

Charting a Course to Energy Independence

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EISA 2007 Section 432 Implementation Benchmarking

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The Federal Energy Management Program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.



Agenda

- EISA Requirements
- Benchmarking Requirements
- Benchmarking Workgroup
- Benchmarking Guidance
- Designated System
- Other Resources
- Benefits
- Next Steps



EISA Requirements

- Federal agencies must designate covered facilities that constitute at least 75 percent of facility energy use at each agency
- Federal agencies must also designate energy managers for the covered facilities



EISA Requirements

- The Energy Independence and Security Act of 2007 requires that 25% of “covered” facilities receive a comprehensive energy and water evaluation each year
- An evaluation for each covered facility should be completed once every four years



Key Questions

- How does a building's energy intensity compare to other similar buildings nationwide?
- Which buildings should we evaluate first?
- How do we continue to monitor building performance even after project implementation?



EISA Benchmarking Requirements

- EISA requires designated agency energy managers to enter energy use data for each metered building that is (or is a part of) a covered facility into a building energy use benchmarking system selected by the Secretary of Energy
- Energy managers must post and update the benchmarking data each year in the web-based tracking system developed by the Secretary of Energy



Benchmarking Working Group

- A benchmarking working group was formed and began meeting in December 2008 to discuss:
 - EISA requirement for benchmarking
 - Existing benchmarking tools & benchmarking resources
 - Integration with Water & Energy Evaluations, M&V and Web-Based Tracking
 - Deadlines and schedule
- Draft guidance was developed in January 2009
- Final draft guidance was submitted for internal review at DOE and OMB in Spring 2009



Benchmarking Guidance

- Highlights the Requirements
- Key Definitions
- Data Input/Output Requirements
- Designated System
- Other Benchmarking Resources
- Integration with Other EISA Section 432 Requirements



Input Requirements

- Building Characteristics
 - Type of building or facility
 - Building or facility location
 - Gross floor area (square feet) in the building categorized by major space type
- Energy Consumption
 - Electricity
 - Natural gas, steam, etc.



Data Output

- Building Characteristics
 - Building or facility name/identifier
 - Type of building or facility
 - Building or facility location
 - Gross floor area (square feet) in the building categorized by major space type
- Name of benchmarking tool used
- Benchmarking results
- Output will link to the web-based tracking system



Data Output (cont'd)

- Benchmarking results
 - Indicate whether the results are representative of total energy consumed
 - Annual site/source energy consumption (Btu) for the preceding 12 months
 - Annual site/source energy use intensity (Btu/sf/year)
- Annual GHG emissions
- Benchmarking rating/score (if available)
- Water use intensity



Benefits

- Understand facility energy performance
- Preliminary audits
- Prioritize facilities for potential opportunities
- Allows continuous performance monitoring (monthly/annual assessments)



Designated System

- ENERGY STAR Portfolio Manager
 - Compares the energy performance of a building to a statistically representative data from CBECS
 - Provides an energy performance rating for several commercial building types that represent over 60% of the U.S. commercial floor space
 - Designed for benchmarking and is capable of storing energy consumption data
 - Provides a web-based platform and is publicly accessible
 - Allows all commercial and institutional buildings to track energy consumption over time



ENERGY STAR Portfolio Manager

- Benchmarks for comparison
 - Rating can be compared to similar buildings nationwide on a 1-100 scale
- Normalizes building energy consumption
 - Accounts for weather, operating hours, occupant density, & plug load

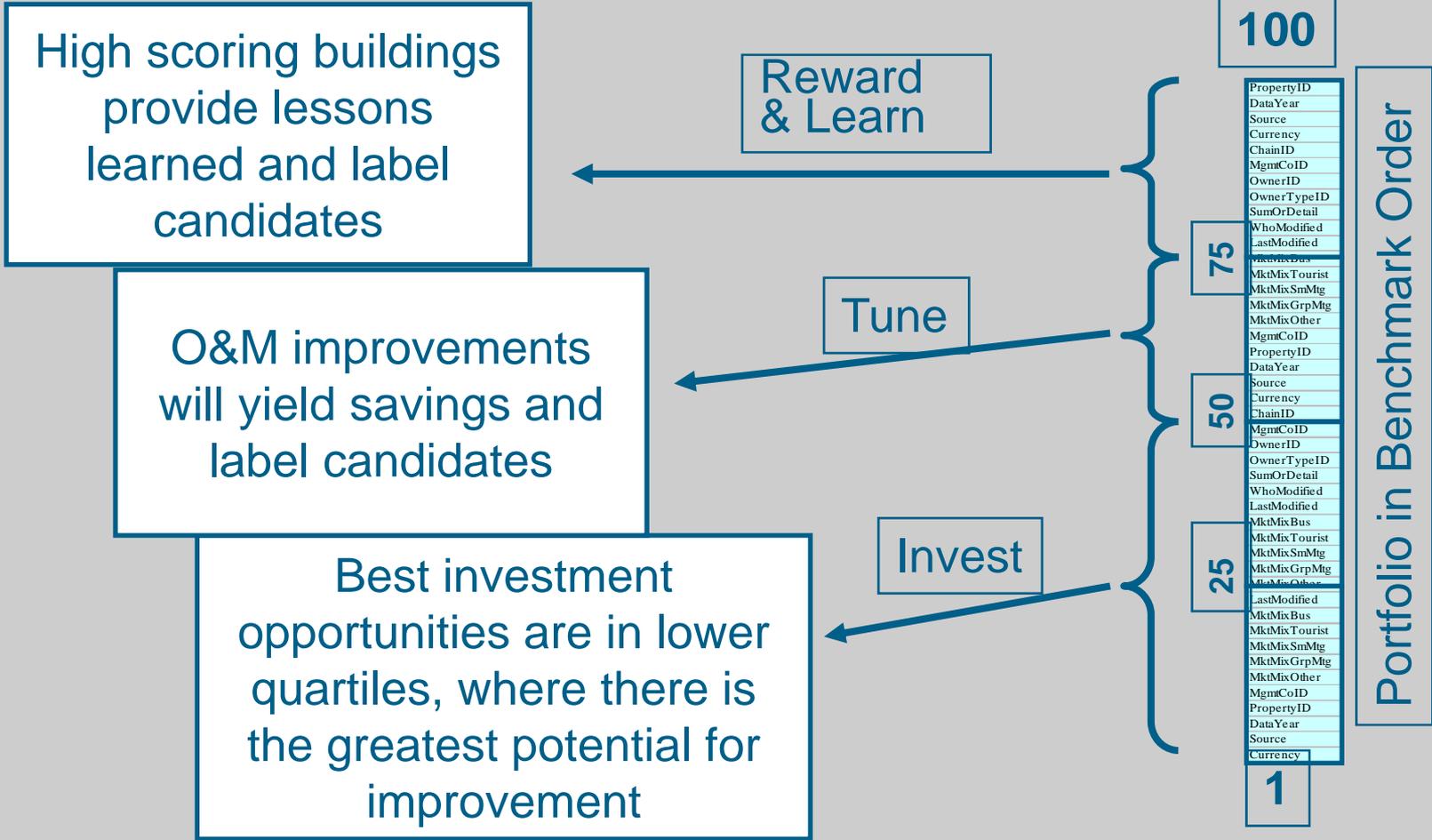


ENERGY STAR Portfolio Manager

- Establish portfolio baseline
- Set/check performance goals over time
- Prioritize facilities for potential opportunities
- Compare and recognize performance



Prioritize Facilities





Building Types

- Bank/Financial Institutions
- Courthouses
- Hospitals
- Hotels
- K-12 Schools
- Medical Offices
- Offices
- Retail Stores
- Supermarkets
- Warehouses
- Municipal Wastewater Treatment Plants
- Residence Halls/Dormitories
- Other





ENERGY STAR Portfolio Manager

- Over 11.5 billion square feet was rated in 2008
- Approximately 60 percent of this space is being re-benchmarked



Veterans Affairs – Case Study

- Assesses energy performance using ENERGY STAR Portfolio Manager
- Over 22 Veterans Affairs facilities have earned the ENERGY STAR label
- **Veterans Affairs Regional Office - Atlanta**
Earned the ENERGY STAR Label every year since 2004





Other Benchmarking Resources

- Labs 21 Benchmarking Tool
- Data Center Energy Profiler (DC Pro)
- ASHRAE Handbook
- ENERGY STAR Target Finder



Labs 21 Tool

- An online software tool designed to compare the performance of laboratory buildings and identify potential energy cost savings opportunities
- Contains energy use information from more than 170 laboratory facilities



DC Pro

- An online software tool designed to benchmark energy used by data centers and identify potential cost savings opportunities
- To help identify how energy is being purchased and consumed by data center(s)



ENERGY STAR Target Finder

- EPA's Target Finder helps set aggressive, energy targets and rate a building design's estimated energy use
- The tool can also be used to achieve the Designed to Earn the ENERGY STAR designation



2007 ASHRAE Handbook

- HVAC Applications
 - Building Operations and Management
 - Chapter 35 “Energy Use and Management”
 - Provides information regarding energy management in buildings, analyzing energy data, and auditing
 - Provides energy use indices for several building types



Next Steps

- Identify covered facilities to be benchmarked
- Benchmark all sources of energy that are currently metered
- Analyze/Prioritize benchmarked facilities
- Implement conservation measures
- Re-benchmark to check performance



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