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EISA Section 432 Facility Management & Web-Based Tracking

Chris Tremper

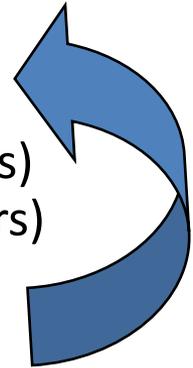
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Agenda

- EISA Facility Energy Management Approach
 - Project management framework
 - Facility-level performance monitoring
- Government-wide facility evaluation findings
- Path forward for:
 - Implemented project tracking
 - Benchmarking
- Web-Based EISA Compliance Tracking System (CTS)

EISA's Framework for Facility Management

- Agencies must identify “**covered facilities**” that constitute at least 75% of energy use.
- Each facility must have a designated **energy manager** responsible for:
 - **Benchmarking** metered buildings
 - Completing **comprehensive energy/water evaluations** (audits) (approx. 25% of facilities each year; each facility every 4 years)
 - **Implementing identified ECMs**; (bundling permitted)
 - **Following up** on implemented ECMs
- **Web-based tracking system** to certify compliance; including each facility's potential measures, estimated cost and savings of measures.
 - Agencies will report information in the compliance tracking system
 - Reports will be available to Congress, industry, and the public
 - Some specific data exempted from disclosure for national security purposes.



Overall Status: EISA 432 Implementation

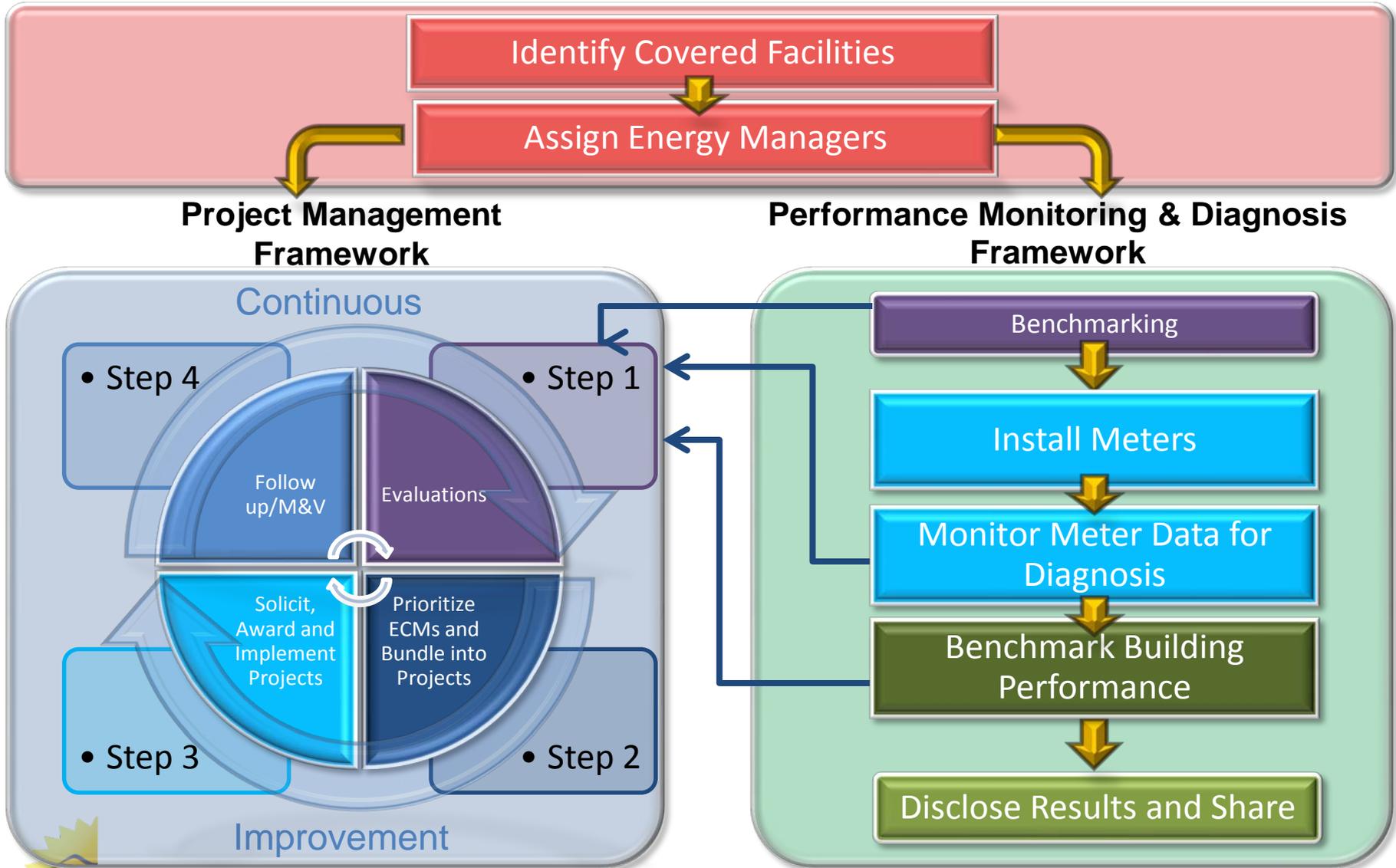
- Web-based tracking system deployed for initial use
 - Pre-populated with data from Jan & Jun 2009 agency reporting
 - Agency technical working group meetings bi-weekly
 - Initial deployment for agency use: July 2010
 - Continue additional module development through end of year
- Evaluation (Audits/Commissioning) Findings
 - Potential ECMs identified; cost and savings, Sq Ft audited
 - 2009 and 2010 agency findings reported and uploaded
- Overarching guidance development and continued system enhancements (through summer/fall)
 - Compliance Metrics vs. Progress Metrics
 - *Implemented* project tracking at covered facilities (guidance/CTS module)
 - Project follow-up, M&V for persistence of savings (guidance/CTS module)
 - Link to benchmarking systems/rating for appropriate buildings
 - Define and deploy public face of Web site

DOE Guidance, OMB Role & Financing Authority

- DOE Guidance/Decisions:
 - Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities:
www1.eere.energy.gov/femp/pdfs/eisa_s432_guidelines.pdf
 - Guidelines on designating covered facilities, assigning energy managers
 - Requirements for comprehensive evaluations
 - Interim reporting guidance for evaluation findings
 - Building Energy Use Benchmarking Guidance:
http://www1.eere.energy.gov/femp/pdfs/eisa432_guidance.pdf
 - Guidelines for project implementation and follow-up, Web-based tracking,
(under development)
- OMB scorecards to incorporate requirements of Section 432
- Authorizes agencies to use appropriations, private financing, or a combination to comply with its requirements
 - ESPCs, UESCs for evaluations/project implementation
 - Contracted resource efficiency managers

Overall EISA Facility Management Approach

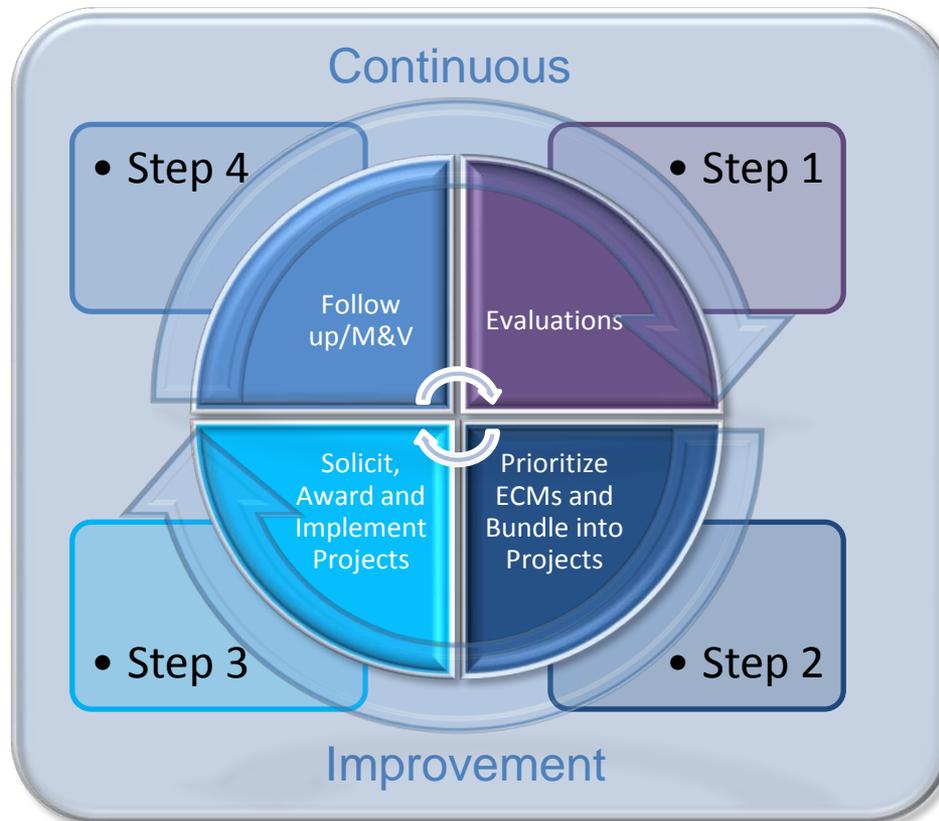
BASIC STEPS FOR EISA PROJECT MANAGEMENT AND PERFORMANCE MONITORING



Project Management Framework

Identification, implementation, and follow-up of facility energy and water efficiency and conservation (ECM) investment.

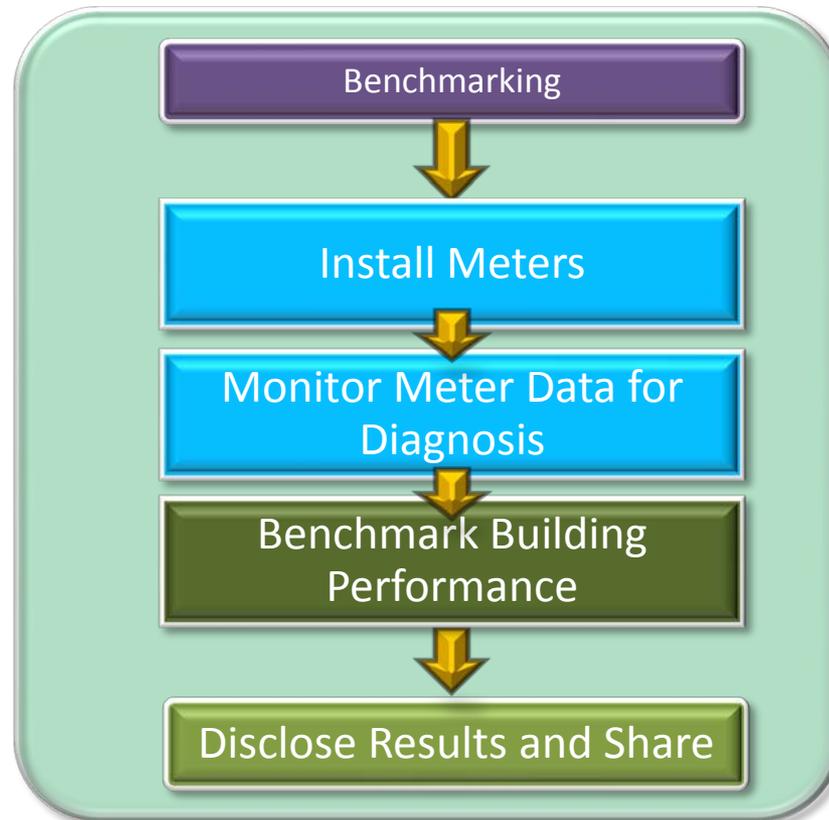
Project Management Framework



Performance Monitoring

Ongoing performance monitoring and disclosure of results at the facility and building-level, supported by metering and benchmarking of buildings.

Performance Monitoring & Diagnosis Framework



Facility Energy Managers

- Responsible for ensuring compliance by the facility, may include:
 - contractor of a facility,
 - part-time employee of a facility, and
 - individual who is responsible for multiple facilities
- Must meet the definition of “trained energy manager” from EPACK 1992
- Agency may determine own limits of responsibility of facility energy manager
 - *Example from the U.S. Army, Energy Regulation 420-1, Chapter 23: “1 manager/5 million square feet of space”*

Role of Agency HQ Energy Coordinators

- Identifying the covered facility inventory,
- Ensuring that each covered facility has a designated facility energy manager,
- Maintaining the agency's internal list of facility energy managers, and
- Prioritizing and managing evaluations for the covered facility portfolio over the four-year period.

Covered Facilities

- “Facility” means any building, installation, structure, or other property owned or operated by, or constructed or manufactured and leased to, the Federal Government. This includes--
 - A group of facilities at a single location or multiple locations managed as an integrated operation; and
 - Contractor-operated facilities owned by the Federal Government.

Designating Covered Facilities

- Facilities that constitute at least 75 percent of *all* facility energy use at each agency
 - Goal-subject and excluded facilities (separate definition for NECPA energy intensity reduction goal)
- Rank facilities with greatest energy use in descending order until 75% target is reached
- Include as many facilities as can be managed since 75 percent of facility energy use is the *minimum* requirement

Comprehensive Energy and Water Evaluations

- Evaluations have two components:
 - Retro/re-commissioning assessment
 - Energy and water audit to identify potential projects
 - ECM categories
 - Est. implementation cost
 - Annual energy/water savings, cost savings
- Evaluate each covered facility within four years
 - “approximately” 25% per year
- First set of evaluation findings were due: June 16, 2009
 - Recently evaluated facilities (previous two calendar years) were counted in the first set
- Second round of evaluation findings submitted June 2010

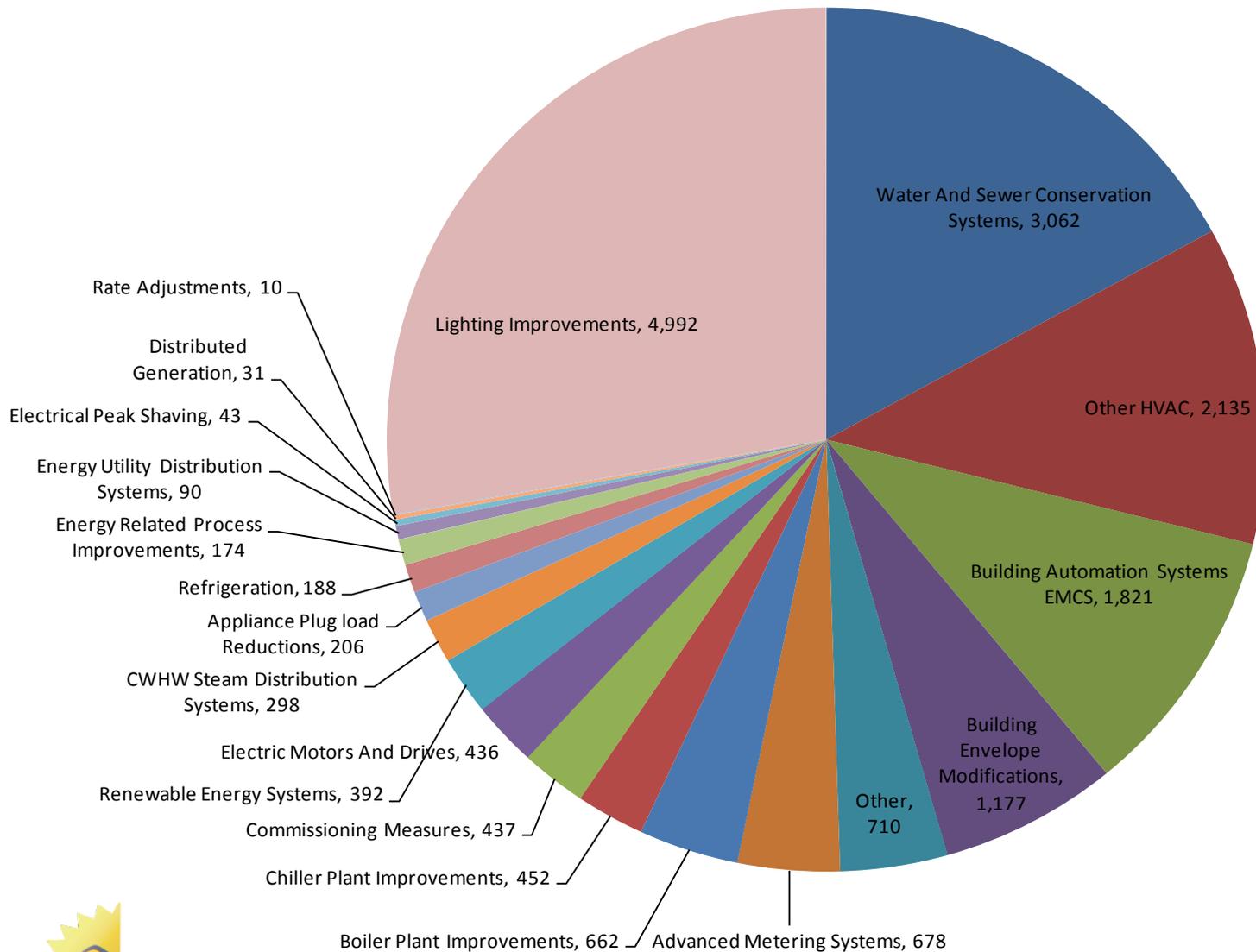
Covered Facilities Identified (July 2010)

- Number of covered facilities: **4,110**
 - Many are multi-building installations
- Energy use of designated covered facilities
 - **321 trillion Btu**
 - 83% of facility energy use (Target: 75%)
- Square footage of designated covered facilities
 - **2.8 billion square feet**
 - 88% of facility square footage (total 3.2 billion)
- Energy intensity of covered facilities
 - **115,000 Btu/square foot**

Identified Project Investment Potential/Benefits

- Preliminary findings of comprehensive evaluations conducted by agencies to-date:
 - Number covered facilities evaluated to-date: 1,929
 - 1.064 billion Ft² evaluated
 - 38% of “covered” 2.8 billion Ft²
 - 33% of total 3.2 billion Ft²
 - \$3.26 billion in *potential* project investment identified
 - *Potential* annual energy savings: 11.5 trillion Btu
 - *Potential* annual water savings: 2.1 billion gallons
- Extrapolating for total Gov’t building inventory:
 - \$9.8 billion in *potential* investment opportunity (energy and water)
 - 35 trillion Btu *potential* annual energy savings (10% reduction)
 - 6.3 billion gallons annual water savings (4% reduction)

Mix of 17,994 Identified *Potential* ECMs



June 2010 *Compliance* and *Progress* Metrics

- Covered Facility Threshold
 - Facilities which comprise 75% of agency's total facility energy use
- Facility Energy Manager Assigned
 - 100% of covered facilities must have a designated energy manager
- Evaluation of Each Covered Facility Every Four Years
 - Not a *compliance* metric until 2012; annual *progress* metrics:
 - Percent of **Number** of Covered Facilities evaluated
 - Percent of Covered Facilities **Square Footage** evaluated
 - Percent of Facilities evaluated in terms of Covered Facility **Energy Use**

Covered Facilities	# of Covered Facilities	Gross SQ FT (Million)	Energy Use (Trillion BTU)
Total	4,100	2,788	321
Evaluated	1,929	1,064	111
Percent Evaluated	46.9%	38.2%	34.6%

Project Implementation/Follow-up: Statute Review

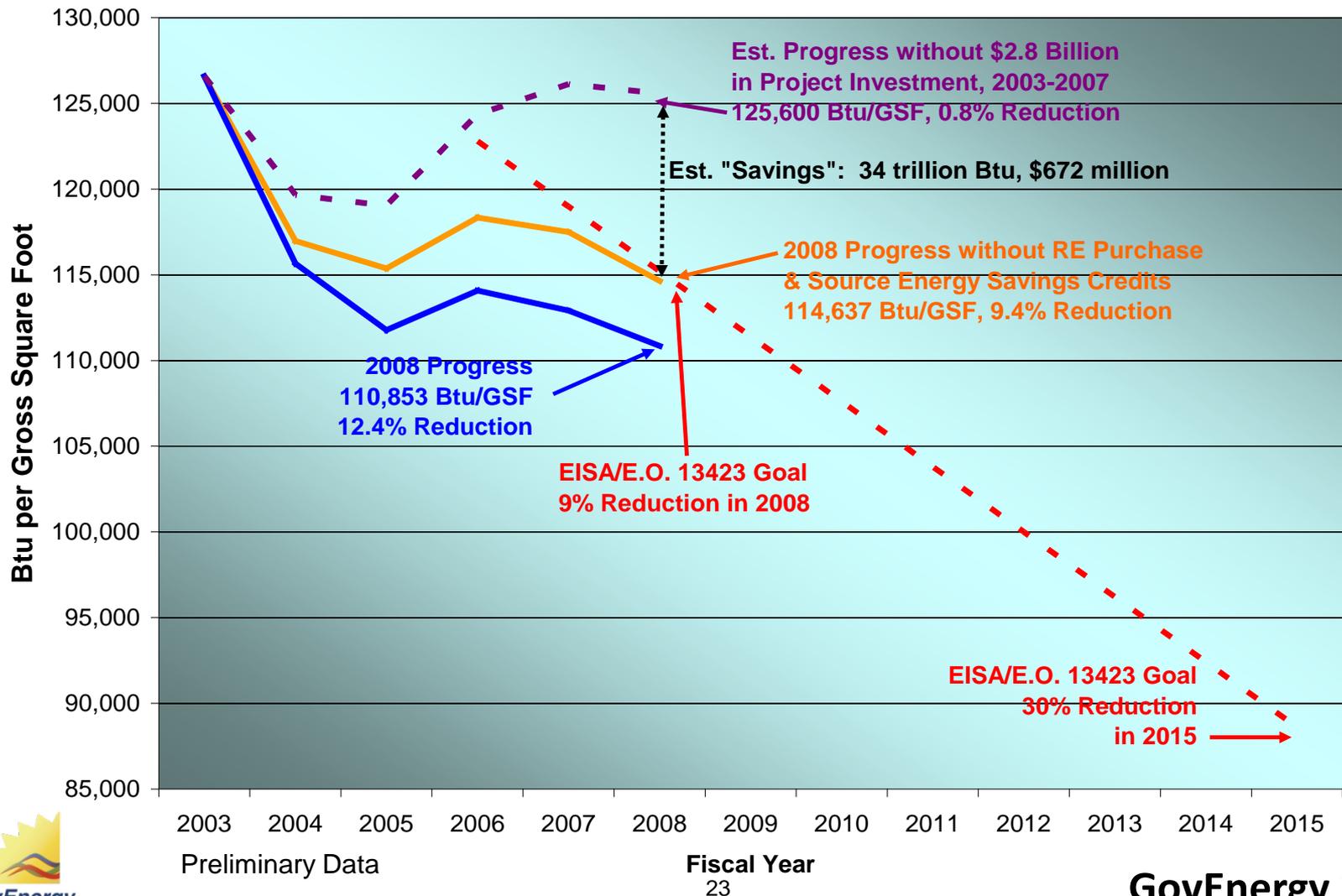
EISA 432 Statute:

- (4) IMPLEMENTATION OF IDENTIFIED ENERGY AND WATER EFFICIENCY MEASURES - Not later than 2 years after the completion of each evaluation under paragraph (3), each energy manager may--
- (A) implement any energy- or water-saving measure that the Federal agency identified in the evaluation conducted under paragraph (3) that is life cycle cost-effective; and
 - (B) bundle individual measures of varying paybacks together into combined projects.
- (5) FOLLOW-UP ON IMPLEMENTED MEASURES - For each measure implemented under paragraph (4), each energy manager shall ensure that--
- (A) equipment, including building and equipment controls, is fully commissioned at acceptance to be operating at design specifications;
 - (B) a plan for appropriate operations, maintenance, and repair of the equipment is in place at acceptance and is followed;
 - (C) equipment and system performance is measured during its entire life to ensure proper operations, maintenance, and repair; and
 - (D) energy and water savings are measured and verified.
- (6) **GUIDELINES-**
- (A) **IN GENERAL-** The Secretary shall issue guidelines and necessary criteria that each Federal agency shall follow for implementation of--
 - (i) paragraphs (2) and (3) not later than 180 days after the date of enactment of this subsection; and
 - (ii) paragraphs (4) and (5) not later than 1 year after the date of enactment of this subsection.
 - (B) **RELATIONSHIP TO FUNDING SOURCE-** The guidelines issued by the Secretary under subparagraph (A) shall be appropriate and uniform for measures funded with each type of funding made available under paragraph (10), but may distinguish between different types of measures project size, and other criteria the Secretary determines are relevant.

Reporting on Implemented Projects and Follow-Up

- Subsequent Reporting of Project Data via Web-based Compliance Tracking System
 - Status of Project
 - *(Identified, Approved, Awarded, Operational, Verified, and Canceled)*
 - ECMs deployed
 - Project-level data required, ECM-level optional
 - Project Funding Sources
 - *(Budget (Request), ESPC, EUL, PPA, Program, UESC, and/or Unfunded)*
 - Follow-up on Implemented Projects
 - M&V required as part of required 4-year re-evaluations/re-commissioning
 - Projected Savings versus Actual Savings (M&V)

Tracking *Implemented* Projects to Reveal "Savings"



Benchmarking: DOE Recommendations/Guidance

- Statute requires metered buildings that are designated (or part of) covered facilities to be benchmarked.
 - Compare annual performance with a baseline over time and/or with other buildings of similar type
- Guidance selects ENERGY STAR Portfolio Manager as EISA Section 432 benchmarking tool
 - Facility types without a PM rating may use alternatives
 - Agencies can request from DOE permission to use other tools
- Guidance published June 23, 2010:
 - http://www1.eere.energy.gov/femp/pdfs/eisa432_guidance.pdf

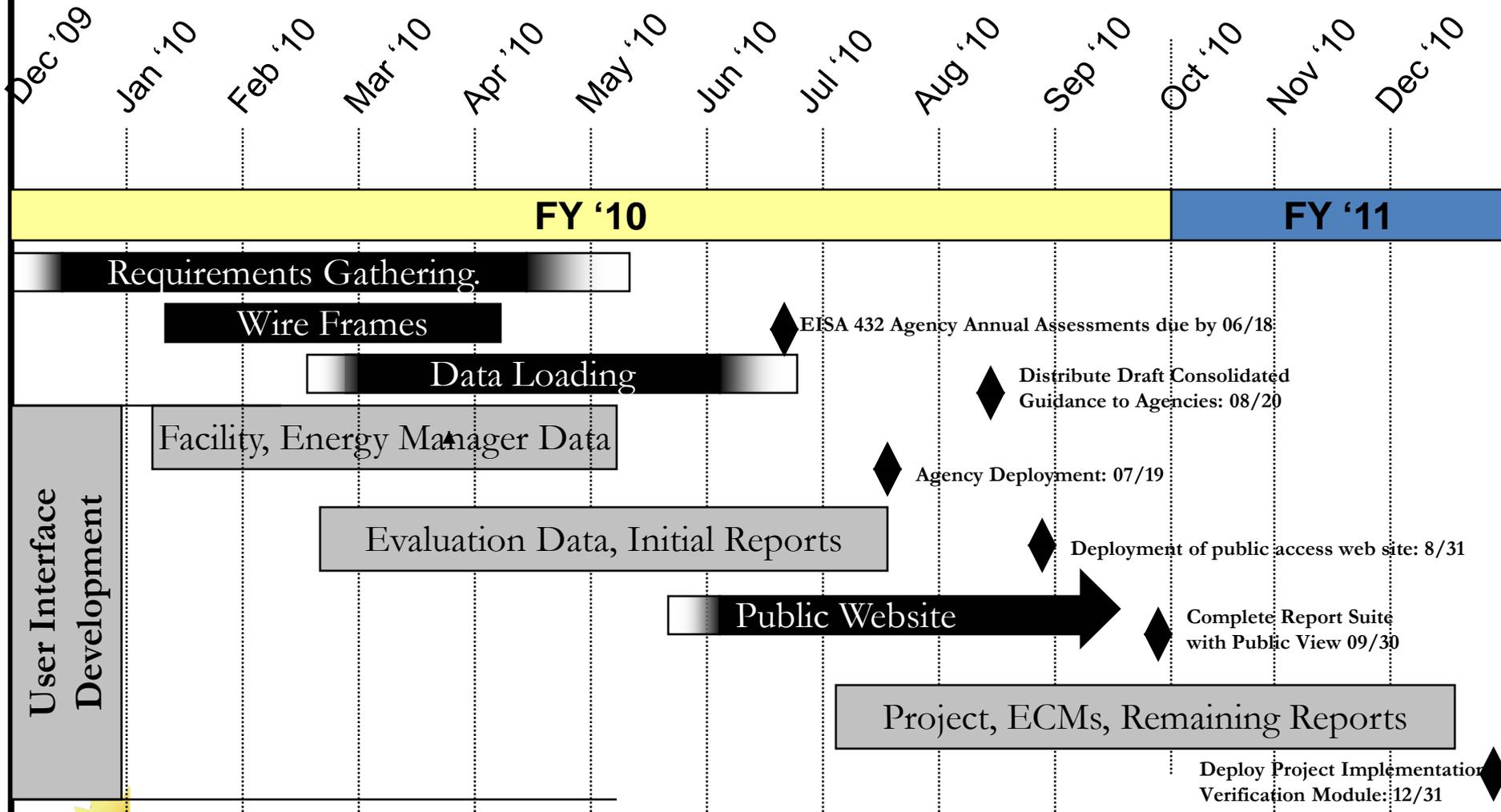
Benchmarking: Proposed Data Elements Shared Between ENERGY STAR PM and CTS

- Building Identifier---Real Property Profile asset number?
- Type of building---per current ENERGY STAR PM types (those that can be rated and those without ratings)
- Location---zip code
- Building gross square footage
- Annual energy use in terms of site-delivered million
- Annual energy use in terms of source million Btu
- Annual weather-normalized site-delivered energy intensity (Btu/Sq. Ft.)
- Annual weather-normalized source energy intensity (Btu/Sq. Ft.)
- ENERGY STAR Rating if applicable building type (1-100)
- Other? Occupancy-adjusted energy intensity?

EISA Compliance Tracking System (CTS): Status

- Web-based compliance tracking system (CTS) under development
 - FEMP received ARRA funding to develop and deploy the system in August 2009
 - Interagency technical working group meetings bi-weekly since January
 - Pre-populated beta version with data from Jan & Jun 2009 agency reporting
- Evaluation (Audits/Commissioning) Findings
 - 2009 agency findings verified
 - Uploaded 2010 facility evaluation findings into system
 - Compliance Metrics vs. Progress Metrics
- Deployment for agency use: July 19, 2010
 - Facility characteristics, energy managers, and evaluation modules
- System enhancements and overarching guidance development will continue through the remainder of the year and will include:
 - *Implemented* project tracking at covered facilities (guidance/CTS module),
 - Project follow-up, M&V for persistence of savings (guidance/CTS module), and
 - Linkage to benchmarking systems/rating for appropriate buildings.
- Scheduled completion: December 31, 2010

Compliance Tracking System Schedule



User Interface Development



CTS: Facility Edit Page

Compliance Tracking System

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▶ [Covered Facilities](#) ▶ [Edit Covered Facility](#) ▶ [DOE - Department of Energy](#) ▶ [2010](#) ▶ [GovEnergy](#)

Covered Facility Details GovEnergy

Filter Records

Data Year: 2010

Display Detail

Fields marked with * are required

? * Facility Name: GovEnergy

? * Facility Key: DOE-000001

? Agency Facility #:

? * City: Dallas

? * State: TX

? * Zipcode: 90990

*Data Year: 2010

? * Agency Name: DOE - Department of Energy

? * Facility Energy Manager:

Reassign New Facility Energy Manager: -- Select New Facility Energy Manager --

? * Gross Square Feet (1000): 521,321.000

? * Total Annual Energy Use (Million BTU): 228,796.5

? Total Annual Water Use (thous gallon): 10,934.3

? Exempt From: Energy Intensity Reduction Goal

Water Intensity Goal

Public Disclosure

Reason for public disclosure exemption:

CTS: Add Evaluation Page

Compliance Tracking System

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[Covered Facilities](#) ➤ [Evaluation Listing](#) ➤ [Add Evaluation](#) ➤ [DOE - Department of Energy](#) ➤ [GovEnergy](#)

Covered Facility: Evaluations GovEnergy

Add a New Evaluation

Fields marked with * are required

? *Evaluation Name:

? Has this entire covered facility been completely evaluated? No Yes

? Data Year:

? Evaluation Date:

? Retro/Re-Commissioning Assessment:

? *Evaluated Square Feet (thous):

? *Est. Implementation Cost of Measures (\$):

Estimated Annual Data

? *Energy Savings (million BTU):

? *Water Savings (thous gallon):

? *Energy Cost Savings (\$):

? *Water Cost Savings (\$):

? Ancillary Cost Savings (\$):

CTS: Add Evaluation Page with ECMs

Estimated Lifecycle Data

? Energy Savings (million BTU):

? Water Savings (thous gallon):

? Present Value Energy Cost Savings (\$):

? Present Value Water Cost Savings (\$):

? Present Value Other Cost Savings (\$):

? Comments:

? Enter the number of projects for each ECM Type

ECM Categories			
<input type="checkbox"/>	Boiler Plant Improvements	<input type="checkbox"/>	Chiller Plant Improvements
<input type="checkbox"/>	Building Automation Systems/EMCS	<input type="checkbox"/>	Other HVAC
<input type="checkbox"/>	Lighting Improvements	<input type="checkbox"/>	Building Envelope Modifications
<input type="checkbox"/>	CW/HW/Steam Distribution Systems	<input type="checkbox"/>	Electric Motors and Drives
<input type="checkbox"/>	Refrigeration	<input type="checkbox"/>	Distributed Generation
<input type="checkbox"/>	Renewable Energy Systems	<input type="checkbox"/>	Energy/Utility Distribution Systems
1	Water and Sewer Conservation Systems	<input type="checkbox"/>	Electrical Peak Shaving/Load Shifts
<input type="checkbox"/>	Rate Adjustments	<input type="checkbox"/>	Energy Related Process Improvements
<input type="checkbox"/>	Advanced Metering Systems	<input type="checkbox"/>	Appliance/Plugload Reductions
<input type="checkbox"/>	Commissioning Measures	8	Other

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For More Information

Federal Energy Management Program:

www.eere.energy.gov/femp

EISA 432 Compliance Tracking System:

<http://www2.eere.energy.gov/eisacts/Login.aspx>

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