful tips for filter settings.

Contents
- Report-01 Monthly Trends—Comparing Year-to-Year
- Report-02 Ranking Report
- Report-03 Setup Report for Accounts, Vendors, Cost Centers, Meters, Buildings
- Report-04 Summary by Commodity
- Report-05 Budget Report
- Report-06 Year-over-Year Comparison
- Report-08 Monthly Trends
- Report-09 Bill PDF
- Report-10 Year-over-Year Data Comparison
- Report-11 Excel Bill Transfer Format
- Report-12 Visual Bill Audit

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EnergyCAP Help for Reports:

https://helpcenter.energycap.com/#t=Reports%2FHelpful_Reports.htm
Create and customize

Can only edit content in My Dashboards, or My Maps

Maps plot buildings based on Latitude and Longitude, or the address

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Dashboards – Copy & Edit

Copy

Change Name

Unlock
Dashboards – Copy & Edit

Add/Move Widgets

Edit Filters

Edit System-Wide Energy Use Intensity

Title: Frozen Head SP Energy Use Intensity

Last N Years: equals 3
Topmost Place Name: equals Frozen Head State Park & Natural Reserve

Frozen Head SP Energy Use Intensity

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Dashboards – Lock & Use
### Dashboards Shared with Me

<table>
<thead>
<tr>
<th>Dashboard</th>
<th>Description</th>
<th>Created by</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEMO: Building Operations</td>
<td>Building and Meter performance metrics within your Topmost Place</td>
<td>Jeremy McBride</td>
</tr>
<tr>
<td>General Utility Bill Accounting</td>
<td>Bill Status</td>
<td>Ruby James</td>
</tr>
<tr>
<td>JRP Building Operations</td>
<td>Building and Meter performance metrics</td>
<td>Paul Rockey</td>
</tr>
<tr>
<td>Leased Properties</td>
<td>Ellington Complex Leased Properties</td>
<td>Dana Byrd</td>
</tr>
</tbody>
</table>

**Actions:**
- **Show**
- **Hide**
- **Copy**
EnergyCAP
GROUPS & BENCHMARKS
Access Groups and Benchmarks
Two Divisions of Groups

Building Groups, made up of buildings.

Meter Groups, made up of meters.
Group Types

**Manual Groups (gold)** – members are added, or removed, manually.

**Automatic Groups (purple)** – populated and maintained automatically using a comprehensive list of available filters.
Let EnergyCAP keep your groups up-to-date.

When combined with Custom Fields, the possibilities are endless

**EXAMPLES:**

- GL Subcode Groupings
- Similar Sized Buildings
- Geographical Regions
- ENERGY STAR Ratings
- Construction Types
- Similar HVAC Equipment
- Chargeback Meters
- Facility Age
Types of Benchmark Charts

High to Low

Low to High

Scatter Plot: Visually identify outliers

Details: Several columns of data for each group member, each column is sortable
The median Cost/Day is $774.42/day.
Filters

Data Type – Actual vs Calendarized
Billing Period Range
Commodity Displayed
Show Hidden Buildings/Meters
Show Buildings/Meters with Zero Averages
Occasionally you may want to hide a Group Member from the benchmarks and the calculations. A hidden member is not removed from the group. Its data is simply not displayed or used in calculations for the associated benchmarking charts.

1. Select the hide icon to exclude the member.
2. The benchmark calculations and median update automatically
3. To include the member again, on the Buildings, or Meters, tab, click the Show icon.
### Last 12 Months / Electric only (Actual)

<table>
<thead>
<tr>
<th>Building</th>
<th>Cost/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>#MFM_NWCX</td>
<td>$3,590.45</td>
</tr>
<tr>
<td>#MFM_TCIX</td>
<td>$2,990.24</td>
</tr>
<tr>
<td>#MFM_NEOX</td>
<td>$2,564.77</td>
</tr>
<tr>
<td>James K Polk Building</td>
<td>$2,130.23</td>
</tr>
<tr>
<td>#MFM_DSNF</td>
<td>$2,132.11</td>
</tr>
<tr>
<td>#MFM_RMST</td>
<td>$1,704.53</td>
</tr>
<tr>
<td>Willard R Snodgrass Tr Tower</td>
<td>$1,538.16</td>
</tr>
</tbody>
</table>

### Building Groups > EmPower TN Projects > EmPower Projects FY2016

- 295 Summit Ave [76000006]
- 5325 Haley Road [79000014]
- Memphis Complex [MEMPHIS]
- Jackson Complex [JACKSON]
- #MFM_DSNF [MFM_DSNF]
- DSNF [1921]
- R.S. Gass Complex [R_S_GASS]
Benchmark Views

Meter Benchmark Views
- Cost/Day Rank
- Cost/Unit Rank
- Use/Day Rank

Place Benchmark Views
- Cost/Area Rank
- Use/Area Rank
- Demand/Area Rank
- Cost/Day Rank
- Use/Day Rank
Filter for Dashboards

<table>
<thead>
<tr>
<th>Dashboards</th>
<th>SAMPLE: Energy Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Dashboards</td>
<td>SAMPLE: Building Energy Summary</td>
</tr>
<tr>
<td>My Building Operations</td>
<td>SAMPLE: Building Operations</td>
</tr>
<tr>
<td>Sample Dashboard</td>
<td>SAMPLE: Energy Management</td>
</tr>
</tbody>
</table>

### Top 20 Building Use/Area: 1 Year

<table>
<thead>
<tr>
<th>Building</th>
<th>Use/Area</th>
<th>1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage Plant</td>
<td>4.414 MMBtu/SqFt</td>
<td></td>
</tr>
<tr>
<td>Oneida Weather Station</td>
<td>3.820 MMBtu/SqFt</td>
<td></td>
</tr>
<tr>
<td>BE Maint Shop/CE (320)</td>
<td>3.223 MMBtu/SqFt</td>
<td></td>
</tr>
<tr>
<td>47059/0993 Lewisburg Plant Mat Storage</td>
<td>2.263 MMBtu/SqFt</td>
<td></td>
</tr>
</tbody>
</table>

### Top 20 Bldg Cost/Area: 1 Year

<table>
<thead>
<tr>
<th>Building</th>
<th>Bldg Use/Area</th>
<th>1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bldg Water Supply (745)</td>
<td>$203.03/SqFt</td>
<td></td>
</tr>
<tr>
<td>Sewage Plant</td>
<td>$149.65/SqFt</td>
<td></td>
</tr>
<tr>
<td>BE Maint Shop/CE (320)</td>
<td>$97.12/SqFt</td>
<td></td>
</tr>
<tr>
<td>Golf Course Pump House</td>
<td>$75.80/SqFt</td>
<td></td>
</tr>
</tbody>
</table>
AN13 through AN19 are reports based off the charts seen in Groups & Benchmarks.

New SSRS reports are also built to use the Group filter.

When running the report, be sure to use the respective Building or Meter Group name as a filter in the reports.
A little-known feature of EnergyCAP is the ability to change the view in Buildings & Meters to display meters from a specific Meter Group.

This allows you to quickly compare the same chart for multiple meters.
### Total Cost Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>2019</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>2020</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>2021</td>
<td>$1,000.00</td>
</tr>
</tbody>
</table>

### Daily Cost

- **Previous Year (Dec 2018-Nov 2019):** $4,836
- **Current Year (Dec 2019-Nov 2020):** $4,464

- **Save:** 7.7%
Calendarized Monthly to view recent trends
Energy Projects - Overview

Summary data of projects that impact energy use

Not intended to be comprehensive project management tool

Results in an indicator on the EUI Chart for completed projects

Information is subtotaled at the Organization Level

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Energy Projects - Add

Requires a unique Name

Requires a Short name and Type

Enter other information, as available

Energy Projects with Completion Dates are indicated on the EUI Charts
Energy Projects – EUI Charts

Energy Use Intensity

- Monthly Chilled Water
- Monthly Steam
- Monthly Natural Gas
- Monthly Electric
- Annualized EUI Trend
- Energy Projects

($15,000.00) Tennessee Tower
Lighting
Completed: Oct 2017

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Thank you!

John Pierce
Assistant VP, Project Management Office
ENERGYCAP