

# Q2 2013 LEADERSHIP STEERING COMMITTEE MEETING

AUGUST 9, 2013

[www.mass.gov/dcamm/aep](http://www.mass.gov/dcamm/aep)



**ACCELERATED  
ENERGY  
PROGRAM**



COMMONWEALTH COMMITMENT  
TO A CLEAN ENERGY FUTURE

Secretary Shor  
Commissioner Cornelison

Division of Capital Asset Management and Maintenance  
**D • C • A • M • M**

Governor Patrick



Secretary Sullivan  
Commissioner Sylvia



# Agenda

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Welcome & Recognitions

Carole Cornelison

AEP Quarterly Report Review

Jenna Ide

Innovation

Dave Ward, EE&D

Future Meetings

Hope Davis

Questions & Answers

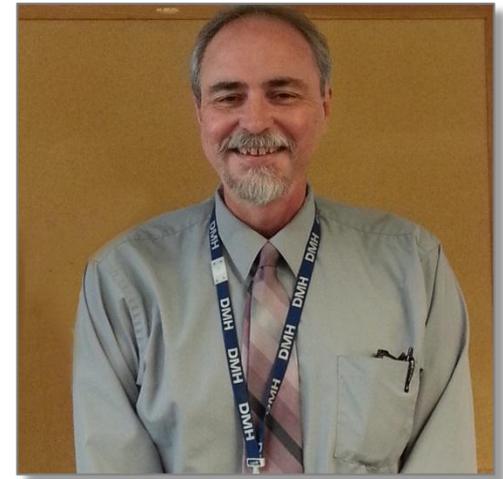
Hope Davis

# Welcome

This quarter DCAMM and DOER recognize **Ken Lortie** from the Department of Mental Health as the AEP Spotlight Partner.

Ken has provided outstanding efforts on the AEP:

- Involvement with Johnson Controls and their audit of 10 DMH facilities.
- “Go to” person for implementing simple fix projects at 18 DMH sites.
- Great partner in assuring energy projects scoped to reflect DMH long range plans



**Thank you Ken for your dedicated efforts!**

# AEP Quarterly Report Review

# Program Goals & Partners

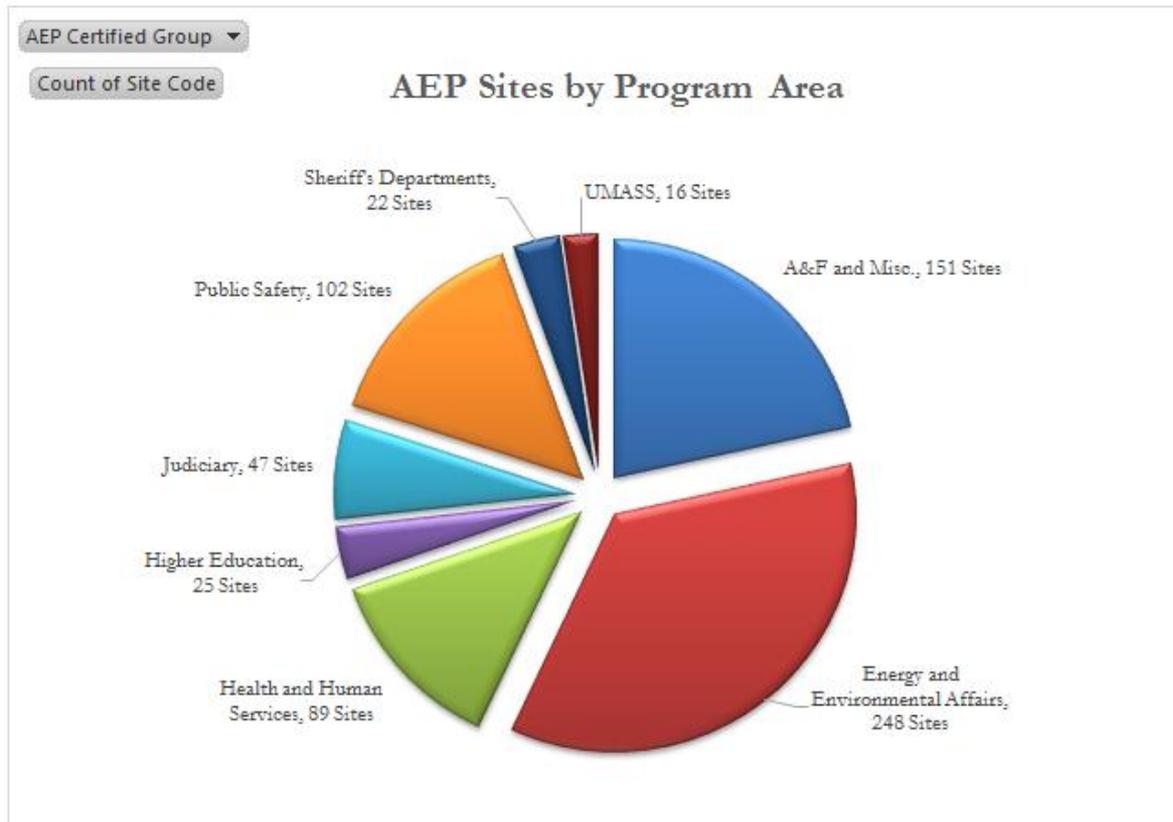


The **annual energy savings** goal at all AEP sites is \$43 million. Agencies will see significant financial benefits, such as:

- MassDOT (\$1.0 million)
- DCR (\$2.1 million)
- Judiciary (\$2.1 million)
- Public Safety (\$4.8 million)

# Program Planning & Definition

The graphic below provides an overview of the 700 sites by Program Area.



AEP Scope  
700 Sites

# Program Status (as of Q2 2013)

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We plan to retrofit **700** AEP Sites

In a total of **700** Working days

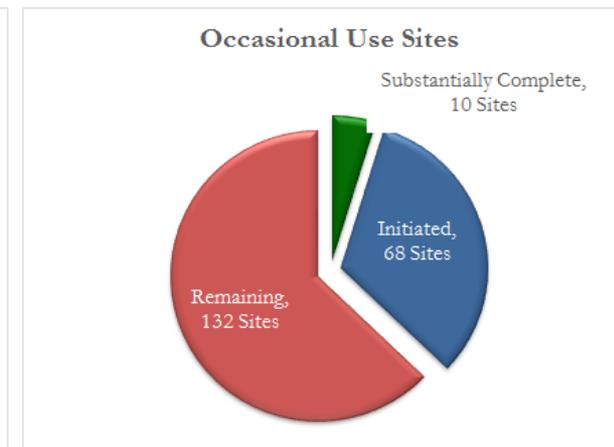
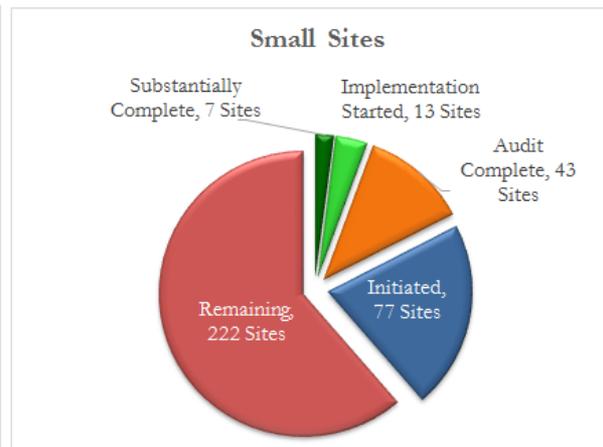
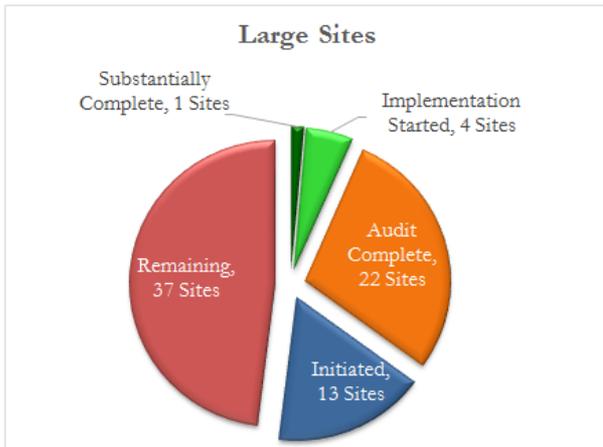
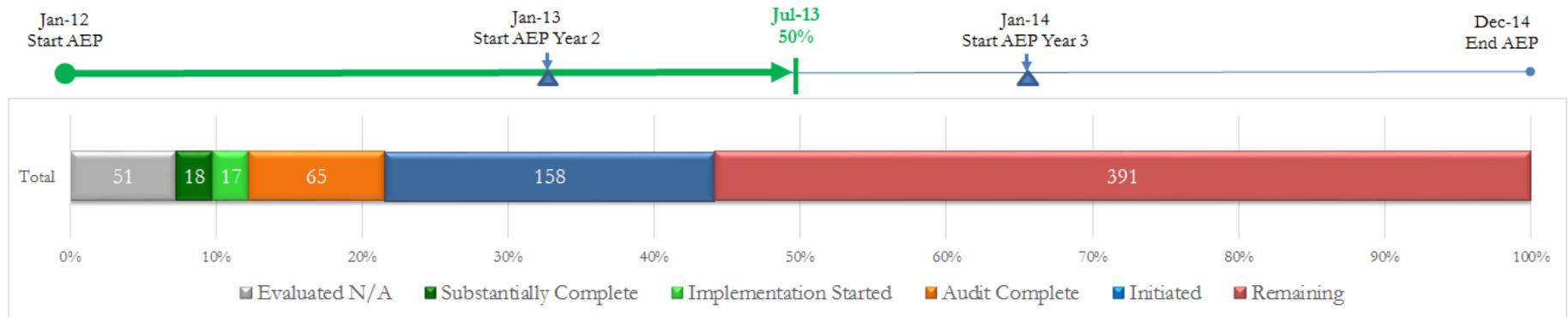
We have initiated work at **309** Sites

We have completed audits at **151** Sites

And substantially completed **18** Sites

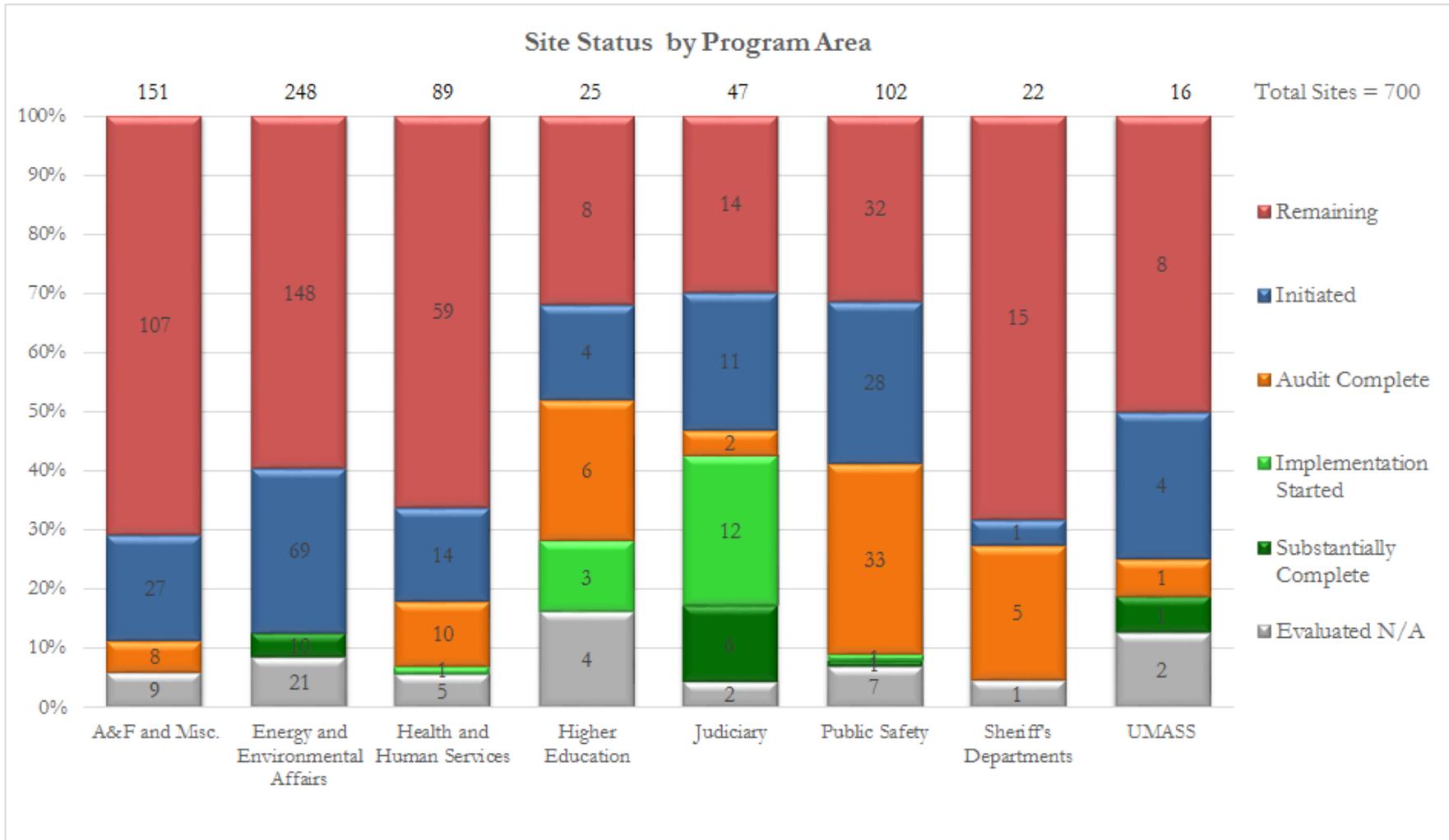
# Schedule Status

A total of 309 sites have been initiated, which equates to 44% of the total AEP sites.

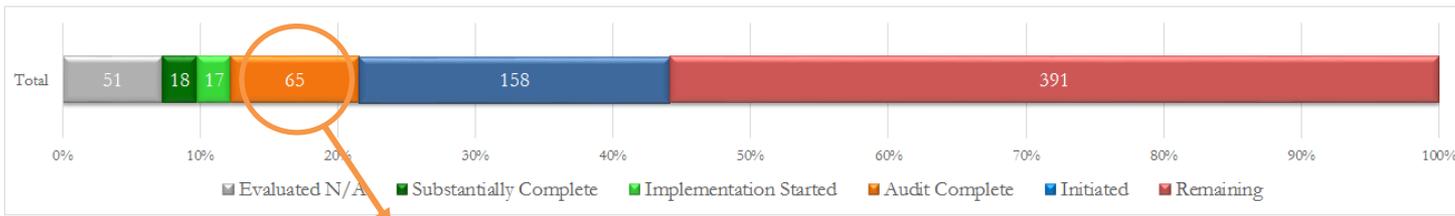


# Status by Program Area

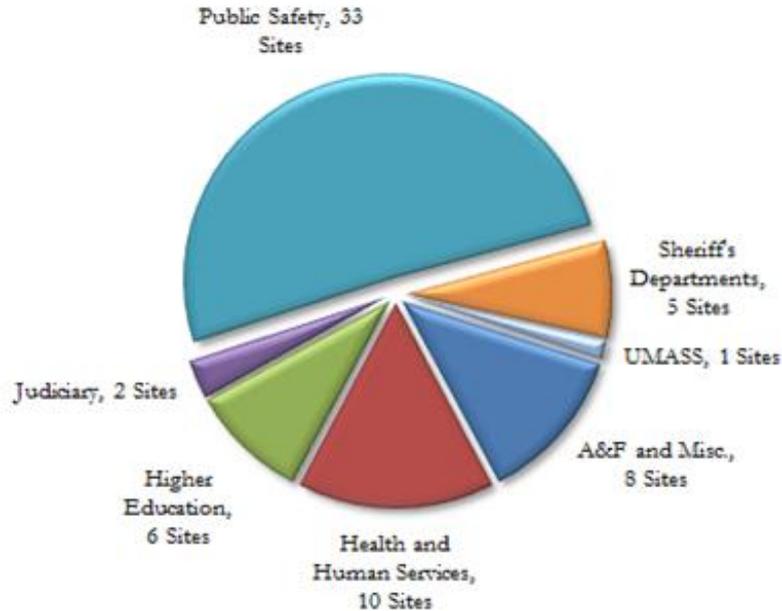
A summary of the AEP status by program area is shown below.



# Audit Completed Sites



## AEP Audit Complete: 65 Sites



## Middleboro National Guard Armory

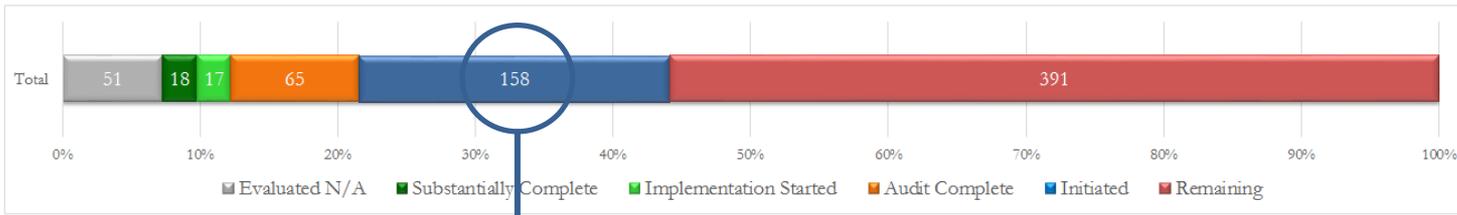


Nxegen completed an audit and received a notice to proceed on implementation

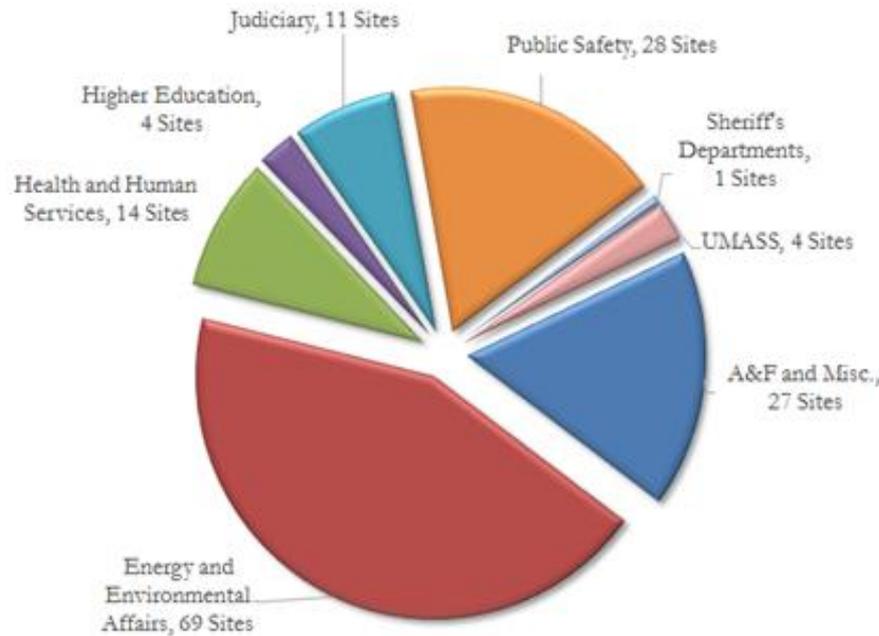
DCAMM approved \$80,000 in ECMs that will generate an estimated annual savings of \$19,000.

When completed, the site will achieve **AEP Certification Plus** by reducing energy usage by 46% and both CO2 and energy costs by 56%.

# Initiated Sites



## AEP Initiated: 158 Sites



## Utility Vendor Initiated Sites

As of Q2 2013, DCAMM has issued 8 bundles that consist of 104 sites.

These bundles include the following:

- **Military:** 4 bundles of 42 sites
- **Trial Courts:** 1 bundle of 14 sites
- **DCR:** 1 bundle of 21 sites
- **MassDOT:** 2 bundles of 27 sites

DCAMM has signed contracts with 8 utility vendors.

## New Vendors in Q2:

- **Energy Conservation:** Completed 4 audits at 7 military sites.
- **Paquette:** Completed 4 audits at 12 military sites.

## Existing Vendors:

- **Prism:** Completed audits and issued pre-approval at 11 military sites.
- **Nxegen:** Completed audit and issued pre-approval paperwork at 12 military sites.
- **RISE:** Completed audits at 10 of 12 trail court sites. Started construction at 2 sites.
- **Source One:** Completed audits at 21 DCR sites.
- **AECOM:** Reviewing equipment specs at 10 MassDOT sites.
- **NES:** Completed 4 audits at 14 MassDOT sites.

## *Marlboro District Court*



*RISE completed an audit of the Marlboro District Court and identified \$88,000 in ECMs projected to achieve a 14% and \$15,000 reduction in annual energy costs.*

# Major Q2 2013 Accomplishments

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Implemented Quality Management Plan

Coordinated with IFM

Restructured AEP Implementation Committee

Initiated Innovative “Towards Zero Net Energy” Approach

Aligned AEP Metrics with MassResults Initiative



*AEP Vendor Outreach Meeting in Fall River.*

# Quality Management Plan

The AEP QMP defines procedures and tools to be used for project delivery including quality assurance and quality control elements.

The QA elements include:

- Client agency & DCAMM review guidelines
- Standardized audit template
- Review and updates to scopes of work
- ECM implementation guidelines
- Vendor performance database
- Other QA elements as needed

The QC elements include:

- Random technical QC of audits
- Random QC inspection of work
- Random QC of entire project delivery - post mortem
- Other QC elements as needed



*A random technical QC and site visit was performed on the Fitchburg District Court.*

*The QC check:*

- *Validated the ECMs and estimated costs.*
- *Identified some envelope infiltration issues being addressed by RISE.*

# Restructured AEP Implementation Committee

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Based on feedback solicited from all AEP Implementation Committee members:

DCAMM and DOER restructured the Implementation Committee and working groups

Retired the Procurement and Building Codes working groups.

Added the Innovation working group

Revised the quarterly AEP Implementation Committee meetings to be held in conjunction with MAFMA and DOER's Leading by Example (LBE) meetings.

Will schedule stand-alone AEP meetings as needed.

## Working Group Objectives:

Develop a processes for vetting, evaluating, piloting and procuring innovative, clean energy technologies.

Support “towards Zero Net energy” retrofits by leveraging innovative technologies to address specific challenges in meeting energy consumption savings.

## Working on:

- Vendor intake form and contact database.
- Fielding requests from innovative technology companies.
- Piloting “Deep Energy Retrofit - Towards Zero Net Energy” approach.



*Assessing the potential for installing “burner booster” technology to reduce fuel consumption and greenhouse gas emissions.*

# Alignment with MassResults Initiative

The Patrick-Murray Administration launched the MassResults initiative in 2012. The AEP database has been updated to enable DCAMM to report on the agency's progress on its MassResults Initiative goal of "Improving Energy Efficiency".

GOAL	MEASURE	FOOT NOTE	CURRENT PERIOD	PRIOR PERIOD	TREND	TARGET	STATUS	COMMENTS
<b>IMPROVING ENERGY EFFICIENCY:</b> Increase overall efficiency and reduce energy costs and resulting greenhouse gases from state facilities	% of Accelerated Energy Program milestones successfully completed on time	1	100.0%	100.0%	Steady	100.0%	●	AEP milestones will be tracked quarterly and the percentage of those reached (planned vs. actual) will be estimated to generate score.
	Energy consumption at state facilities (per sf)	2	40.0%	100.0%	Decreasing	100.0%	◆	Targets are based on LBE goals, which are stated for 2012, 2020, and 2050. Progress against that goal will be estimated annually.
	Greenhouse Gas (GHG) Emissions	2	64.0%	100.0%	Decreasing	100.0%	▲	Targets are based on LBE goals, which are stated for 2012, 2020, and 2050. Progress against that goal will be estimated annually.
<b>DRAFT FOR REVIEW</b>								

*The MassResults Initiative tracks current period versus prior period with an assessment of trending and status.*

# Program Exposures

In Q1 2013, the AEP team was able to mitigate many risks identified in the previous quarterly report as well as identify and mitigate new risks to the program (highlighted in green).

Risk Identifier	Risk	Impact Description	Risk Score (1=Low 6=High)	Timeline	Risk Response	Risk Owner (Working Group)
<b>Project Management</b>						
PM-R3	Vendor and staff shortfall to audit, review and implement work at all sites.	Delay of program	4	Mid-term	Conduct Vendor Outreach; Develop alternative implementation methods; Streamline existing processes.	Simple Fix; PMO
<b>"InReach" &amp; Technical Support</b>						
IN- R3	Lack of building occupant training participation (e.g., how to reduce plug load usage).	Full energy saving potential not realized.	2	Long term	Coordinate with IFM / MAFMA / CFAC to develop training and coordination.	"InReach & Technical Support
<b>Facility Energy Efficiency (Center of Excellence)</b>						
CoE-R1	Savings achieved through AEP projects are not sustained by facility, nor leveraged for longer term improvements	Energy savings are not sustained or further reduced to meet LBE goals.	3	Long Term	Develop longer term facility energy efficiency strategy in conjunction with MAFMA, DOER and DCAMM IFM initiative.	Inreach and Technical Support; Innovation

# AEP Working Group Accomplishments

	Q2 2013	Q3 2013
Innovations	Established WG; Developed Vendor Management & Tracking Approach	Develop approach to pilot innovative technologies and hold ZNE Charette
Simple Fix	Signed 6 vendors and initiated work at 71 sites (total now = 8 vendors and 104 sites)	Initiate work at another 70 sites
Audits & RCx	Refined scope of work for comprehensive sites	Develop New Review and ZNE scopes of work
Inreach & Tech Support	Developed outreach kit outline for energy projects at facilities	Develop outreach kit
Data & Performance	Developed financial reporting; Integrated metrics with MassResults	Develop improved data management system
Communications	Selected and promoted showcase sites; Distributed Op-Eds to local media	Host AEP event with Governor
Leasing	Drafted letter to landlords informing them of AEP and utility rebate programs	Finalize and mail letter to landlords
Labor & Workforce	Finalized Workforce Development Strategy; Held Vendor Outreach Meeting in Southeast	Interview GCs/ESCOs; Develop "trainee" program; Research job "portal" options

# Innovation WG: Holyoke Community College

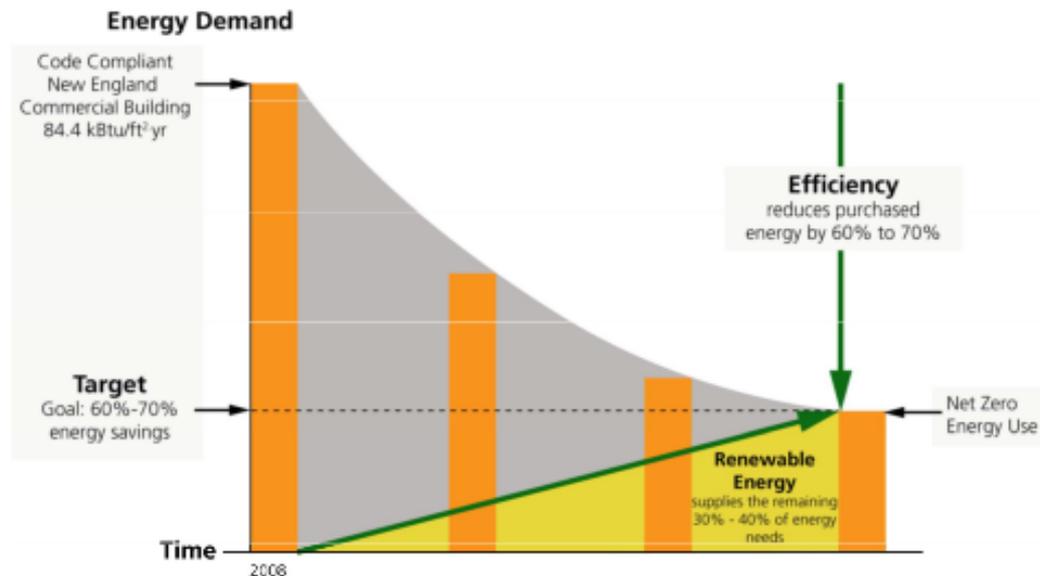
# Towards Zero Net Energy Buildings

ASHRAE defines 3 steps to getting towards Zero Net Energy Buildings (ZNEB).

1. Building envelope measures (orientation and envelope performance)
2. Energy Efficiency Measures (integrated design including lighting, HVAC, plug loads)
3. Renewable Energy Measures (solar, wind, geothermal and biomass)

## Federal R&D Agenda Approach to ZNEB

p. 2



Source: Federal R&D Agenda for Net-Zero Energy, High-Performance Green Buildings, National Science & Technology Council, October 2008



- Eight main buildings totaling 575,000 square feet of space.
- Constructed in phases with the first 5 buildings built in 1974 - with concrete walls without insulation
- Additions: Athletic Center in 2000, and the LEED-certified Kitredge Center in 2006.
- EEMS installed with 5 sub-meters.

## Original Project

- Estimating \$3 million in ECMs for 15% annual energy cost savings.
  - Lighting upgrade
  - Partial BAS upgrade
  - Miscellaneous ECMs

## New Approach

- Identified an additional \$3 million in ECMs for additional 20-30% annual energy cost savings (\$200,000-\$300,000).
  1. Athletic Center – Rx, Renovate Shower Exhaust & Hybrid Solar System
  2. Central Campus - External Insulation and Finish Systems
  3. Ground coupled outside air intake
  4. Complete BAS upgrade
  5. Power management, behavior modification, training and reporting
- Integrating with Capital Investment Plan and deferred maintenance
- Assessing renewable energy

## Existing Condition:

The Bartley Athletic Center uses **half of the energy of the campus** – estimated at \$500,000 annually.

- 4,000,000 kWh of electricity and 32,500 therms of gas used annually.



*Photo of Bartley Athletic Center*

## Innovative Solution to Consider:

### Retro-commissioning, Shower Exhaust Renovation & Hybrid Solar System

- Hybrid solar panel is a standard photovoltaic (PV) panel to generate electricity and includes thermal heat sink attached to back.
- Thermal heat sink absorbs heat from panel and transfers heat to hot water.
- Technology increases PV efficiency by keeping panels cooler and provides hot water.

## Existing Condition:

All of the buildings original to the campus are **bare concrete exterior walls**, approximately 8 inches thick.

The concrete walls need repair and many seams need to be resealed because of water damage and significant air infiltration.

## Innovative Solution to Consider:

### External Insulation and Finish System (EIFS)

- Cover old concrete walls with an air and watertight insulating barrier.
- Significantly reduce energy consumption, provide a more comfortable indoor environment and improve the exterior appearance.
- Has various finish options.



*Photo of concrete exterior walls*

- Scheduling “towards” Zero Net Energy – Deep Energy Retrofit Charrette (Sept 13)
- Meeting with innovative technology vendors
- Researching approaches and other projects
- Piloting innovative technology and new approaches (e.g., Holyoke Community College)

# Topics for Future Meetings?

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Agency or site-focused briefing

Innovative technologies or solutions

Presentation by Contractor or Designer

Focus on other benefits (jobs,  
improved comfort, education)

Other Ideas?

# Questions and Answers

# Thank you!

We greatly appreciate your time, guidance & feedback.

Next Meeting is **November 8, 2013**