UESC Market Potential and FEMP Data Resources

New Utility Toolkit

June 2021
Agenda

• Market Boundaries
• Market Potential
• Publicly available data
• Data Management & Reporting
• FEMP Data Resource Examples
UESC Market Boundaries

• Federal customers within a utility service territory are eligible for UESC contracts
• UESC projects are Life Cycle Cost effective
• UESC terms may not exceed 25 years
• Market potential for UESCs is the potential for energy conservation measures (ECMs), renewable energy projects, and associated energy services at federal facilities
Where does the FEMP data set come from?

• EISA 432 requires federal agencies to identify “covered facilities” that constitute at least 75% of their total energy use.

• A comprehensive evaluation for each covered facility must be completed at least once every 4 years.

• Potential life-cycle cost-effective ECMs and implementation costs are identified during evaluations and reported to the EISA 432 Compliance Tracking System (CTS).

• Publicly Available Data from CTS is accessible:
  – Agency aggregates, representing all reported data subject to the EISA 432 requirements.
  – Facility-level detailed data that excludes information for facilities that have requested exemption from public disclosure for national-security purposes.

Key Resource

EISA Federal Covered Facility Management and Benchmarking Data
EISA 432 Evaluations – audit component

- EISA 432 comprehensive evaluations require a format based on ESPC preliminary assessment level audits
- A template for ESPC preliminary assessment reports can be found here in the link below: https://www.energy.gov/eere/femp/downloads/2008-doe-idiq-espc-preliminary-assessment-template
UESC Market Potential

Several factors drive the market potential for ECMs and are supported by federal goals & mandates:

- Energy efficiency
- Greenhouse gas reduction
- High performance sustainable buildings
- Resilience
- Renewable energy
- Water & waste management
- Performance contracting (Energy Act of 2020)
- Administration policy
How to define UESC market potential with FEMP data

Target Market

FEMP Data Resources

- Facility Location
- Building Type
- Date of Last Project Awarded
- Project Funding Type
- Technology Category
- Potential Annual Energy Cost Savings
- Potential Implementation Dollars
- Date of Last Evaluation

Demand
Target Market Characteristics – (CTS Defined Fields)

• Facility Location
  – Filter by facility name, city, state, and zip code as applicable to utility service territory
  – Some facilities (e.g. DOD) are exempt from facility level detail such as location

• Building Type
  – Use building type to understand make-up of locations, campuses, or geographic areas

• Date of Last Project Awarded
  – Can be associated with the Date of Last Evaluation to determine whether ECMs identified in the evaluation may have already been implemented

• Project Funding Type
  – Direct, ESPC, or UESC funding can indicate whether the location is familiar with performance contracting and the extent the funding type is utilized
Demand Characteristics – (CTS Defined Fields)

• **Date of Last Evaluation**
  – Time-stamp indicating how recently the evaluation (and associated ECM details) were updated

• **Potential Implementation Dollars**
  – The estimated investment of direct funding to implement the ECMs identified in the evaluation

• **Potential Annual Energy Cost Savings**
  – The total estimated energy-related savings associated with the last evaluation - aggregate of all ECMs identified and all savings types (gas, electric, water, O&M)

• **Technology Category**
  – Type and count of ECMs identified in the evaluation - *not indicative* of the magnitude of energy and cost savings for each category type in the facility total
What data can be relevant for UESC programs?

Market Potential
- Potential Energy Savings
- Potential Implementation Cost of Measures
- Existing Project Funding Type (ESPC, UESC, Direct)

Customer Needs
- Potential ECMs
- EISA Evaluations
- Facility Benchmarks

UESC Program
- Project Execution
- Preliminary Assessments
- Tracked projects
Data Visualizations for Federal and Agency Aggregates

Office of Federal Sustainability Website
• https://www.sustainability.gov/performance.html

• Key Feature: Visualizations

• Recommended reports:
  – Federal Government-Wide Investment in Facility Efficiency Improvements
  – Agency Progress Data, Annual Sustainability Report and Implementation Plans, and OMB Scorecards

• Facility Energy Use
• Water Use
• Renewable Electricity
• Facility Efficiency Investments

• High Performance Sustainable Buildings
• Fleet Petroleum and Alternative Fuels
• Greenhouse Gas Emissions
Energy Use, Cost, and Other Metric Reporting

Comprehensive Annual Energy Data and Sustainability Performance Website


• Key Feature: pre-configured table reports

• Recommended reports:
  - G-1 Investment in Energy Efficiency and Renewable Energy
  - G-2 Agency Investment in Efficiency and Conservation Projects by Funding Type
  - A-8 Site Delivered Energy Use and Costs by End Use and Energy Type by Fiscal Year
Facility Level Detail for Ad-Hoc Analysis

**FEMP EISA 432 Data Warehouse**


- **Key Feature:** Raw data set

- **User configurable excel pivot tables:**
  - Facility Annual Detail
  - Comprehensive Evaluation Detail
  - Benchmarked Building Detail
  - Project and Follow-up Detail
Office of Federal Sustainability Website (example)

FEMP Data Resource
https://www.sustainability.gov/government_data.html#investment
### Comprehensive Annual Energy Data and Sustainability Performance Website (example)

Agency level detail table reports via excel export

**FEMP Data Resource**

FEMP EISA 432 Data Warehouse (example)

CTS Data Warehouse provides facility level detail in excel

(Exempt facility information is excluded from publicly facing the Data Warehouse)

FEMP Data Resource

https://ctsedwweb.ee.doe.gov/CTSDDataAnalysis/ComplianceOverview.aspx
Using CTS Data for Market Potential

- CTS data can define trends in your service territory
- The following slides show examples of market potential analysis using CTS data
### Agency Data Example – Building Types

- **Department of Veterans Affairs**

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Annual Site Energy Use - MBtu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital (General Medical &amp; Surgical)</td>
<td>54,585,339</td>
</tr>
<tr>
<td>Hospital (General Medical and Surgical)</td>
<td>19,291,422</td>
</tr>
<tr>
<td>Medical Office</td>
<td>1,627,528</td>
</tr>
<tr>
<td>Other</td>
<td>36,634</td>
</tr>
<tr>
<td>Residential Care Facility</td>
<td>325,632</td>
</tr>
<tr>
<td>Urgent Care/Clinic/Other Outpatient</td>
<td>478,649</td>
</tr>
</tbody>
</table>

- **Department of Energy**

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Annual Site Energy Use - MBtu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>123,885,399</td>
</tr>
<tr>
<td>Office</td>
<td>9,481,997</td>
</tr>
<tr>
<td>Laboratory</td>
<td>3,293,242</td>
</tr>
<tr>
<td>Data Center</td>
<td>2,840,647</td>
</tr>
<tr>
<td>Other - Technology/Science</td>
<td>1,459,520</td>
</tr>
<tr>
<td>Other - (48 remaining types combined)</td>
<td>3,398,953</td>
</tr>
</tbody>
</table>

- **General Services Administration**

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Annual Site Energy Use - MBtu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>57,419,815</td>
</tr>
<tr>
<td>Courthouse</td>
<td>10,475,030</td>
</tr>
<tr>
<td>Other</td>
<td>1,627,191</td>
</tr>
<tr>
<td>Data Center</td>
<td>531,892</td>
</tr>
<tr>
<td>Non-Refrigerated Warehouse</td>
<td>387,105</td>
</tr>
<tr>
<td>Other - (6 remaining types combined)</td>
<td>556,250</td>
</tr>
</tbody>
</table>

- Building Types can be filtered by utility service territory
- Emphasize project experience based on agency building type
Agency Data Example – VA Potential ECMs

- EISA 432 comprehensive evaluations provide a count of ECMs by category
- Individual ECMs are not directly associated with magnitude of potential energy savings, implementation cost, or cost savings
- Most of the VA facilities are hospitals
Agency Data Example – DOE Potential ECMs

Different agencies have different potential ECMs based on their facility operations.

For this example, no single ECM technology category dominates the potential opportunities for the DOE.
Agency Data Example – GSA Potential ECMs

The GSA owns and leases over 9,600 buildings (https://www.gsa.gov/real-estate/gsa-properties)

Building Envelope Modifications is the most frequent potential ECM for the GSA

Building Envelope Modifications reflect the most prominent building type in the GSA which is offices, but also may be due to the GSA having already implemented the more cost effective ECMs such as lighting
• The date of the last evaluation will indicate how current the data is for each facility
• Facilities can be filtered by zip code, city, state, or address
• Consider offering your customer a UESC Preliminary Assessment that conforms with the required EISA Evaluation if they are due for a renewed evaluation
Most recent facility overview was updated in 2016 and date of last project awarded was in 2014

The facility is due to provide another cycle of the EISA 432 Evaluation reporting

Last project awarded in 2014 was a $77M ESPC

The facility is familiar with performance contracting and may be open to considering a UESC

A preliminary assessment could be offered to cover the next required EISA Evaluation

<table>
<thead>
<tr>
<th>Most Recent Facility Overview</th>
<th>2016-06-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Annual Energy Cost Savings - Dollars</td>
<td>$50,477</td>
</tr>
<tr>
<td>Potential Annual Energy Savings - MBtu</td>
<td>545,305</td>
</tr>
<tr>
<td>Potential Annual Water Cost Savings - Dollars</td>
<td>$174,300</td>
</tr>
<tr>
<td>Potential Annual Water Savings - Thou Gallons</td>
<td>131,951</td>
</tr>
<tr>
<td>Potential ECM - Advanced Metering Systems</td>
<td>1</td>
</tr>
<tr>
<td>Potential ECM - Building Envelope Modifications</td>
<td>3</td>
</tr>
<tr>
<td>Potential ECM - Commissioning Measures</td>
<td>1</td>
</tr>
<tr>
<td>Potential ECM - HVAC</td>
<td>2</td>
</tr>
<tr>
<td>Potential ECM - Lighting Improvements</td>
<td>1</td>
</tr>
<tr>
<td>Potential ECM - Other</td>
<td>3</td>
</tr>
<tr>
<td>Potential ECM - Water And Sewer Conservation Systems</td>
<td>5</td>
</tr>
<tr>
<td>Potential Implementation Cost Of Measures - Dollars</td>
<td>$2,633,889</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of Last Project Awarded</th>
<th>2014-01-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Savings Performance Contract Funding - Dollars</td>
<td>$77,225,284</td>
</tr>
<tr>
<td>Other Funding - Dollars</td>
<td>$334,000</td>
</tr>
<tr>
<td>Total Project Implementation Cost - Dollars</td>
<td>$77,559,284</td>
</tr>
<tr>
<td>Utility Energy Service Contract Funding - Dollars</td>
<td>0</td>
</tr>
<tr>
<td>Direct Centralized Capital Funding - Dollars</td>
<td>0</td>
</tr>
</tbody>
</table>
Final thoughts

• Publicly available data can be accessed and used to assess market potential for ECMs

• Funding type will indicate whether performance contracting has been used in past ECM investments by agency, service territory, or location

• Depending on your UESC market, you can view broad trends by geography and agency, or assess individual facility details through the data warehouse

• For facilities exempt from public CTS reporting (such as DOD), agency level data can be used characterize the market until site level detail is provided by customers