



# Quarterly Report Q3 2012

The Commonwealth of Massachusetts  
Accelerated Energy Program  
2012-2014

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



Governor Deval Patrick  
Lt. Governor Timothy P. Murray

Secretary Jay Gonzalez  
Commissioner Carole Cornelison

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

Secretary Richard K. Sullivan  
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## Introduction

The Commonwealth of Massachusetts is recognized as a national leader in energy and water efficiency for its establishment of clean energy policies and its implementation of innovative, sustainable, and economical energy and water solutions. At the end of Q3 2012, the American Council for an Energy Efficient Economy (ACEEE) again ranked Massachusetts number one in the nation for energy efficiency, awarding it the highest possible score for government programs. This is the second straight year Massachusetts has attained the top spot in the ACEEE rankings.

The Accelerated Energy Program (AEP) was established in December 2011 to accelerate the implementation of energy and water projects across the Commonwealth and help the Commonwealth comply with Executive Order 484, Clean Energy and Efficient Buildings, signed by Governor Patrick in April 2007. The Division of Capital Asset Management and Maintenance (DCAMM) is working with the Department of Energy Resources (DOER) and other partners to retrofit 700 sites encompassing more than 4,800 buildings throughout the Commonwealth.

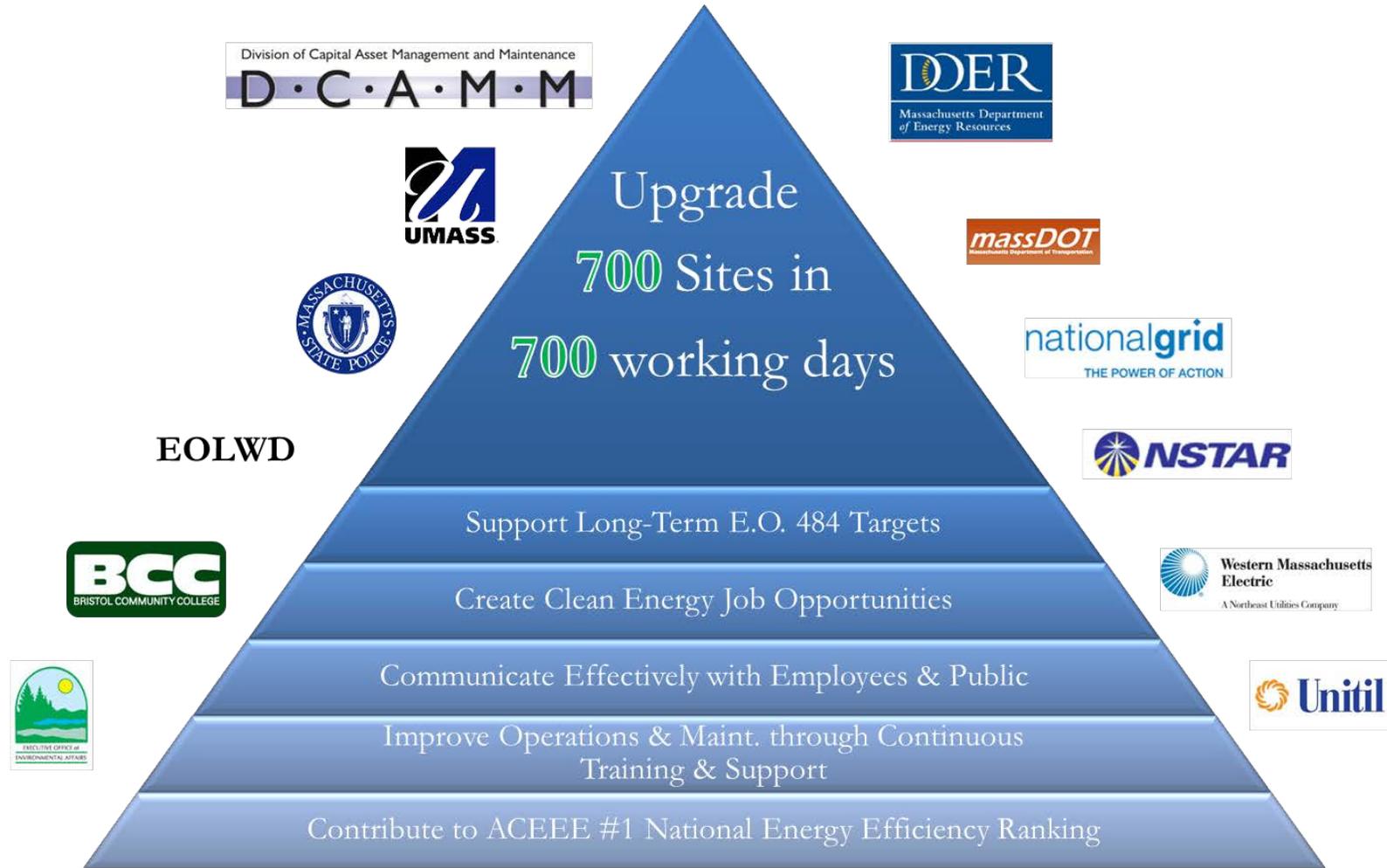
In the third quarter of 2012, the AEP team worked to finalize a planning and implementation strategy for the AEP and began to retrofit sites. The team held a planning and prioritization charrette to prioritize all of the sites in the AEP and allocate the work by quarter across the program timeline. The financial plan was updated to reflect changes in the program definition and now includes the costs of renewable projects and contingency. The Commonwealth plans to invest over \$460 million in energy and water conservation improvements to implement the AEP, with an expected savings of \$42 million annually.

In addition to the energy planning accomplished during Q3 2012, the Commonwealth has now initiated work at 168 total sites and completed energy projects at 16 sites. At the end of the quarter, 25% of the way through the expected timeline of the program, 29% of the 700 AEP sites have been initiated, completed, or otherwise evaluated.

The AEP Quarterly Report for Q3 2012 contains detailed updates on the program definition, implementation status, and financial projections, as well as highlights of innovative solutions for procurement, implementation, and outreach for the AEP. Also included are profiles of several sites in the AEP and an overview of each Working Group – both the work completed in Q3 and the tasks ahead as the Accelerated Energy Program moves into the fourth quarter of 2012.

## Program Goals & Objectives

DCAMM and DOER are working with a number of partners, including agencies and utilities, to accomplish the six main objectives of the AEP:



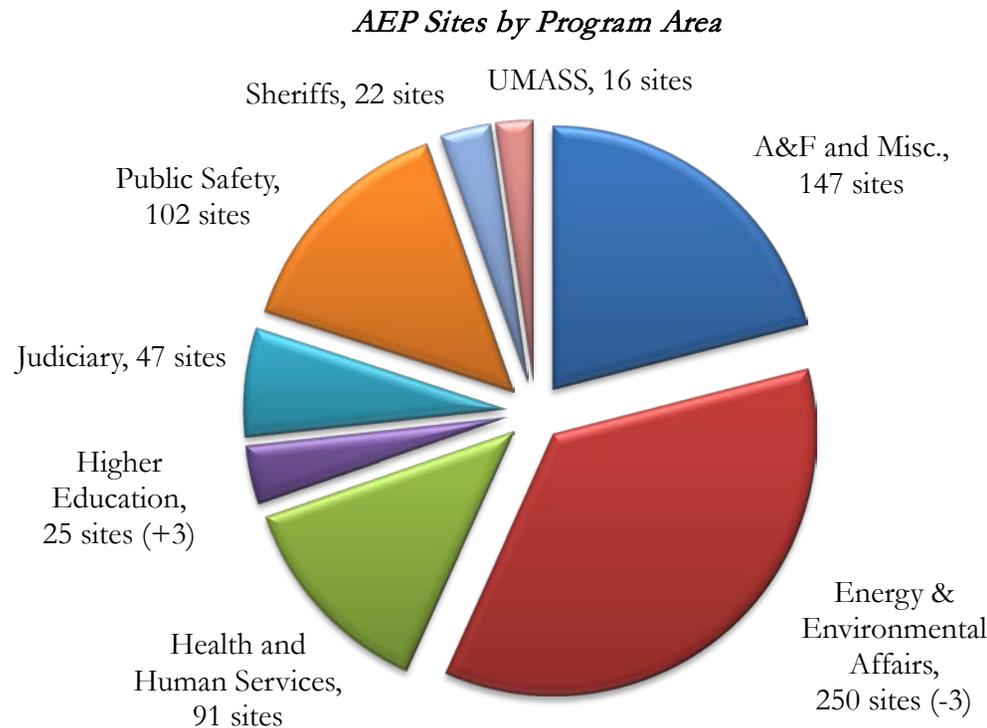
<sup>1</sup>AEP Metrics are provided in Appendix A.

<sup>2</sup>ACEEE is the American Council for an Energy Efficient Economy.

## Program Planning & Definition

There are 818 sites in the Commonwealth's capital asset inventory. A total of 118 were excluded from the AEP because they are not currently in use, are considered energy efficient through prior projects, or do not consume energy. The remaining 700 sites will be retrofitted in the AEP. Appendix B provides a summary of the methodology used to arrive at the AEP's total of 700 sites.

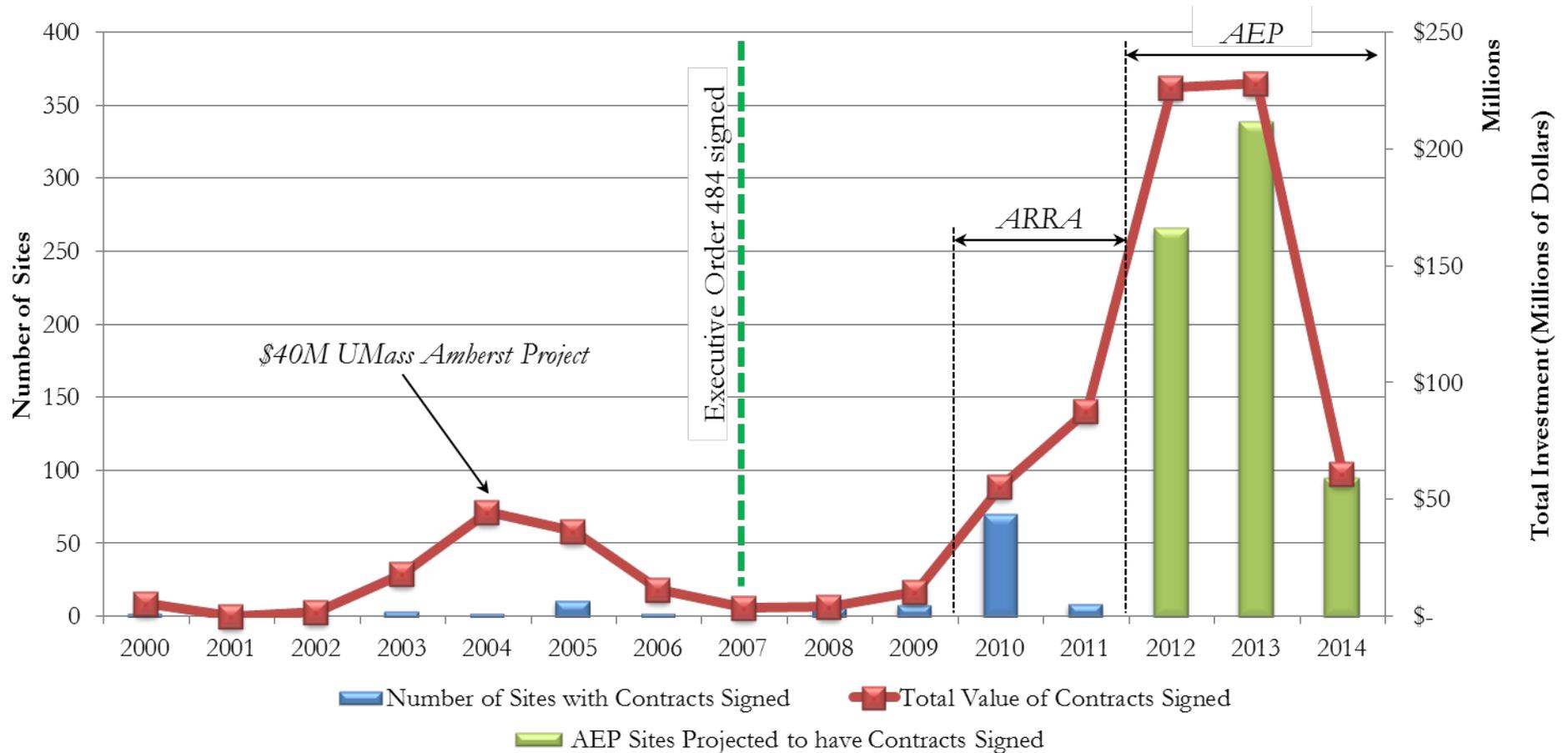
During Q3 2012, DCAMM updated the program definition and continued to refine the project categorization of each site. Three sites were adjusted in Q3, as Bridgewater State University, Mount Wachusett Community College, and Bristol Community College were brought into the AEP due to ongoing DCAMM projects. As a result, the new program definition shows Higher Education with three more sites and EEA with three fewer (three Fire Districts already classified as Not Applicable due to no energy use were dropped from the program) since the Q2 report. DCAMM expects to continuously refine the implementation strategy as new information is gained through energy audits and surveys. The graphic below provides an overview of the 700 sites by Program Area. Changes to Program Area totals since the Q2 report are shown in parentheses. A full list of AEP sites is provided in Appendices E and F.



**AEP Scope**  
**700 Sites**

## Accelerated Energy Program

The Patrick-Murray Administration has greatly expanded the Commonwealth's investment in energy and water conservation. As shown in the graph below, the AEP represents a significant increase in investment and the number of Commonwealth sites made energy efficient.



## Implementation Planning

On August 8 and 9, 2012, the AEP team participated in a two day planning and prioritization Charrette. The goal of the Charrette was to prioritize all of the sites in the AEP and allocate the work by quarter across the program timeline. The Charrette was divided into the following two sessions:

- Session I – Prioritization of Larger Sites
- Session II - Prioritization of Smaller Sites

Session I focused on prioritizing the 64 sites in the Comprehensive and Retro-Commissioning implementation groups. The AEP team identified a set of weighted criteria that was used to prioritize the larger sites. Each site was assessed based on the prioritization criteria and assigned to a quarter.

The group determined that the latest date for starting projects at larger sites would be Q2 2014 to ensure construction will start prior to the end of the AEP.

Session II focused on prioritizing the 534 sites in the Simple Fix and Whole Building Analysis implementation groups. The AEP established a set of weighted criteria based upon the ability to “bundle” sites. Each of the “bundles” was established and assessed based on the prioritization criteria and assigned to a quarter. The “bundling” of smaller sites is critical to successful implementation of the AEP.

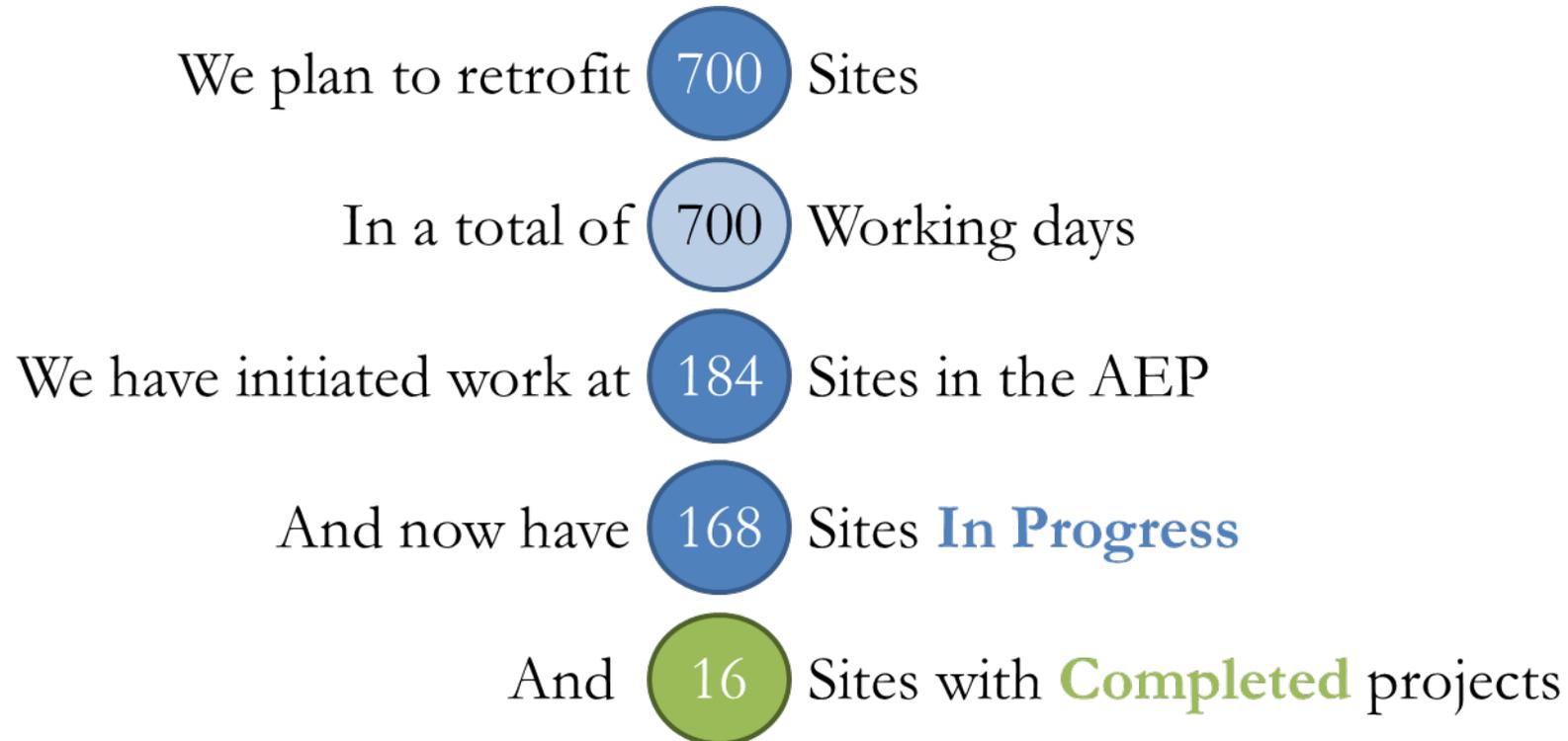


*AEP team ranking implementation prioritization criteria.*

A draft implementation plan was created for all sites based on the prioritization and planning accomplished during the AEP Planning Charrette. A prioritized list of Comprehensive sites, Retro-Commissioning sites, and smaller site bundles can be found in Appendix D.

## Program Status

The AEP has 700 working days from March 1, 2012 to December 31, 2014. DCAMM and DOER will maximize energy and water conservation at 700 sites in this period. To date we have initiated work at 184 sites in the AEP. Of the 184 sites, 168 are currently in progress (study or procurement) and 16 projects have signed contracts or completed construction.



## Maximizing Energy and Water Conservation

Maximizing energy and water conservation at Commonwealth facilities is a continuous process. As buildings age, economic conditions change, and technology advances, opportunities for energy savings evolve. Managing a truly energy efficient portfolio entails continually maintaining and evaluating buildings for energy opportunities; the AEP will start this process at many smaller sites and continue existing efforts at others to make the Commonwealth as energy efficient as possible. The table below details the AEP standard that all 700 sites must meet to be considered completed under the AEP.

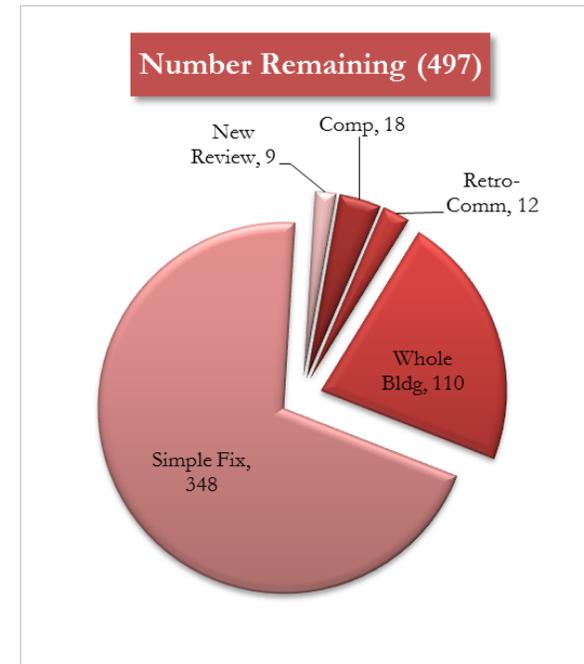
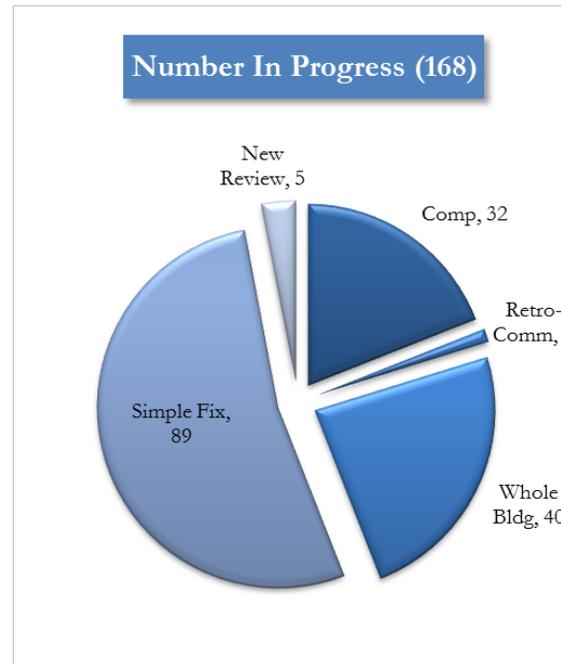
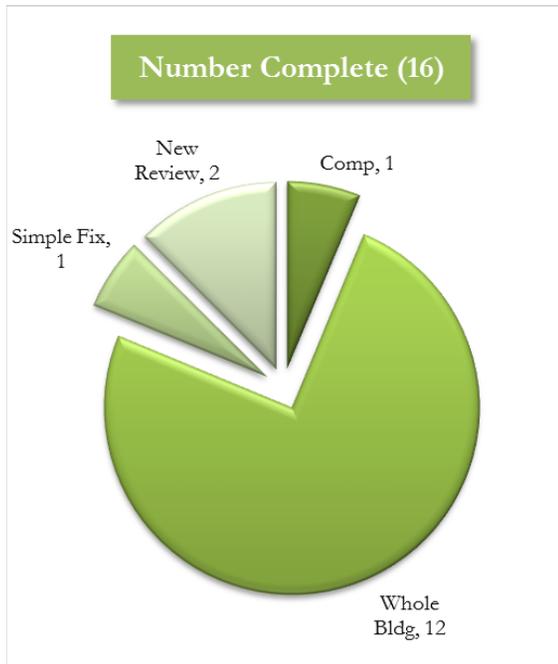
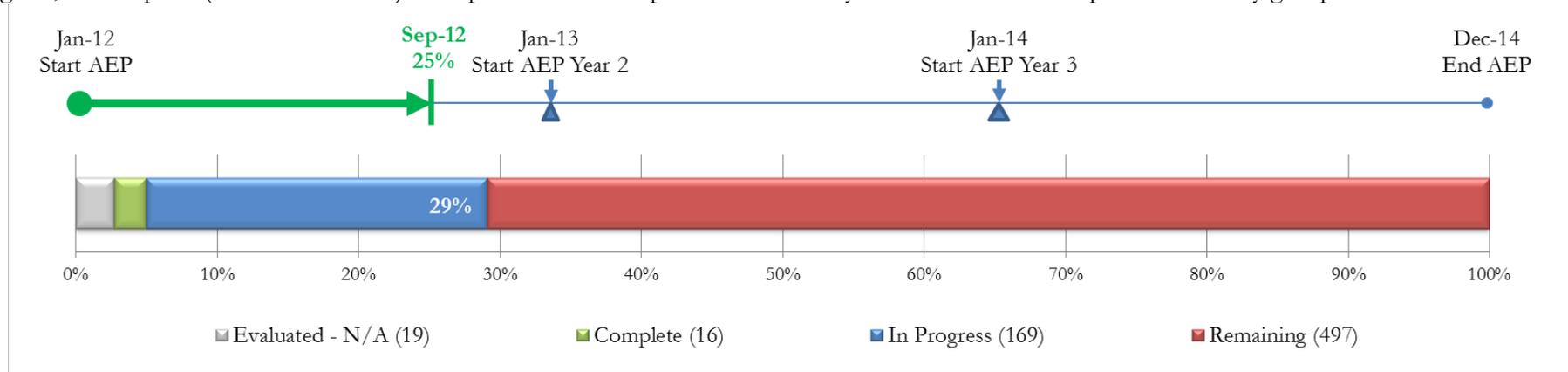
Large Sites (i.e. hospitals, colleges)	Small Sites (i.e. police barracks, career centers)	Occasional Use Sites (i.e. ice rinks, state parks)
<p>Reduce total site energy use by <b>25%</b>.</p> <p>Projects <i>must</i> include:</p> <ol style="list-style-type: none"> <li>1) Lighting retrofits</li> <li>2) Water retrofits</li> <li>3) Space conditioning (HVAC, boilers, etc.)</li> </ol> <p>Projects are likely to include <i>many</i> of the following:</p> <ol style="list-style-type: none"> <li>1) Lighting, Lighting controls</li> <li>2) Efficient motors, Variable frequency drives</li> <li>3) Heating and Cooling improvements</li> <li>4) Ventilation sensors and controls</li> <li>5) Building envelope improvements</li> <li>6) Upgraded Building/Energy Management System</li> <li>7) Plug load reduction (vending machines, printers, computers, etc.)</li> <li>8) Low-flow water fixtures</li> <li>9) Installation of on-site renewable/clean energy</li> <li>10) Other</li> </ol>	<p>Reduce total site energy use by <b>20%</b>.</p> <p>If baseline data is not available, reduction target will be reached by implementing <i>at least six</i> of the following measures:</p> <ol style="list-style-type: none"> <li>1) Lighting</li> <li>2) Lighting controls</li> <li>3) Motors</li> <li>4) Heating and Cooling improvements</li> <li>5) Ventilation sensors and controls</li> <li>6) Building envelope improvements</li> <li>7) Upgraded Building/Energy Management System</li> <li>8) Plug load reduction</li> <li>9) Low-flow water fixtures</li> <li>10) Installation of on-site renewable/clean energy</li> <li>11) Other</li> </ol>	<p>Retrofit <i>at least three</i> of the following systems, if applicable:</p> <ol style="list-style-type: none"> <li>1) Lighting</li> <li>2) Lighting controls</li> <li>3) Motors</li> <li>4) Air conditioning</li> <li>5) Plug load uses</li> <li>6) Water fixtures</li> <li>7) Other</li> </ol> <p>If three are not applicable, then retrofits of as many that are applicable.</p>

Some energy-leading Commonwealth facilities already exceed this standard, and others have the potential to do so. Examples of actions that energy leaders can take to exceed the current AEP standard include:

- Deeper measures. Implementing improvements and innovative technologies that will yield energy reductions of 35% or more.
- Renewable energy. Increasing the use of clean energy to reduce the Commonwealth's carbon footprint.
- Integration with facility operations. Training operations staff to maximize and sustain energy and water savings.
- Preventative maintenance. Developing a plan for preventative maintenance to keep systems operating at optimum efficiency.

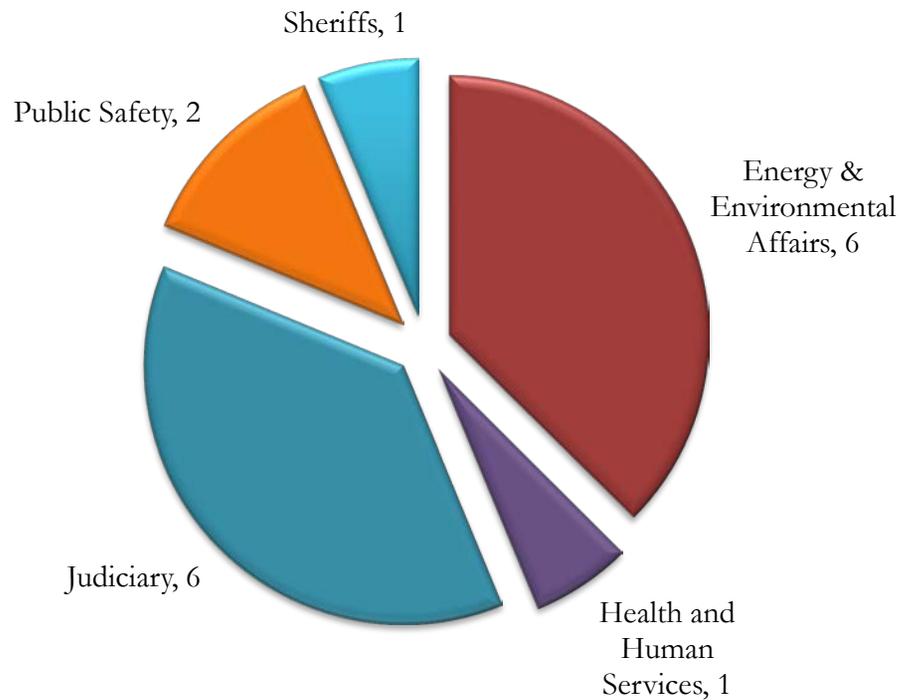
## Schedule Status

As of the end of Q3 2012, the program has been in place for 9 months (25% of the total duration of the AEP) and seen 203 sites evaluated, in progress, or complete (29% of the AEP.) The pie charts below provide a summary status of the AEP implementation by group.



## Complete Sites

Number Complete: 16 Sites



In Q3, indoor lighting upgrades were completed at five Trial Courts and one Sheriff's Department site. One Department of Conservation and Recreation skating rink has been retrofitted with a reflective ceiling. All projects were managed by DOER using ARRA funding.

The construction contract was signed at the Taunton State Hospital Complex for final design and installation of several measures at the Goss Building.



*Waltham District Court*

## Complete Sites – Detail

Complete   
On Hold

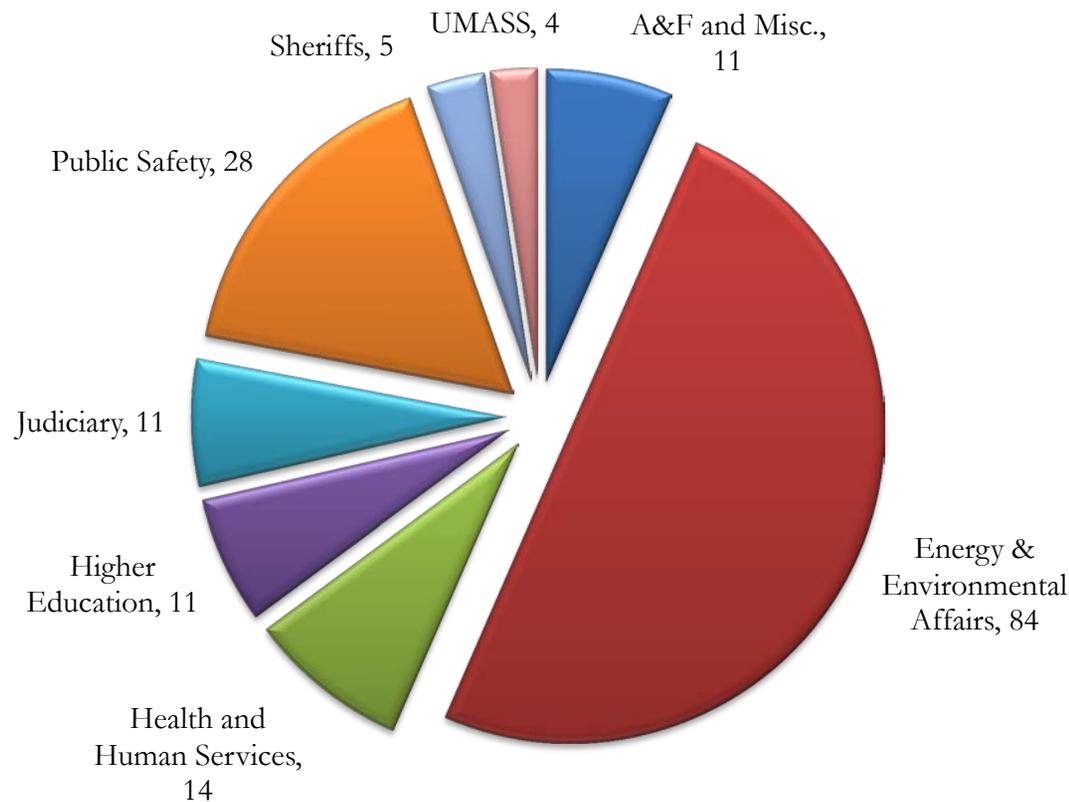
Completed this Quarter   
Planned next Quarter

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>Complete Simple Fix Sites</b>				<b>Total 1</b>						
Public Safety	Dep of State Police	MILTON	MILTON POLICE BARRACKS	DOER	Indoor Lighting	NStar	•	•	•	•
<b>Complete Audit - Whole Building Analysis Sites</b>				<b>Total 12</b>						
Energy & Environmental Affairs	Dep. Of Conservation & Recreation	AUBURN	HORGAN MEMORIAL SKATING RINK	DOER	Ceiling Upgrades	NStar	•	•	•	•
		BOSTON	RINK/CHARLESTOWN MEMORIAL	DOER	Ceiling Upgrades	NStar	•	•	•	•
		BOSTON	RINK/DEVINE MEMORIAL	DOER	Ceiling Upgrades	NStar	•	•	•	•
		BOSTON	RINK/BAJKO MEMORIAL	DOER	Ceiling Upgrades	NStar	•	•	•	•
		BOSTON	MARINE PARK RESERVATION	DOER	Ceiling Upgrades	NStar	•	•	•	•
		WEYMOUTH	POOL & RINK/CONNELL MEMORIAL	DOER	Ceiling Upgrades	NStar	•	•	•	•
Judiciary	Trial Courts	BOSTON	DORCHESTER DISTRICT COURT	DOER	Indoor Lighting	Nstar	•	•	•	•
		FRAMINGHAM	FRAMINGHAM DISTRICT COURT							
		SOMERVILLE	SOMERVILLE DISTRICT COURT							
		WALTHAM	WALTHAM DISTRICT COURT							
		WOBURN	WOBURN DISTRICT COURT							
		NEWTON	NEWTON DISTRICT COURT							

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>Complete Comprehensive Sites</b>				<b>Total 1</b>						
Health and Human Services	Dep. Of Mental	TAUNTON	TAUNTON STATE HOSPITAL	DCAM	Energy Performance Contract including lighting, lighting controls, motors, mechanical, water and sewer conservation, steam traps, VFD's fans and pumps, insulation, weatherstripping, HVAC & kitchen hood controls, and metering.	Sebesta / JCI	●	●	●	○
<b>Complete New Review Sites</b>				<b>Total 2</b>						
Public Safety	Dep. Of Corrections	NORFOLK	MCI - NORFOLK	DOC	Water Conservation	TRC	●	●	●	●
Sheriffs	Suffolk Sheriff	BOSTON	SHERIFF'S DEPT-SUFFOLK-COUNTY JAIL	DOER	Indoor Lighting	Nstar	●	●	●	●

## In Progress Sites

Number In Progress: 168 Sites



The following major milestones have been achieved through Q3 2012:

- Energy & Environmental Affairs – Audits initiated at 76 sites
- Taunton Career Center – Retro-Commissioning analysis initiated
- State House – Construction started on lighting project
- North Central Correctional Institute Gardner – RFP issued for comprehensive energy and water retrofit
- Northern Essex Community College – Construction contract signed for comprehensive energy and water retrofit
- Sheriff's Department Berkshire – Preliminary design completed for condensing boiler and solar thermal system.

## In Progress Sites – Detail

Complete   
On Hold 

Completed this Quarter   
Planned next Quarter 

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>In Progress Simple Fix Sites</b>				<b>Total 89</b>						
A&F and Misc.	MassDOT	DARTMOUTH	MHD DARTMOUTH FAUNCE CORNER-D5	NStar	Lighting and lighting controls.	AECOM	●	●		
		DARTMOUTH	MHD DARTMOUTH STATE RD-D5							
		MATTAPOISETT	MHD MATTAPOISETT DEPOT-D5							
		WALPOLE	MHD SHARON/WALPOLE DEPOT-D5							
Energy & Environmental Affairs	Dep. Of Conservation & Recreation	ASHLAND	HOPKINTON STATE PARK	DCAM	Lighting, lighting and HVAC controls, insulation, refrigerator replacement, and water conservation.	EE&D	●	●		
		HULL	NANTASKET BEACH RESERVATION							
		HOLYOKE	MOUNT TOM RESERVATION							
		TEMPLETON	OTTER RIVER STATE FOREST							
		CONCORD	WALDEN POND STATE RESERVATION							
		HINGHAM	WOMPATUCK STATE PARK							
		UXBRIDGE	BLACKSTONE HERITAGE STATE PARK							
		DOUGLAS	DOUGLAS STATE FOREST	DCAM	Lighting, lighting and HVAC controls, water conservation, and door and window weatherization.	TBD				
		SUTTON	PURGATORY CHASM STATE RESERVATION							
		WORCESTER	QUINSIGAMOND STATE PARK							
		SPENCER	SPENCER STATE FOREST							
		UPTON	UPTON STATE FOREST							
		STURBRIDGE	WELLS STATE PARK							
		GARDNER	GARDNER HERITAGE STATE PARK							
		WINCHENDON	LAKE DENNISON RECREATION AREA							
		WESTMINSTER	LEOMINSTER STATE FOREST							
		HUBBARDSTON	WARE RIVER WATERSHED							
CLINTON	WACHUSETT RESVR WATERSHED									
CLINTON	WACHUSETT RESERVOIR WATERSHED									
PAXTON	MOORE STATE PARK									

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Simple Fix Sites** Total 89

Energy & Environmental Affairs	Dep. Of Conservation & Recreation	CLINTON	REGIONAL HEADQUARTERS	DCAM	Lighting, lighting and HVAC controls, water conservation, and door and window weatherization.	TBD	●	○		
		RUTLAND	RUTLAND STATE PARK							
		PRINCETON	MOUNT WACHUSETT RESERVATION							
		ASHBY	WILLARD BROOK STATE FOREST							
		ROCKPORT	HALIBUT POINT STATE RESERVATION							
		REVERE	MDC MYSTIC DIST/BAIT SHOP							
		NAHANT	LYNN/NAHANT BEACH							
		NAHANT	NAHANT DIVISION MAINT FACILITY							
		REVERE	ELIOT HOUSE							
		REVERE	REVERE BEACH RESERVATION							
		REVERE	REVERE DIVISION MAINT FACILITY							
		SAUGUS	BREAKHEART RESERVATION							
		METHUEN	GREYCOURT STATE PARK							
		NORTH ANDOVER	HAROLD PARKER STATE FOREST							
		LAWRENCE	LAWRENCE HERITAGE STATE PARK							
		NEWBURYPORT	MAUDSLAY STATE PARK							
		SALISBURY	SALISBURY BEACH STATE RESERVATION							
		IPSWICH	WILLOWDALE STATE FOREST							
		BRIMFIELD	BRIMFIELD STATE FOREST							
		CHESTER	CHESTER/BLANDFORD STATE FOREST							
		CHICOPEE	CHICOPEE STATE PARK							
CHICOPEE	CONNECTICUT GREENWAY STATE PARK									
WESTFIELD	HAMPTON PONDS STATE PARK									
HOLYOKE	HOLYOKE HERITAGE STATE PARK									

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>In Progress Simple Fix Sites</b>				<b>Total</b>		<b>89</b>				
Energy & Environmental Affairs	Dep. Of Conservation & Recreation	SPRINGFIELD	LAKE LORRAINE STATE PARK	DCAM	Lighting, lighting and HVAC controls, water conservation, and door and window weatherization.		●	○		
		AGAWAM	ROBINSON STATE PARK - AGAWAM							
	Dep. Of Environmental Protection	SPRINGFIELD	STATE MATERIAL RECOVERY FACILITY	DCAM						
	Dep. Of Food and Agriculture	WEST SPRINGFIELD	EASTERN STATES EXPOSITION GROUNDS	DCAM						
	Fisheries Wildlife & Environmental Law Enforcement	AYER	AYER GAME FARM	DCAM						
		NEW BRAINTREE	WMA WINNIMUSETT							
		SHREWSBURY	FLOOD CONTROL							
		WESTBOROUGH	WMA WESTBOROUGH							
GLOUCESTER		ANNISQUAM RIVER MARINE FISHERY STN								
	NEWBURYPORT	PLUM ISLAND FISHERY								
	PALMER	ROGER REED SALMON HATCHERY								
Health & Public Safety	Dep. Of Public	BOSTON	LEMUEL SHATTUCK HOSPITAL	DCAM	Energy Performance Contract including lighting, occupancy controls, EMS, boilers and water conservation.	Constellation New Energy	●	○		
	Dep. Of State Police	ANDOVER	ANDOVER STATE POLICE BARRACKS	DCAM						
		ATHOL	ATHOL STATE POLICE BARRACKS							
		BOURNE	BOURNE STATE POLICE BARRACKS							
		BROOKFIELD	BROOKFIELD STATE POLICE TROOP C							
		CHESHIRE	CHESHIRE STATE POLICE STATION							

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>In Progress Simple Fix Sites</b>				<b>Total 89</b>						
Public Safety	Dep of State Police	CONCORD	CONCORD STATE POLICE BARRACKS	DCAM	Energy Performance Contract including lighting, occupancy controls, EMS, boilers and water conservation.	Constellation New Energy	●	●	●	
		FOXBOROUGH	FOXBOROUGH STATE POLICE BARRACKS							
		HOLDEN	HOLDEN STATE POLICE TROOP C							
		LEE	LEE STATE POLICE BARRACKS							
		LEOMINSTER	LEOMINSTER STATE POLICE BARRACKS							
		MIDDLEBOROUGH	MIDDLEBORO STATE POLICE BARRACKS							
		NEWBURY	NEWBURY STATE POLICE STATION							
		NORTHAMPTON	NORTHAMPTON STATE POLICE BARRACKS							
		NORWELL	NORWELL STATE POLICE BARRACKS							
		OAK BLUFFS	OAK BLUFFS STATE POLICE BARRACKS							
		RUSSELL	RUSSELL STATE POLICE BARRACKS							
		SHELBURNE	SHELBURNE STATE POLICE BARRACKS							
		SPRINGFIELD	SPRINGFIELD STATE POLICE BARRACKS							
		STURBRIDGE	STURBRIDGE STATE POLICE BARRACKS							
		SUDBURY	STATE POLICE CRIME LAB							
		YARMOUTH	YARMOUTH STATE POLICE BARRACKS							
		REVERE	REVERE STATE POLICE BARRACKS							
BOSTON	S. BOSTON STATE POLICE- 125 WJD									
DANVERS	DANVERS STATE POLICE BARRACKS									
MEDFORD	MEDFORD STATE POLICE BARRACKS									
BOSTON	SPECIAL OPERATIONS MARINE DIVISION									
Public Safety	Military	CONCORD	ARMORY - CONCORD	DCAM	Lighting, lighting and HVAC controls, insulation, refrigerator replacement, window replacement, and water conservation.	EE&D	●	●	○	
Sheriffs	Sheriffs Dep. at Worcester	WEST BOYLSTON	SHERIFF'S DEPT-WORCESTER-W BOYLSTON	DCAM	Wind Feasibility Study. Study complete, determining funding sources.	Constellation New Energy	●	●	Hold	
UMASS	UMASS Amherst	WALTHAM	UMASS - WALTHAM	NStar	Lighting and lighting controls	NStar	●	○		

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Audit - Whole Building Analysis Sites** **Total 40**

Energy & Environmental Affairs	Dep. Of Conservation & Recreation	BOSTON	POOL & RINK/REILLY MEMORIAL	NStar	Lighting and lighting controls	NStar	●	○	○		
		BOSTON	RINK/DALY MEMORIAL				●	○	○		
		WORCESTER	BENNETT FIELD POOL	DCAM					○	○	
		CLINTON	CLINTON POOL								
		FITCHBURG	FITCHBURG POOL								
		GARDNER	GARDNER SKATING RINK								
		LEOMINSTER	LEOMINSTER STATE POOL								
		MILFORD	SENATOR P. EUGENE CASEY STATE POOL								
		SOUTHBRIDGE	PETRO MEMORIAL POOL								
		WORCESTER	VERNON HILL PLAYGROUND/POOL-WORCEST								
		WORCESTER	WORCESTER RINK								
		PRINCETON	WESTMINSTER STATE FOREST				DCAM			●	○
		LAWRENCE	LAWRENCE POOL	DCAM					●	○	○
		LAWRENCE	HIGGINS POOL								
		HVERHILL	VETS MEMORIAL SKATING RINK-HAVERHIL								
		LYNN	RINK/WILLIAM CONNERY MEMORIAL								
		REVERE	RINK/PAUL CRONIN MEMORIAL								
		NEWBURYPORT	HENRY GRAF SKATING RINK								
		PEABODY	SKATING RINK - PEABODY								
		HAMILTON	BRADLEY PALMER STATE PARK-TOPSFIELD				DCAM			●	○
AGAWAM	AGAWAM STATE POOL- AGAWAM	DCAM			●	○	○				
CHICOPEE	SARAH JANE MEMORIAL POOL										
GREENFIELD	COLLINS-MOYLAN RINK										

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Audit - Whole Building Analysis Sites** **Total 40**

Energy & Environmental Affairs	Dep. Of Conservation & Recreation	HOLYOKE	RINK/HENRY J FITZPATRICK	DCAM			●	○	○	
		LUDLOW	JOHN THOMPSON POOL							
		NORTH ADAMS	VIETNAM MEMORIAL SKATING RINK							
		SPRINGFIELD	THOMAS MEMORIAL SWIM POOL-SPRINGFIE							
		SPRINGFIELD	SMEAD SKATING RINK - SPRINGFIELD							
		SOUTH HADLEY	BUTTERY BROOK MEMORIAL POOL							
Health & Judiciary	Dep. Development Trial Courts	TEMPLETON	TEMPLETON DEVELOPMENTAL CENTER	DCAM	Wind Feasibility Study		●	○		
		CHICOPEE	CHICOPEE DISTRICT COURT	DCAM	Energy Design Build Contract including lighting, lighting controls, EMS, water conservation, VFDs, vending misers, & replace boiler.	B & G Mechanical	●	●	○	
		HOLYOKE	HOLYOKE COURTHOUSE							
		PAXTON	PALMER DISTRICT COURT							
		SPRINGFIELD	SPRINGFIELD COURT COMPLEX							
		NORTHAMPTON	NORTHAMPTON PROBATE & FAMILY COURT							
		NORTHAMPTON	HAMPSHIRE COUNTY COURT							
		SPRINGFIELD	SPRINGFIELD HOUSING/JUVENILE COURTS							
		PITTSFIELD	PITTSFIELD DISTRICT							
		PITTSFIELD	PITTSFIELD SUPERIOR							
PITTSFIELD	PITTSFIELD PROBATE AND FAMILY									

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish
<b>In Progress Audit - RCx Sites</b>				<b>Total</b>		<b>2</b>				
A&F and Misc.	Empl. & Training	TAUNTON	JOB CENTER - TAUNTON	DCAM	Audit complete, Recommended measures include retro-commissioning, boiler replacement, lighting, lighting controls, vending misers, and demand controlled ventilation	EE&D / TBD	●	●	○	○
Judiciary	Trial Courts	WORCESTER	WORCESTER COURTHOUSES	DCAM	Existing Building Commissioning project at the Worcester District Court. Investigation of the function of the HVAC, EMS, and Lighting systems, implementation of operational upgrades by the facility, and recommendation of quick payback ECMs for the implementation phase.	Strategic Building Solutions	●			

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Comprehensive Sites** **Total 32**

A&F and Misc.	Bureau of State Buildings	BOSTON	HURLEY BUILDING	DCAM	Comprehensive Energy and Water	Kling	●	○		
		BOSTON	MCCORMACK BUILDING							
		BOSTON	LINDEMANN BUILDING							
		BOSTON	STATE HOUSE		Lighting Upgrades	ARUP / Dagle Elec.		●	●	●
	Dep. Of Capital Assets	BOSTON	STATE TRANSPORTATION BUILDING	DCAM	Comprehensive Energy and Water Design Build Contract.		●	○		
		SPRINGFIELD	SPRINGFIELD STATE OFFICE DWIGHT ST	DCAM	Major Renovation including HVAC. Design, Bid, Build in design.	ARUP / TBD	●			
Health and Human Services	Dep. Of Mental Health	BOSTON	SOLOMON CARTER FULLER MENTAL HEALTH	DCAM	Energy Performance Contract including lighting, lighting controls, motors, mechanical, water and sewer conservation, steam traps, VFD's fans and pumps, insulation, weatherstripping, HVAC & kitchen hood controls, and metering.	Sebesta / JCI	●	○		
		BOURNE	CAPE COD/ISLANDS MENTAL HEALTH CTR							
		BROCKTON	BROCKTON MENTAL HEALTH CTR							
		FALL RIVER	CORRIGAN MENTAL HEALTH CTR							
		LOWELL	HARRY C. SOLOMON MNTL HEALTH CENTER							
		QUINCY	QUINCY MENTAL HEALTH CENTER							
		WORCESTER	WORCESTER STATE HOSPITAL							
	NORTHAMPTON	DMH WESTERN MA AREA OFFICE								
	Dep. Of Youth Services	TAUNTON	DYS - TAUNTON	DCAM	DYS Tauton assesement complete, construction expected next quarter.	Sebesta / JCI	●	○		
	Dep. Of Public Health	CANTON	MASS HOSPITAL SCHOOL	DCAM	Energy Performance Contract including: retrocommissioning,	Sebesta / TBD	●	Hold		
		WESTFIELD	WESTERN MASS HOSPITAL - WESTFIELD	DCAM	lighting, water, EMS, solar thermal and mechanical upgrades.					

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Comprehensive Sites** **Total 32**

Higher Ed.	Fitchburg State College	FITCHBURG	FITCHBURG STATE UNIVERSITY	DCAM	Solar Thermal Pool Installations at 1 building on the campus	ARUP / TBD	●	○		
	Mass Maritime Academy	BOURNE	MASSACHUSETTS MARITIME ACADEMY	DCAM	Solar Thermal Pool Installations at 1 building on the campus	ARUP / TBD	●	○		
	Mass College of Lib. Arts	NORTH ADAMS	MASS COLLEGE OF LIBERAL ARTS	DCAM	Comprehensive Energy and Water Design Build including lighting, HVAC, steam system improvements, biomass, and PV.	ARUP / TBD	●	○		
	Middlesex CC	BEDFORD	MIDDLESEX COMMUNITY COLLEGE	DCAM	Ground Source Heat Pump	ARUP / Coneco Energy	●	●	●	○
	N Essex CC	HAVERHILL	N ESSEX COMM COLLEGE-HAVERHILL	DCAM	Comprehensive Energy and Water Equipment Design Build including electric to gas heat conversion, EMS upgrades, HW Boiler replacement,	Kling / Enterprise	●	●		
		LAWRENCE	N ESSEX COMM COLLEGE-LAWRENCE							
	Salem State	SALEM	SALEM STATE UNIVERSITY	DCAM	Comprehensive Energy and Water Performance Contract including lighting, EMS, and water conservation	Sebesta / Consellation	●			
	Springfield Tech	SPRINGFIELD	SPRINGFIELD TECH COMMUNITY COLLEGE	DCAM	Heating and Cooling System Upgrade Study	Green Engineer / TBD	●	○		

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress Comprehensive Sites** **Total 32**

Public Safety	DOC	GARDNER	NORTH CENTRAL CORRECTIONAL INSTITUT	DCAM	Comprehensive Energy Design Build including boiler replacement, convert steam dryers to natural gas, insulation, water conservation fixtures, and upgrade windows.	Kling / TBD	●	●	○	
Sheriffs	Dept. Berkshire	PITTSFIELD	SHERIFF'S DEPT-BERKSHIRE-NEW	DCAM	Energy and Water Design Building including ground mounted solar PV system.	Bart Bales / TBD	●	●		
		PITTSFIELD	SHERIFF'S DEPT-BERKSHIRE-OLD							
	Dept. Middlesex	BILLERICA	SHERIFF'S DEPT-MIDDLESEX-BILLERICA	DCAM	Energy and Water Design Building including lighting, HVAC, and water controls	TRC /TBD	●	○		
	Dept. Plymouth	PLYMOUTH	SHERRIFF'S DEPT-PLYMOUTH-MAIN	DCAM	Water conservation project	TRC	●	●		
UMASS	UMass Boston	BOSTON	UMASS - BOSTON	DCAM	Solar Thermal Pool Installations at 1 building at each campus	ARUP / TBD	●	○		
	UMass Lowell	LOWELL	UMASS - LOWELL- LOWELL							

Site Information				AEP Program Status						
Program Area	Agency	City	Site Name	Leading Org.	Project Description	Active Consultant / Contractor	Energy Assessment Start	Energy Assessment Finish	Installation Start	Installation Finish

**In Progress New Review Sites** **Total 5**

Health and Human Services	Dept. of Mental Health	WESTBOROUGH	WESTBOROUGH STATE HOSPITAL	DCAM	Energy Performance Contract including lighting, lighting controls, motors, mechanical, water and sewer conservation, steam traps, VFD's fans and pumps, insulation, weatherstripping, HVAC & kitchen hood controls, and metering.	Sebesta / JCI	●	○		
Higher Ed.	Bristol CC	FALL RIVER	BRISTOL COMMUNITY COLLEGE	DCAM	Wind turbine generator project	TBD	●	○		
	Mt. Wachusett CC	GARDNER	MOUNT WACHUSETT COMMUNITY COLLEGE	DCAM	Solar Thermal Pool Installations at 1 building at each campus	TBD	●	○		
	Bridgewater State	BRIDGEWATER	BRIDGEWATER STATE UNIVERSITY							
UMASS	UMass Amherst	AMHERST	UMASS - AMHERST	DCAM	Biomass Plant Project	Edwards-Kelcey / TBD	●	●	Hold	
					Small Energy Retrofit	ARUP / Thielsch	●	●	●	

## AEP Spotlight – Simple Fix

### Department of Conservation and Recreation

#### Statewide Energy Efficiency Audits

Walden Pond State Reservation – Concord, MA

Wompatuck State Park – Hingham, MA

Mount Tom Reservation – Holyoke, MA

Nantasket Beach Reservation – Hull, MA

Otter River State Forest – Templeton, MA

**Status:** Audit Complete

#### Project Overview:

Simple Fix energy audits were performed by Energy Engineering & Design (EE&D) and the audit results were reviewed by the AEP team. All of the sites are located within Municipal Light Districts and therefore do not fall under any existing utility rebate programs. The preliminary audit results recommend several small measures be implemented to achieve energy savings, including:

- Lighting upgrades and controls
- Building envelope improvements
- Appliance upgrades
- Water conservation measures

In Q3, DCAMM worked with DCR to develop an innovative implementation approach which utilizes existing DCR staff to implement the recommended measures. DCAMM has transferred \$186,460 to DCR to fund 5 projects yielding an estimated annual savings of \$60,893, resulting in a 3.1 year payback.



*Nantasket Beach Reservation*



## AEP Spotlight – Simple Fix

### Massachusetts Department of Transportation

#### MassDOT Statewide Energy Efficiency Audits

MHD Dartmouth Faunce Corner – D5

MHD Mattapoisett Depot – D5

MHD Sharon/Walpole Depot – D5

MHD Dartmouth State Road – D5

**Status:** Audit Complete

#### Project Overview:

MassDOT has a total of 125 sites in the AEP, encompassing 683 buildings and 1,867,088 square feet. The AEP team is working closely with DOER and utilities to maximize energy and water conservation at each site through the Simple Fix, Whole Building Analysis, or Retro-Commissioning implementation methods.

In Q3 2012, several Simple Fix energy audits were performed by NXEGEN and managed by NSTAR. All of the sites are located within the NSTAR electric utility territory. Due to the types of buildings found at each of the sites, the audits only addressed lighting measures.

Implementation of the ECMs at these sites will yield a cumulative savings of over \$12k annually with an average payback of 3.6 years. Utility incentives are based on \$0.13/KWH and will account for 33% of project funding.



*Administration Building – South Boston*



## AEP Spotlight – Whole Building Analysis

### Military Division

#### Concord Armory Concord, MA

**Status:** Audit Complete

#### Project Overview:

The Concord Armory is a 36,500 square foot brick building constructed in 1915. The building consists of a 9,600 square foot gymnasium, offices, classrooms, and a cafeteria. The building is occupied year-round with a light staff but is frequently used by the National Guard as well as other groups for meetings, drills, educational activities, and shows.

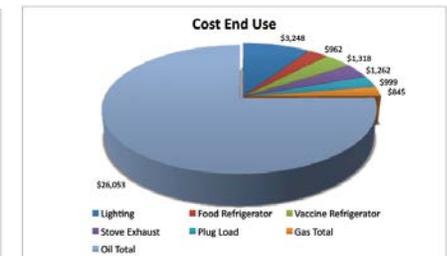
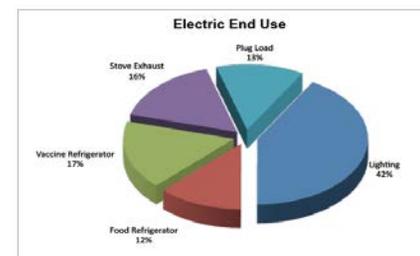
There are forced hot water radiators throughout the building and five unit heaters in the gymnasium. There is a single zone for the entire building heat set at approximately 72°F during the day and 68°F at night. The energy use intensity for the Concord Armory is 34.85 kBtu/square foot/year which falls within a normal range for this building type. The preliminary audit results suggest several measures can be implemented to achieve energy savings, including:

- Lighting improvements
- Occupancy sensors
- HVAC controls - 1,891 gallons of oil saved per year
- Insulation
- Window replacement
- Refrigerator replacement

Implementation of the ECMs will yield a cumulative savings of over \$19k annually with a payback of 3.2 years



*Military Division Armory, Concord, MA*



*\*Utility Costs and Electric End Use from EE&D Audit*

## AEP Spotlight – Retro-Commissioning

### Executive Office of Labor & Workforce Development

#### Career Center

#### Taunton, MA

**Status:** Audit Complete / Scope of Work Drafted

#### Project Overview:

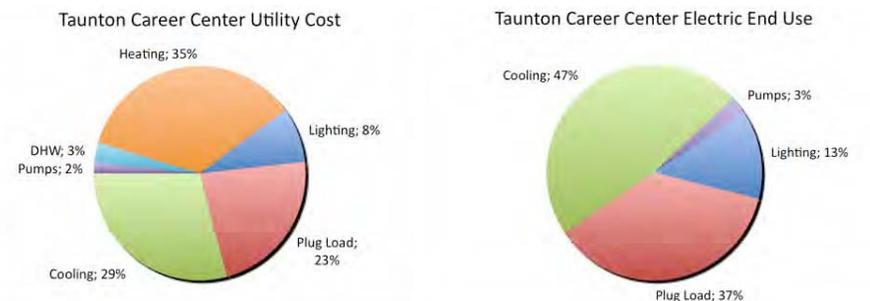
DCAMM initiated a Retro-Commissioning analysis of the Taunton Career Center on August 14, 2012. A preliminary audit noted that heating and cooling systems are often operating simultaneously and independently, resulting in unnecessary and large energy consumption. The retro-commissioning scope includes:

- Investigating the operation of the existing building automation system by installing data loggers to verify how the system is currently operating over time and at various outdoor air temperatures.
- Reviewing the as-built documentation and interviewing the building automation system technician and vendor to determine the capability of the system.
- Developing a scope of work for the BAS vendor that describes the new points and control logic that will be added to the system.
- Verifying that all of the equipment operates as intended and as efficiently as possible while maintaining occupant comfort.

The project has a total investment of \$17,300 and is estimated to yield an annual savings of \$12,008, resulting in a 1.2 year payback.



*Taunton Career Center*



*\*Utility Costs and Electric End Use from EE&D Audit*

## AEP Spotlight – Retro-Commissioning

### Judiciary

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#### Worcester Trial Court

#### Worcester, MA

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**Status:** Audit Complete

#### Project Overview:

The Worcester Trial Court is a 427,000 square foot building that opened in 2007. Strategic Building Solutions, LLC (SBS) conducted a retro-commissioning audit in September to investigate existing system operation and identify potential conservation measures for installation. The audit found that while the facility staff was operating the building proficiently, optimizing existing sequences of operations, revising setpoints, and improving building equipment could result in saving approximately 25% of total energy costs annually.

The recommended energy efficiency measures would allow the Worcester Trial Court to significantly reduce energy usage while maintaining a favorable payback. Recommended measures require approximately \$690k investment and will yield nearly \$225k in energy savings annually, for a simple payback of 3.1 years.

Elsewhere in the Judiciary, 11 AEP sites and 15 other sites are bundled into larger projects, the former in study and the latter in construction.



*Worcester Trial Courthouse*

## AEP Spotlight – Comprehensive Retrofit

### Department of Correction

#### North Central Correctional Institution Gardner, MA

**Status:** Proposals Received

**Project Overview:**

DCAMM issued an RFP for the comprehensive energy and water retrofit at NCCI Gardner on August 8, 2012. DCAMM received four proposals which are currently being evaluated. Kling Stubbins estimated project investment at approximately \$9.2 million.

Anticipated energy and water conservation measures include:

- Replacing steam laundry dryers with natural gas dryers
- Plumbing fixture upgrades
- Attic insulation in 16 buildings
- Window upgrades at Thompson Hall
- Replacement of the central steam plant boilers and outer building condensing plants

The project is estimated to yield an annual savings of approximately \$1.1 million with a payback of 8.4 years.

The NCCI Gardner site has recently completed the installation of two 1.65kW wind turbines with a data acquisition system (DAS) which allows for tracking and reporting of electricity generation. The turbines are interconnected with the National Grid system.



*NCCI Gardner Wind Turbine*



## AEP Spotlight – Comprehensive Retrofit

### Higher Education

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#### Northern Essex Community College

#### Haverhill, MA and Lawrence, MA

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**Status:** Construction Contract Negotiations

**Project Overview:**

Northern Essex Community College includes sites at both Haverhill and Lawrence – a total of 422,111 square feet. On July 25, 2012 DCAMM signed a construction contract with Enterprise Equipment Company for a comprehensive energy and water retrofit project, totaling \$5.9 million, which includes measures such as:

- Lighting
- Premium efficiency motors
- Electric to gas heat conversion
- Energy Management System upgrades
- Building Insulation
- Demand control ventilation
- Replacement of hot water boiler

The investment is expected to yield approximately \$350,000 per year in savings, including significant electricity consumption and demand savings as a result of switching from electric to gas heating at the Haverhill campus.



*Northern Essex Community College*



## AEP Spotlight – Comprehensive Retrofit

### Bureau of State Office Buildings

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#### Massachusetts State House

#### Boston, MA

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**Status:** Construction Underway

**Project Overview:**

The Massachusetts State House, home to the Governor's office and state legislature, is one of the most iconic buildings in the state. It is a 650,000 square foot building completed in 1798 with subsequent additions and improvements.

On July 19, 2012 Dagle Electrical Construction Corp. began construction of the State House lighting upgrades project. The lighting upgrades project at the State House includes installing efficient lights and new programmable ballasts which will allow for the installation of occupancy, daylight, and other sensors.

The project has a total investment of \$1,285,250 and is estimated to yield an annual savings of \$179,904 resulting in a 7.2 year payback. An estimated 836,000 kWh will be saved from the project annually, which is an approximate equivalent to 577 metric tons of CO<sub>2</sub> and the annual greenhouse gas emissions from 113 passenger vehicles.



*Massachusetts State House*

## AEP Spotlight – New Review

### Higher Education

#### Bristol Community College

#### Fall River, MA

**Status:** Study Complete

#### Project Overview:

Bristol Community College’s Fall River campus is located on 105 acres of land. The property consists mainly of academic and administrative buildings, sports facilities, parking areas, a manmade pond and wooded areas.

A feasibility study for a wind turbine generator was completed by Meridian Associates and the site was determined to have sufficient wind to support an on-site wind generation project. Preliminary design analysis revealed that the site could accommodate a 900 kW wind turbine generator without exceeding Massachusetts DEP Standards for sound levels.

The best financial scenario for a college-owned and operated 900 kW wind turbine at the site yields an 11 year payback. Bristol Community College has been selected as a 2012 Clean Energy Grant recipient. The \$600,000 grant will partially fund the wind turbine installation on campus.

DCAMM is currently finalizing the RFP for the wind turbine generator project and will issue the RFP on October 9, 2012. Proposals are due by November 7, 2012.



*Proposed location for wind turbine generator and MET Tower*

## AEP Spotlight – Partners

Each quarter, DCAMM and DOER will recognize individuals and organizations for their contribution to the success of the AEP. This quarter DCAMM and DOER recognize Don Zanetti from BSB. Don brings tremendous project and electrical engineering experience from his time at private (Johnson Controls) and public (BSB) institutions. In Q3, Don provided innovative thoughts, attended numerous planning meetings and aided DCAMM and DOER in advancing the goals of the AEP.

Some of his contributions include:

- Managing the State House lighting project
- Championing the upcoming Capitol Complex energy and water efficiency upgrades project for the AEP
- Actively participating in the AEP “Inreach” and Technical Support working group

Don is always supportive and provides valuable insight, expertise, and direction. He always sees opportunity in a challenge. Given the complexity of the Capitol buildings (including the State House) the project teams are grateful for Don’s optimism. Thanks to the dedicated efforts of facility managers like Don Zanetti, the AEP will be a success.



## Program Exposures

The AEP has a wide variety of stakeholders and contributors that work to ensure its success. Given the AEP's complexity, the identification and mitigation of risks becomes an important factor in successful program management.

Throughout Q3, the AEP team was able to mitigate many of the risks identified in the previous quarterly report. Many of the planning phase risks were overcome through innovative solutions currently being implemented throughout DCAMM. In order to resolve uncertainty around identifying and scheduling individual projects, the team developed a detailed implementation strategy and prioritized all of the sites in the AEP – both individual large projects and bundles of smaller sites. Additionally, DCAMM expanded the existing pool of Facility Advisors in order to ensure that the necessary resources were available to implement the AEP over the next three years.

The table below lists the AEP's remaining risks as well as strategies for mitigating those risks and the working group responsible. Risks are categorized by the area of the program affected (i.e. planning, data management, communications). Each risk is scored as a combination of the probability of the risk being realized and the risk's potential impact on the AEP.

Risk Identifier	Risk	Impact Description	Risk Score (1=Low 6=High)	Timeline	Risk Response	Risk Owner (Working Group)
<b>Implementation Planning</b>						
IP-R1	Mapping of utility accounts to sites/buildings is incomplete	Cannot accurately assess energy savings	3	Near term	Develop a detailed survey to map utility accounts to sites/buildings.	Data & Performance Management / Outreach & Technical Support
IP-R2	Estimated cost of implementing ECMs is understated	Not enough funds to complete program	4	Near term	Specific identification of work required for each ECM. Developing a strong database of construction costs.	Data & Performance Management
IP-R3	All requested funding not in place (bond bills, utility rebates, etc.)	Not enough funds to complete program	6	Near term	Develop a project prioritization list based on highest return on investment or critical needs.	Procurement
IP-R4	Site implementation grouping changes throughout program.	Not enough funds to complete program	3	Near term	Finalize all site implementation groupings during planning and include contingency in estimated costs.	Data & Performance Management / Procurement
<b>Project Management</b>						
PM-R1	Negotiation of Simple Fix contracts with utility companies fails to result in agreement	Schedule impacts to all projects and overall program	2	Near term	Develop alternative delivery methods for Simple Fix projects independent of utility companies.	Simple Fix

Risk Identifier	Risk	Impact Description	Risk Score (1=Low 6=High)	Timeline	Risk Response	Risk Owner (Working Group)
<b>Project Management</b>						
PM-R2	Utility rebate programs do not meet funding requirements	Not able to fund all projects	3	Mid-term	Identify alternate sources of funding.	Simple Fix / Audits
<b>Resource Center</b>						
CE-R1	Inadequate resources for developing and implementing training	Training program launch delayed or cancelled	2	Mid-term	Identify DCAM staff available for developing curriculum and training. Outsource curriculum and training.	"Inreach" & Technical Support / Labor & Workforce Development
CE-R2	Coordination efforts with Integrated Facility Management does not occur	Site shutdown not coordinated with AEP	2	Mid-term	Coordinate with IFM/MAFMA/CFAC to determine implementation approach for consolidated sites.	"Inreach" & Technical Support / Data & Performance Management
CE-R3	Lack of building occupant training participation	Full energy saving potential not realized	3	Long term	Coordinate with IFM/MAFMA/CFAC to incentivize building occupants to adopt new energy saving practices.	"Inreach" & Technical Support
<b>Standards &amp; Process Creation</b>						
SP-R1	Building codes change during implementation	Construction change orders	2	Long term	Coordinate with MAFMA to identify and monitor state regulations and building codes to identify changes prior to construction. Quarterly updates.	Site Upgrades
SP-R2	Building codes require additional work outside of energy conservation measures	Increased individual project costs	1	Long term	Coordinate with MAFMA to identify and monitor state regulations and building codes to identify changes prior to construction. Quarterly updates.	Site Upgrades
<b>Data &amp; Performance Management</b>						
DM-R1	Data collection is prolonged and laborious	Inaccurate reporting of progress	2	Long term	Incentivize House Doctors, contractors and other parties by making data reporting form submittal required prior to payment. Define timelines for DCAM project managers to submit data.	Data & Performance Management

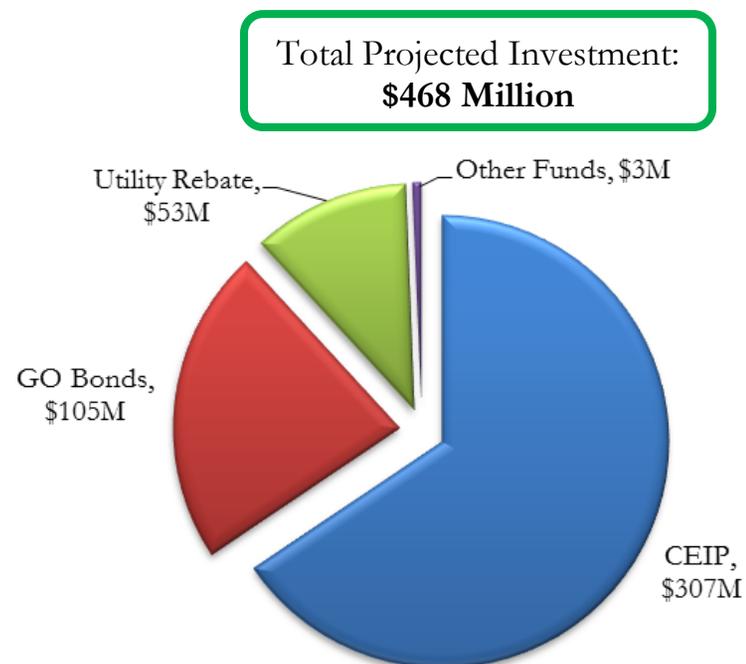
Risk Identifier	Risk	Impact Description	Risk Score (1=Low 6=High)	Timeline	Risk Response	Risk Owner (Working Group)
<b>Data &amp; Performance Management</b>						
DM-R2	Collection of all energy consumption and accounting data for dashboards does not occur	Energy dashboard initiative not completed	3	Mid-term	Identify and assess the data collection and energy accounting system. Develop alternative methods for collecting and analyzing energy consumption and financials.	"Inreach" & Technical Support / Data & Performance Management
DM-R3	Inaccurate data	Inaccurate reporting of progress	2	Long term	Perform QA/QC prior to entering data into database. Create a centralized QA/QC for audit validation. Define detailed processes for QA/QC.	Data & Performance Management
DM-R4	AEP Database & Dashboard not operational by end of 2012	Program reporting increased level of effort	3	Mid-term	Develop alternative tools for project tracking and reporting.	Data & Performance Management
DM-R5	Lack of collaboration for data collection across all stakeholders	Not meet communication goals for all stakeholders	2	Long term	Coordinate amongst various agencies to establish inter-agency working groups to aid in communication and data sharing.	Data & Performance Management
<b>Communications</b>						
CO-R1	Communication plan is not in place	Lack of broad support for AEP	1	Mid-term	Engage stakeholders and the public through targeted events.	Communications

## Financial Management

### Investment

AEP retrofits will be funded by a combination of CEIP Bonds, G.O. Bonds, utility rebates and other funding sources.

- CEIP bonds are an innovative investment approach created by the Patrick-Murray administration in which debt service is repaid through energy savings.
- CEIP bonds are expected to fund \$307 million or 66% of the total AEP.
- Utility rebates are estimated at \$53 million based on a review of past DCAMM, DOER, and utility projects. Smaller projects are eligible for higher rebates because of quick payback and ease of implementation.
- G.O. Bonds and Other Funds are expected to fund the remaining \$108 million.



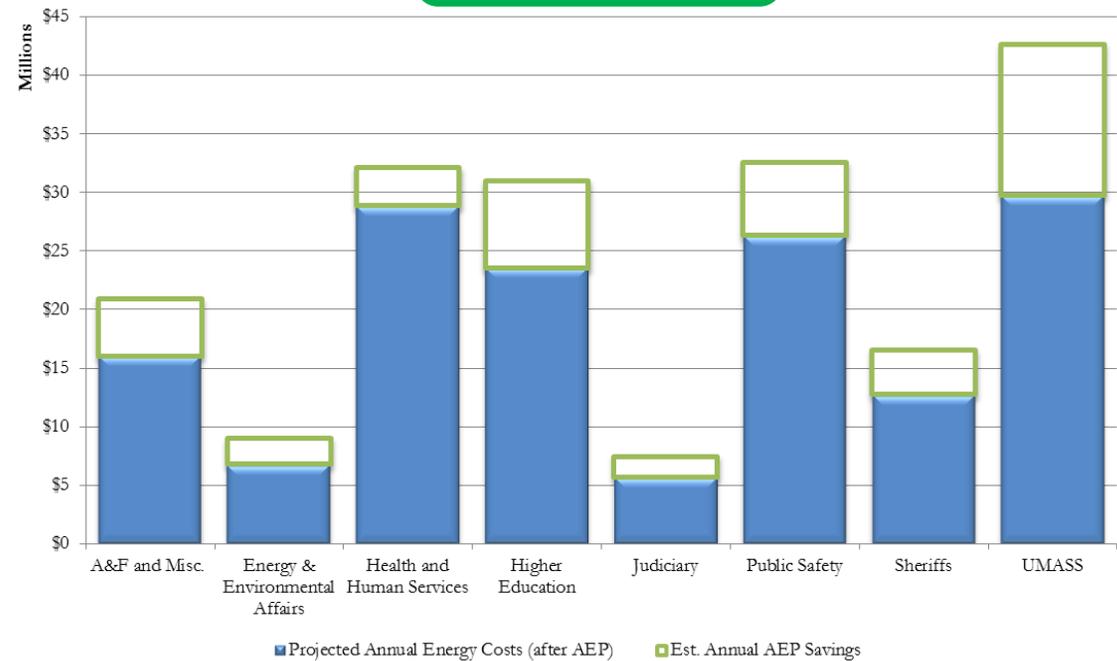
Implementation Group	Est. AEP Investment	CEIP Bonds	GO Bonds	Percentage Utility Rebate	Utility Rebate	Other Funds	Study Costs
Simple Fix	\$22,505,517	\$16,377,208	\$835,730	22%	\$5,057,236	\$235,343	\$0
Retro-Commission	\$26,721,432	\$18,250,039	\$3,446,669	18%	\$4,774,583	\$0	\$250,140
Whole Building Analysis	\$44,543,374	\$7,830,564	\$24,429,862	27%	\$11,783,873	\$185,820	\$313,255
Comprehensive	\$341,124,774	\$240,247,017	\$65,875,451	8%	\$27,614,301	\$749,113	\$6,638,892
New Review	\$33,101,027	\$24,186,361	\$2,611,466	11%	\$3,342,694	\$1,670,160	\$1,290,346
Evaluated NA	\$0	\$0	\$0	0%	\$0	\$0	\$0
<b>Current Working Estimate</b>	<b>\$467,996,125</b>	<b>\$306,891,189</b>	<b>\$97,199,179</b>	<b>11%</b>	<b>\$52,572,688</b>	<b>\$2,840,436</b>	<b>\$8,492,633</b>

## Annual Energy Cost Reductions

Retrofits are expected to achieve annual savings in energy costs.

- Annual energy costs for AEP sites are estimated at \$192 million.
- Investment in retrofits is expected to generate \$42 million in annual energy cost savings. This represents a 22% annual energy cost reduction.
- Savings estimates were calculated using historical data from hundreds of prior retrofit projects.
- Comprehensive projects yield higher savings, so agencies with larger facilities such as Higher Education and UMASS are expected to achieve higher savings. This is due to implementing a combination of all ECMs types ranging from simple lighting measures to longer payback measures such as building system upgrades. Refer to the ECM table in the Implementation Planning section of this report for more information.

Total Savings:  
**\$42 Million**



Program Area	Estimated Investment for AEP Sites	Estimated Annual Energy Costs for AEP Sites	Estimated Annual Savings	Projected Annual Energy Costs (after AEP)	Energy Cost Reduction
A&F and Misc.	\$80,742,160	\$20,893,891	\$4,864,291	\$16,029,601	23%
E & E Affairs	\$18,919,428	\$8,977,175	\$2,211,009	\$6,766,166	25%
H & H Services	\$36,925,292	\$32,125,481	\$3,259,050	\$28,866,431	10%
Higher Ed	\$101,073,035	\$31,000,444	\$7,429,713	\$23,570,731	24%
Judiciary	\$19,193,702	\$7,436,176	\$1,760,441	\$5,675,735	24%
Public Safety	\$46,237,577	\$32,563,421	\$6,232,006	\$26,331,415	19%
Sheriffs	\$40,516,968	\$16,553,246	\$3,814,049	\$12,739,197	23%
UMASS	\$124,387,963	\$42,673,429	\$12,910,237	\$29,763,192	30%
<b>Grand Total</b>	<b>\$467,996,125</b>	<b>\$192,223,263</b>	<b>\$42,480,797</b>	<b>\$149,742,466</b>	<b>22%</b>

## Implementation Committee Working Group Accomplishments

The Implementation Committee Working Groups made significant accomplishments during Q3 2012. The table below highlights the accomplishments in Q3 and planned goals in Q4:

*AEP Working Group Accomplishments and Goals*

	Q3 2012	Q4 2012
Communications	Developed Strategic Public Relations and Stakeholder Engagement Campaign	AEP Public launch
Simple Fix	Initiated work at 76 smaller sites within Energy & Environmental Affairs	Initiate work at 84 smaller sites within Judiciary and Public Safety
Audits & RCx	Developed standardized audit template	Initiate Retro-Commissioning audits
Outreach & Tech Support	Distributed site survey to facility managers	Collect and analyze site survey results, follow-up with facility managers
Building Codes	Developed roadmap for building codes	Develop revised matrix and accessibility policy
Data & Performance	Prioritized all AEP projects using criteria defined by the AEP team	Develop AEP Database & Dashboard
Procurement	Explored innovative contract options with utilities, comptroller, and DCAM business units	Develop approach for achieving M/WBE goals
Leasing	Identified all leased spaces in privately owned sites	Develop prioritized list of leased spaces
Labor & Workforce	Established new working group	Develop framework for AEP Certification Program

## Communications Working Group

### AEP Public Website

To communicate the status and successes of the AEP, DCAMM launched an AEP web page. The website is embedded as part of the DCAMM's Energy & Sustainability website.

The website is continuously updated and expanded with the following information:

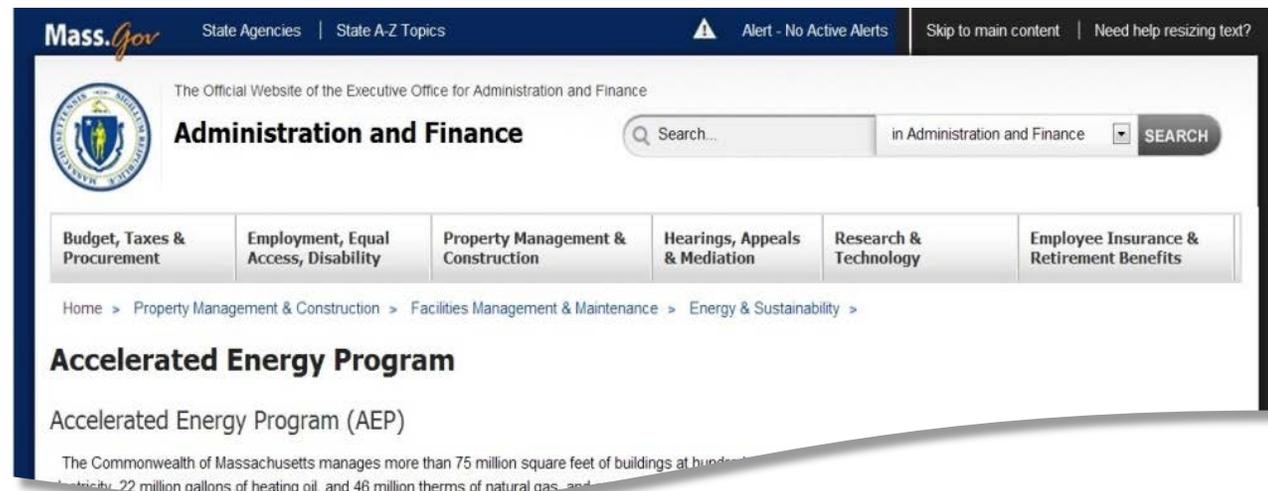
- Overview of the AEP
- Goals of the AEP
- Program Status
- Project Spotlights
- Outreach events
- ....And much more.

### Working Group Objectives:

- Collaborate with Associations and Leadership Councils
- Outreach to Building Occupants
- Promote AEP to Employees and the Public

### AEP Public Website

<http://www.mass.gov/DCAMM/AEP/>



### AEP Public Launch

On September 24<sup>th</sup> the Communications Working group presented an overview of the AEP to Governor Patrick. The Governor has approved the AEP, and a public launch is set to occur this fall.

## Simple Fix & Audits Working Group

### Utility Program

There are 502 smaller sites in the AEP served by investor-owned electric utility companies.

In Q3, DCAMM met with National Grid and NSTAR in an effort to leverage their expertise and help retrofit the smaller sites.

NSTAR completed pilot audits on 14 sites across 4 agencies (DCR, MassDOT, State Police and Judiciary) within their service territory. The audits were performed by approved utility vendors. The majority of the measures identified were related to lighting and some minor mechanical systems. A follow-up analysis was performed on the economics of the recommended measures. Strategies for implementation will be addressed in Q4.

### Municipal Electric Territories

There are almost 100 smaller sites in the AEP served by municipal electric companies. These electric utility providers are not required to offer energy efficiency rebates. Strategies are being tested to maximize the benefits of energy savings while minimizing implementation costs.

In Q3, DCAMM reviewed the results of the pilot audits performed in municipal service territories during Q2. The recommended measures were aggregated by trades. DCAMM transferred \$186,000 to DCR to manage implementation of the work. In Q4, DCR will install almost all recommended measures through existing DCR staff and outside contractors. Please refer to the DCR project overview on page 26 for additional information.

### Standardized Request for Proposals and Scope of Work

In Q3, the Simple Fix and Audits Working Group developed a standard Request for Proposals and Scope of Work to perform audits at the smaller sites in the AEP. The standardized RFP defines the expectations and minimum standards for work to be performed, the deliverables for all audits performed, predefined timelines for executing the audits, and the framework for submitting cost estimates to perform the audits. The benefit of the standardized RFP and Scope of Work is that it will streamline the effort required to issue an RFP, allow vendors to become familiar with a standardized Scope of Work requirements for these types of sites, allow standardized proposals to be submitted by vendors, and expedite the review of the proposals by the DCAMM Energy Team.

### Working Group Objectives:

- Plan and lead retrofit of all small facilities (Simple Fix Working Group)
- Plan and lead implementation of audits and retro-commissioning (Audits Working Group)



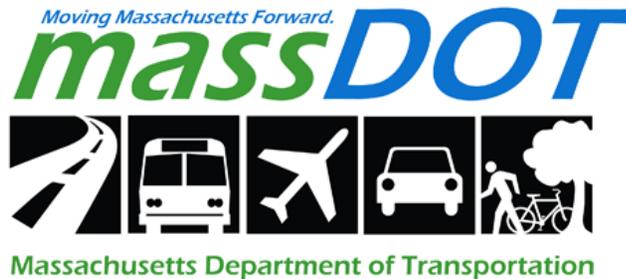
*Otter River State Forest*

## Ramping Up Audit Activity

In Q3, using the standardized Scope of Work described above, DCAMM initiated audits at 76 smaller sites in three different regions across the Commonwealth. The 76 sites represent 466 buildings and 1.3M square feet and are under the jurisdiction of the Executive Office of Energy and Environmental Affairs. The audits, which will be performed by Facility Advisors, were “bundled” into eight groups: three bundles in the Central Region, three in the North Shore Region, and 2 in the Western Region. In each region there is a bundle of DCR pools and rinks. The remainder of the sites is primarily parks, beach facilities and state forests. All audits are scheduled to be completed by the end of Q4.



*Lieutenant Governor Murray celebrating the installation of ECMs at O'Neil Memorial Rink in Charleston*



### Agency Collaboration

In Q3, DCAMM and MassDOT held a meeting to discuss tracking tool methodologies and best practices to track invoicing, payroll and M/WBE compliance in the Accelerated Bridge Program. In October 2012, a subsequent meeting is planned to discuss project controls on the ABP and how they may be adapted to the Accelerated Energy Program.

## Retro-Commissioning (RCx) Approach

Retro-commissioning is a process that seeks to improve how building equipment and systems function together.

In Q3 2012, DCAMM initiated the development of a standardized request for proposals similar to the standardized RFP for audits at small sites. The standardized RFP will streamline the issuance of RFPs for the various RCx sites in the AEP, will allow for more standardized proposals to be written by vendors, and will expedite the review of submitted proposals. DCAMM anticipates completing the standardized scope of work early in Q4 2012.

### Enhanced Audit Data Collection Template

Many different firms are already conducting energy and water audits on sites in the AEP.

DCAMM recognizes that a standardized template is needed to streamline in-the-field data collection, reporting and electronic transfer of audit results consistent across all firms and individuals performing the audits. Furthermore the standardized template will allow for a structured and consistent Quality Control (QC) review of the audit data submitted by the different firms.

In Q3, DCAMM greatly enhanced and finalized an easy-to-use audit template. The audit template has many new features such as help buttons, automated printing, ability to record information that does not match current CAMIS data, and noted or potential building code issues.

The enhanced audit template was distributed with the standardized RFP and Scope of Work for the 76 small facility sites in Q3. It will be made available for download to all DCAMM AEP Facility Advisors on a secure web site. A webinar on the features and functionality has been created and will be posted on line as well.

**Site - Audit Template**

Audit Date		Site Contact - Name	
CAMIS Site Code		Site Contact - Title	
Site		Site Contact - #	
Secretariat		Site Contact - Email	
Agency			
Site Address		Auditor Prime	
Site City		Auditor Sub	
Site ZIP		Auditor - Name	
Prim Elect Util		Auditor - Title	
Project Number		Auditor - #	
Data Source		Auditor - Email	
Date of NTP			

Building Codes	Building Name	Sq Ft	Consumes				
			Audited	In Use	Elect	Fossil	Water
<b>Totals</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Site - Audit Results**

Energy Conservation Measure	Cost		Energy [MMBtu]	Annual Savings Water [Gallon]	Cost [\$]	Simple Payback [yrs]
	Estimated Install Cost [\$]	Utility Incentive [\$]				
<b>Totals</b>	<b>\$ -</b>	<b>\$ -</b>	<b>-</b>	<b>-</b>	<b>\$ -</b>	<b>-</b>
01.00 Lighting	\$ -	\$ -	-	-	\$ -	-
02.00 Lighting Controls	\$ -	\$ -	-	-	\$ -	-
03.00 Electric Motors	\$ -	\$ -	-	-	\$ -	-
04.00 EMS (Energy Management System) and Controls	\$ -	\$ -	-	-	\$ -	-
05.00 Domestic Water	\$ -	\$ -	-	-	\$ -	-
06.00 Sewer Conservation	\$ -	\$ -	-	-	\$ -	-
07.00 Process Water Conservation	\$ -	\$ -	-	-	\$ -	-
08.00 Steam Heating Improvements	\$ -	\$ -	-	-	\$ -	-
09.00 VFD's (Variable Frequency Drives)	\$ -	\$ -	-	-	\$ -	-
10.00 Insulation	\$ -	\$ -	-	-	\$ -	-
11.00 Vending and Plug Load Controllers	\$ -	\$ -	-	-	\$ -	-
12.00 Window and Doors	\$ -	\$ -	-	-	\$ -	-
13.00 Biomass	\$ -	\$ -	-	-	\$ -	-
14.00 Boilers	\$ -	\$ -	-	-	\$ -	-
15.00 Chillers	\$ -	\$ -	-	-	\$ -	-
16.00 Cogeneration	\$ -	\$ -	-	-	\$ -	-
17.00 Unknown HVAC	\$ -	\$ -	-	-	\$ -	-
18.00 Retro-Commissioning	\$ -	\$ -	-	-	\$ -	-
19.00 Real-Time Metering	\$ -	\$ -	-	-	\$ -	-
20.00 Energy Efficient Roof Coatings/Roof	\$ -	\$ -	-	-	\$ -	-

Example of Enhanced Audit Template Input and Output Sheets

## “Inreach” & Technical Support Working Group

### Agency Survey

To better collaborate with agencies, DCAMM developed a web-based survey to collect information on all 700 sites in the AEP.

Many agencies have self-performed retrofits at their sites that are not typically reported to or tracked by DCAMM.

The survey asks facility managers for information on past retrofit projects. The survey also requests input on desired future retrofits. The survey asks facility managers to ponder updated facility points of contact, asset, energy consumption, and project information.

On September 13, the AEP team distributed the site survey to over 1,300 facility managers and staff across the Commonwealth. Survey responses are due back to DCAMM by October 12. In Q4, the “Inreach” & Technical Support working group will analyze the survey data and follow up with facility managers.

The survey can be viewed at the following URL: <https://www.surveymonkey.com/s/DCAMM-AEP>

### Working Group Objectives:

- Develop specifications, guidelines, training through a new Resource Center
- Manage content on AEP internal website
- Deliver outreach and support

**Commonwealth of Massachusetts Accelerated Energy Program - General Survey** Exit this survey

Commonwealth Accelerated Energy Program - General Survey

Through the Accelerated Energy Program (AEP) the Division of Capital Asset Management (DCAM) and Department of Energy Resources (DOER) will work with all state agencies to develop and implement energy and water conservation projects at State Facilities. Participation in this program will assist agencies in meeting the goals outlined in Executive Order 484, "Clean Energy and Efficient Buildings."

A team has been established consisting of DCAM and DOER energy group members, agency facility managers, and utility providers with the main objectives to Conserve energy and water at all state facilities, create sustainable job opportunities, and improve operations and maintenance through continuous training and support. Completing this survey will help DCAM in prioritizing where to invest staff and financial resources over the next 3 years.

The purpose of this survey is to obtain updated agency contacts and to gather asset, energy consumption, and project information about your facility. This information will be saved in DCAM's database to facilitate future updates. We anticipate this effort will take approximately 30 minutes of time. Please respond by October 12, 2012 and thank you!

**1. Enter Agency**

**2. What is the Facility/Campus Name?**

**3. What is the size of your facility? (GSF)**

**4. How many buildings are currently in use at your facility?**

## AEP Internal Website (SharePoint)

AEP participants span a large number of organizations. The SharePoint website enables myriad stakeholders to communicate effectively and easily.

The AEP Internal Website (SharePoint) is continuously updated with the following information:

- AEP team calendar which can be synced with Outlook
- AEP Event photos
- AEP presentations and reports
- Working Group materials, meeting agendas and minutes and discussion boards.

The screenshot displays two overlapping SharePoint pages. The top page is the 'AEP Home' page, titled 'Accelerated Energy Program'. It features a navigation menu with 'Home', 'Libraries', 'Site Pages', and 'Shared Documents'. A central message reads 'Welcome to the Accelerated Energy Program site!'. To the right, there is a photo of five people standing together, with the caption 'Getting Started'. Below the photo is a table with columns 'Modified' and 'Created', listing several dates and times. The bottom page is the 'AEP Calendar' page, showing a calendar for October 2012. The calendar includes events such as 'MOCA/DCAM Weekly Meet' and 'AEP Audits & RC'.

## Outreach Meetings

The AEP team held or participated in many outreach meetings in Q3:

### July

- DCAMM/DCR Simple Fix Audit Review Meeting (July 9, 2012)

### August

- Leadership Steering Committee Meeting (August 3, 2012)
- AEP Communication Plan Kick-off Meeting (August 7, 2012)
- National Grid Meeting (August 10, 2012)
- AEP Green Discussion with DOER (August 15, 2012)
- Utility Vendor Meeting (August 24, 2012)

### September

- Utility Vendor Meetings (September 6, 2012)
- Utility Vendor Meeting (September 10, 2012)
- NStar Meeting (September 7, 2012)
- MAFMA / AEP Implementation Meeting (September 11, 2012)



*Jenna Ide presenting at the Leadership Steering Committee Meeting on August 3<sup>rd</sup>*

## Building Codes Working Group

### Building Codes Coordination

There are many codes and regulations that govern the retrofit of sites in the AEP. It is important for DCAMM to educate facility managers and direct contractors to adhere to all codes and regulations.

In Q3, DCAMM staff continued to engage with stakeholders to further identify and expand the “family” of codes and regulations that will likely be encountered in the installation of energy conservation measures.

To help further identify codes, in Q3, members of the working group, in collaboration with members of the Simple Fix working group expanded the list of ECMs likely to be recommended when performing audits at the smaller sites in the AEP. The list now contains potential existing conditions and the potential applicable measures to increase the energy and water efficiency of these sites.

In Q4, the expanded list of potential existing conditions and ECMs will be mapped to the likely governing codes and regulations. A decision matrix will then be generated to help guide non-code officials to various resources on the existing building codes.

In Q4, DCAMM will create reference documents, summaries about each code, and locations for additional information. A matrix of the codes is currently being developed as guidance for each AEP project implementation group. In the future, this information will become part of the Resource Center for guiding facility managers.

### Working Group Objectives:

- Guide the use of deferred maintenance funds to supplement AEP projects
- Incorporate repairs & improvements
- Define relevant building code requirements

Measures to be included in Smaller Site Audits	DCAM ECM No.	Potential Existing Conditions	Potential ECMs
Lighting		Incandescent, older fluorescent lights with manual controls	CFLs, new fluorescent technologies, LEDs, sensors,
Bulbs, Fixtures, Ballasts, Exit Signs	1.0	Incandescent, older fluorescent lights,	CFLs, new fluorescent technologies, LEDs
Controls	2.0	Older Controls, manual switches, inoperable controls	Sensors, Timers, etc.
Motors	3.0	Standard efficiency motors	VFDs, VSDs, ECMs,
Windows	12.0	Single pane, old, cracked, inoperable	E-Star Window
Doors	12.0	Hollow or cracked, poor alignment, broken, does not fully close, inoperable	New insulated door, proper fit
Overhead door	12.0	Uninsulated, no seals, poor alignment	New insulated overhead door, new seals
Air Sealing	10.0	Drafts around windows, doors, through walls, joints, corners	Air sealing ECMs (Blower door guided air sealing, foam, seals,
Energy Management System	4.0	Inoperable or no EMS	Reprogram or install EMS
Toilets & Urinals	5.0	Standard, large volume flush toilets and urinals	Low-flow toilets and urinals
Faucets	5.0	Older, standard faucets with no flow restrictors	Faucet aerators, actuated faucets, flow restrictors
Showers	5.0	Standard, older showerheads	Low-flow shower heads
Commercial Kitchen Pre-rinse Spray Valves	5.0	Standard, >2 gpm pre-rinse spray valves	Low-flow pre-rinse spray valves
Thermostats	4.0	Manual or older mechanical thermostats	Programmable thermostats
Boiler Reset Control	4.0	Reset control not functioning or does not exist	Boiler Reset Control
Water Heater	5.0	Stand alone tank type or "everhot"	Indirect tank or on-demand
Heating Systems		Oil	Convert to natural gas or pellet
Boilers	14.0	Standard efficiency forced hot water or steam	Appropriately sized, condensing (FHW only) or new steam
Furnaces	17.0	Standard efficiency	Condensing furnace with Electronically commutated motor
Unit Heaters	17.0	Standard efficiency or steam	Condensing Unit Heater or Infrared tube
Other	17.0		Heat pumps
Cooling Systems			
Rooftop	17.0	Standard efficiency rooftop unit	High SEER rooftop unit
Window	17.0	Standard efficiency or older unit	E-Star rated unit
Pipe Insulation			
Water heater	10.0	Broken or no insulation on hot water	Pipe Insulation
Heating distribution	10.0	Broken or no insulation on steam or water distribution pipes	Pipe Insulation

*DCAMM ECMs and Potential Existing Conditions*

## Data & Performance Management Working Group

Throughout Q3, the data and performance management working group played an integral role in planning the AEP and developing data and reporting tools.

The following represent some of the working group's notable accomplishments:

- Prioritized all AEP projects and sites
- Refined the Program Definition
- Refined the initial Financial Plan
- Developed monthly reports and updates

### Lean Data Management & Reporting

The AEP data team initiated a lean effort to fix the existing process and eliminate quality and consistency problems in energy data and reporting. The initial meeting was held on July 11 with the AEP data team, energy project managers, and representatives from DOER. Over the three initial sessions, the team identified the near term solution and an ideal state solution for AEP data and reporting.

On August 21 the AEP data working group held a lean Rapid Improvement Workshop (RIW) to develop a data management and update protocol. The goal of the RIW was to ensure that data used for AEP reporting is accurate, high quality data and easily manageable. All members responsible for entering data were present at the workshop including representatives from DOER. The data team successfully identified next steps and is currently working to implement solutions.

### AEP Database & Dashboard

The AEP data team is developing a temporary data warehouse and dashboard to support the tracking and reporting requirements of the AEP. The goal is to improve the quality control of AEP data and streamline common reports for multiple stakeholders. This effort will not replace or eliminate the need for the existing Energy Database but will instead augment the existing structure with additional functionality to address the specific needs of the AEP. The dashboard will display AEP project information by site at varying levels of detail to satisfy the reporting needs of multiple types of users. In Q4 the data team will release a first version of the AEP Database & Dashboard to internal users.

#### Working Group Objectives:

- Plan and prioritize projects
- Manage data for all WGs
- QA/QC & project controls
- Performance management, tracking and reporting



*AEP data team participating in RIW*

## Procurement Working Group

Throughout Q3, the Procurement Working Group supported the AEP project managers with utility program planning, Minority and Woman Business Enterprise strategy development, access and opportunity initiatives, expansion of the DCAMM Consultant Pool, and Lean process improvements for project procurement.

### Utility Program and Utility Vendors

In Q3, members of the Procurement Working Group held three meetings with investor-owned utilities to further explore develop a new contracting approach for the AEP. In these meetings the merits of various contracting arrangements were discussed. As the quarter progressed, the working group members began to formulate an approach for DCAMM to contract directly with utility vendors for projects at the smaller sites. DCAMM will continue to engage directly with the utilities for larger, more complex projects.

DCAMM also met with four utility approved vendors: AECOM, NXEGEN, Prism and RISE Engineering. In the meetings, vendors were asked to provide their perspective and recommendations that would result in high degree of success for the AEP. The meetings proved to be valuable and informative for all that attended, and a number of the recommendations are likely to be incorporated into future contracts with the utility vendors.

### Access & Opportunity

The AEP has established M/WBE requirements, either through direct employment or assignment of work to sub-contractors. Firms working on the AEP will be required to meet the following M/WBE requirements:

- Services:
  - Design: 17.9%
  - Construction: 10.4%
- Workforce:
  - Minority: 15.3%
  - Women: 6.9%

### Working Group Objectives:

- Create new procurement processes with utilities and Job Order Contracting
- Improve existing processes using Lean
- Meet Access & Opportunity goals (M/WBE)



Throughout Q3, the Procurement Working Group and DCAMM's Compliance unit continued to explore options for achieving these goals through innovative approaches. One option being explored is allowing vendors to aggregate projects up to awarded contract values for a number of projects. Exploration of this potential approach is particularly important for projects at smaller sites where the investment value may be as small as a few thousand dollars and the work can be accomplished in one day. Aggregation allows the vendors to utilize M/WBE resources to a greater degree and comply using a strategic approach rather than a formulaic approach at each site.

### Jobs Created

As the AEP gains momentum, jobs will be created. Consulting firms, vendors, and construction firms will ramp up their staff to meet the needs of the program. Job creation will be tracked by DCAMM as part of AEP metrics. DCAMM is collaborating with MassDOT to learn their best practices for job creation and tracking. The jobs for women and minorities in the workforce will be tracked to comply with the AEP goals of 6.9% and 15.3% respectively.

### Expansion of Consulting Firms

A robust pool of consulting firms is needed to deliver auditing and retrofit services to all 700 sites in three years. DCAMM currently has a number of consulting firms that are performing services similar to those required for the AEP. These firms were competitively selected using statewide contracts or the Designer Selection Board.

Using the results from the analysis on consulting firms performed in Q2, DCAMM solicited proposals for qualified firms to become approved Facility Advisors. In response to the solicitation, DCAMM added 30 new qualified consulting firms in Q3 to support the AEP.

The table below provides the number of new vendors approved to offer services in support of the AEP.

#### *Service Offered and Number of Vendors Added Service by DCAMM in Q3*

Services Offered	Vendors Added
Life Cycle Costs Analysis & Projections	8
Energy/Water Diagnostic Testing Services	6
Energy Management System Evaluation	11
Energy Advisory Services	17
Retro-Commissioning	16
LEED Services	9
Sustainable Design Services	11
Performance Contracting Program Consultation	9

## Leasing Working Group

### Leased Space Implementation Approach

In Q3, The leasing working group identified all State-owned leased sites. The working group is currently identifying all leased spaces in privately owned sites and developing an implementation strategy for all leased spaces. This is beyond the 700 sites in the AEP. This group will coordinate closely with DCAMMs Integrated Facilities Management initiative.

Preliminary review indicates that the majority of the sites are in use by the Trial Courts, Department of Conservation and Recreation and Department of Developmental Services.

In Q4, The working group will prioritize sites that pay their own utility bills over those that have utility bills included in the lease.

### Working Group Objectives:

- Develop plan to retrofit Leased Buildings
  - State-owned facilities that are leased
  - Third-party facilities being leased by state agencies



*DEP Boston leased space*

## Labor & Workforce Development Working Group

The AEP can have a positive and important impact on the labor market, and there are a number of metrics in the AEP designed to create sustainable job opportunities across the Commonwealth. The Labor & Workforce Development Working Group will cultivate these opportunities and address potential challenges.

In Q3, the working group completed a number of very important foundation goals, including drafting a mission statement:

### MISSION STATEMENT

*The Working Group's mission is to identify, create and develop job opportunities for people to engage in energy conservation work across the Commonwealth. The focus is to be inclusive and to develop opportunities for all spectrums of the labor force - from those entering the labor market for the first time, to those that are trying to re-enter the labor market. It will promote opportunities for minorities and women and work with stakeholders to create a certification program for AEP-specific job categories.*

The working group also defined its initial tasks:

1. Establishing an interagency team representing labor unions, state agencies, and job training organizations.
2. Learning about potential pre-apprenticeship programs
3. Learning about existing training programs, especially at community colleges
4. Developing a scope of work for AEP-worker training
5. Updating project solicitations to require inclusion of AEP-certified workers
6. Planning for potential seasonal workers for next year
7. Scheduling a vendor fair to introduce AEP/get more firms involved
8. Develop an outline of an AEP Certification program

In Q4, the working group will continue to work towards fulfilling the initial tasks set forth above.

### Working Group Objectives:

- Develop programs to assist in the development of skills for a younger population of workers aged 18-24.
- Develop an AEP Certification program.
- Partner with labor unions to develop pre-apprenticeship training programs based on existing models.



# Quarterly Report Q3 2012

## Appendix A

### Performance Metrics

(as of September 30, 2012)

## Performance Metrics

Goal	Metrics	Target	Q3 Actuals*
Accelerate delivery of energy projects to 3 years and maximize energy and water conservation.	Sites Retrofitted (Total #)	700	16
	<i>Retrofitted Facilities over 100,000 Sq. Ft. (Total #)</i>	50	1
	<i>Retro-Commissioned Facilities over 50,000 Sq. Ft. (Total #)</i>	14	0
	<i>Whole Building Analysis Facilities (Total #)</i>	159	12
	<i>Quick Fix Facilities (Total #)</i>	439	1
	Sites where a "New Review" was Completed (Total #)	17	2
	Energy Projects Completed (Total #) by Agency, Utility & DCAM		
	<i>Energy Studies Initiated</i>		184
	<i>Energy Assessments (Audits) Completed</i>		75
	<i>Energy Installation Initiated</i>		54
	<i>Energy Installation Complete</i>		15
	Investment in Energy Projects (Total \$)	\$427M	\$3.2M
	Annual Energy & Water Savings (Total \$)	> \$43M	\$750k
Average Payback on Total Investment	≤ 10 Years	~ 11 Years	
Communicate progress and encourage full participation.	Public Website with Quarterly Updates	Quarterly	Updated
	Total # of Unique Visitors per Month (Public Website)		
Create clean energy job opportunities across the Commonwealth.	Workforce / Jobs Created (Total)		TBD
	- <i>AEP Certified Laborers (Total #)</i>		
	- <i>Voc Tech School / Community College Jobs Created (Total #)</i>		
	Workforce / Jobs Created		TBD
	- <i>Minorities</i>	15.3%	
	- <i>Women</i>	6.9%	
M/WBE Participation (Project Commitment / Awards)			TBD
	- <i>Design Contracts</i>	17.9%	
	- <i>Construction Contracts</i>	10.4%	

LBE Target 

\*Q3 actuals represent complete and in progress.

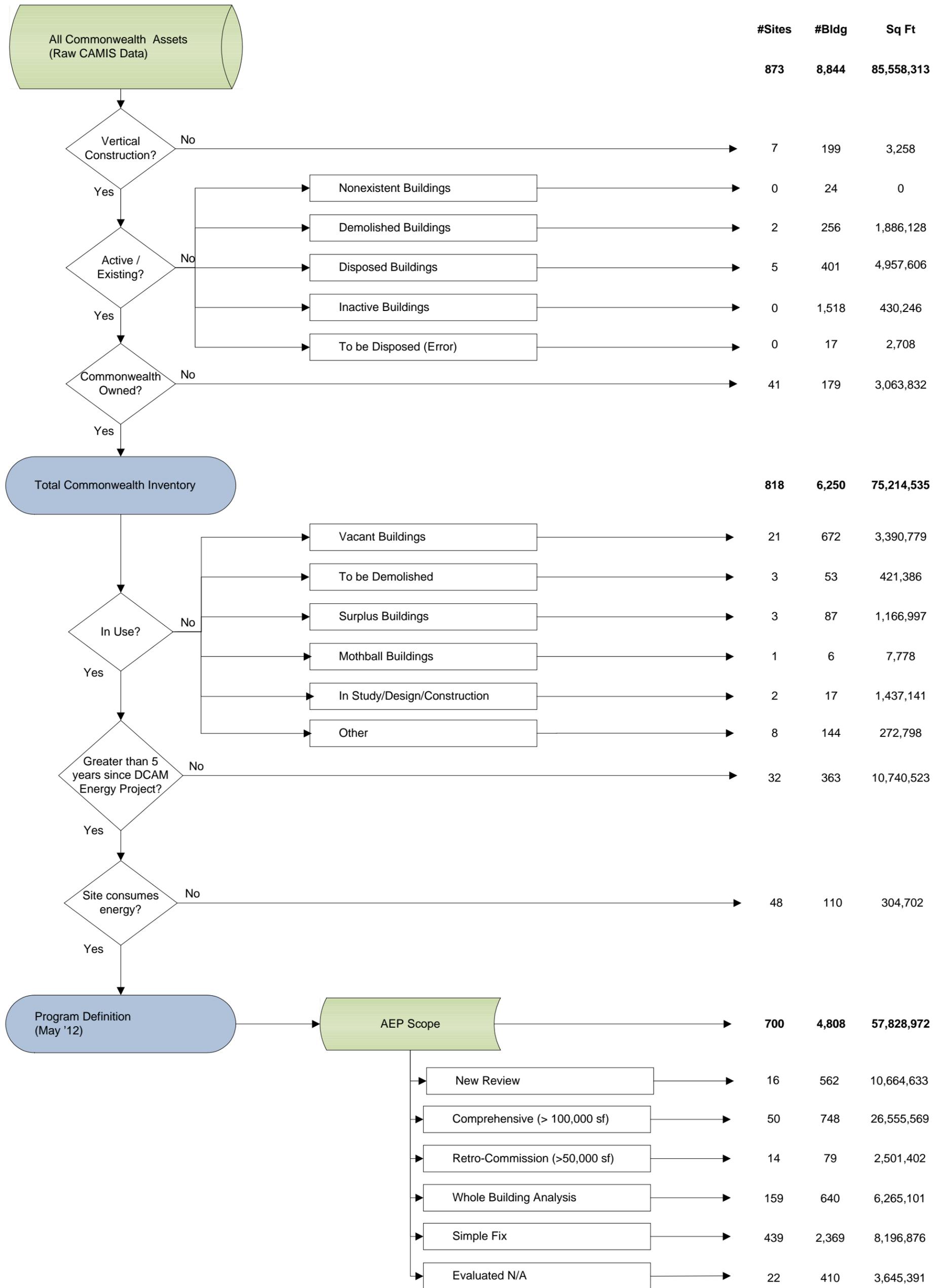
## Quarterly Report Q3 2012

### Appendix B

#### Program Planning and Definition Methodologies

(as of September 30, 2012)

## Program Planning and Definition Methodologies



## Quarterly Report Q3 2012

### Appendix C

#### Financial Management

(as of September 30, 2012)

## Financial Management

The following table provides an overview of the AEP financial plan by funding source. The project budget includes the original AEP implementation estimate of \$427,082,539 as well as a 10 percent contingency, for a total of \$469,790,793. The current AEP cost estimate of \$467,996,125 is a combination of known costs for projects in progress or completed and estimate projections for future projects. The cost estimate and the remaining contingency will change as projections are replaced by known costs.

<b>AEP Complete</b>	<b>Total Project Cost</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>
CEIP Funds	\$ 55,293	\$ 1,966	\$ 1,966	\$ 18,431	\$ 16,465	\$ 16,465
G.O. Bond Funds (includes study costs)	\$ 2,285,737	\$ 570,342	\$ 689,296	\$ 722,261	\$ 151,919	\$ 151,919
Utility Rebates	\$ 894,624	\$ 281,743	\$ 281,743	\$ 298,208	\$ 16,465	\$ 16,465
Other Funding Sources	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal AEP Sites Complete</b>	<b>\$ 3,235,654</b>	<b>\$ 854,052</b>	<b>\$ 973,005</b>	<b>\$ 1,038,900</b>	<b>\$ 184,848</b>	<b>\$ 184,848</b>
<b>AEP In Progress</b>	<b>Total Project Cost</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>
CEIP Funds	\$ 192,473,027	\$ 21,807,043	\$ 43,547,849	\$ 51,465,344	\$ 47,930,753	\$ 27,722,038
G.O. Bond Funds (includes study costs)	\$ 60,549,080	\$ 8,013,012	\$ 14,431,671	\$ 16,027,339	\$ 14,324,513	\$ 7,752,544
Utility Rebates	\$ 24,725,897	\$ 3,445,975	\$ 5,741,443	\$ 6,684,332	\$ 5,687,928	\$ 3,166,219
Other Funding Sources	\$ 2,840,436	\$ 240,388	\$ 327,666	\$ 884,386	\$ 743,998	\$ 643,998
<b>Subtotal AEP Sites In Progress</b>	<b>\$ 280,588,440</b>	<b>\$ 33,506,418</b>	<b>\$ 64,048,629</b>	<b>\$ 75,061,401</b>	<b>\$ 68,687,192</b>	<b>\$ 39,284,800</b>
<b>AEP Remaining</b>	<b>Total Project Cost</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>
CEIP Funds	\$ 114,362,868	\$ 12,579,502	\$ 26,125,032	\$ 30,228,570	\$ 29,504,165	\$ 15,925,599
G.O. Bond Funds (includes study costs)	\$ 42,856,996	\$ 4,589,747	\$ 10,396,440	\$ 12,422,156	\$ 10,500,569	\$ 4,948,084
Utility Rebates	\$ 26,952,168	\$ 2,797,238	\$ 6,755,007	\$ 7,999,816	\$ 6,498,793	\$ 2,901,313
Other Funding Sources	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal AEP Sites Remaining</b>	<b>\$ 184,172,031</b>	<b>\$ 19,966,488</b>	<b>\$ 43,276,479</b>	<b>\$ 50,650,542</b>	<b>\$ 46,503,527</b>	<b>\$ 23,774,996</b>
<b>AEP Current Working Estimate</b>	<b>Total Project Cost</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>
CEIP Funds	\$ 306,891,189	\$ 34,388,512	\$ 69,674,847	\$ 81,712,345	\$ 77,451,382	\$ 43,664,103
G.O. Bond Funds (includes study costs)	\$ 105,691,812	\$ 13,173,101	\$ 25,517,406	\$ 29,171,756	\$ 24,977,001	\$ 12,852,547
Utility Rebates	\$ 52,572,688	\$ 6,524,957	\$ 12,778,194	\$ 14,982,356	\$ 12,203,186	\$ 6,083,996
Other Funding Sources	\$ 2,840,436	\$ 240,388	\$ 327,666	\$ 884,386	\$ 743,998	\$ 643,998
<b>Current Working Estimate Total</b>	<b>\$ 467,996,125</b>	<b>\$ 54,326,957</b>	<b>\$ 108,298,113</b>	<b>\$ 126,750,843</b>	<b>\$ 115,375,567</b>	<b>\$ 63,244,644</b>
AEP Budget (Approved by A&F)	\$ 427,082,539					
AEP Contingency (10%)	\$ 42,708,254					
<b>AEP Budget Total</b>	<b>\$ 469,790,793</b>					

## Quarterly Report Q3 2012

### Appendix D

#### Implementation Plan by Quarter

(as of September 30th, 2012)

Comprehensive
Retro-Commissioning
Simple Fix/Whole Building Analysis

*Implementation Plan by Quarter*

Program Area	Site Name / Bundle	Town	IFM Region / Bundle Region	Status
<b>Q3, 2012</b>				
Administration & Finance	Hurley Building	Boston	Metro Boston	Study
Administration & Finance	Springfield State Office Dwight Street	Springfield	Western	Study
Public Safety	Northeastern Correctional Center	Acton	Northeast	Study
Public Safety	MCI - Framingham	Framingham	Northeast	Study
Public Safety	North Central Correctional Institute	Gardner	Central	RFP
Health and Human Services	DYS - Taunton	Taunton	Southeast	Construction
UMASS	UMass Lowell	Lowell	Northeast	Study
Higher Education	North Essex Community College - Haverhill	Haverhill	Northeast	Construction
Higher Education	North Essex Community College - Lawrence	Lawrence	Northeast	Construction
Administration & Finance	Job Center - Taunton	Taunton	Southeast	Study
Judiciary	Worcester Courthouses	Worcester	Central	Study
Energy & Environmental Affairs	20 Small Sites	Various	Western	Study
Energy & Environmental Affairs	32 Small Sites	Various	Central	Study
Energy & Environmental Affairs	24 Small Sites	Various	North Shore	Study
<b>Q4, 2012</b>				
Administration & Finance	McCormack Building	Boston	Metro Boston	RFP
Administration & Finance	Lindemann Building	Boston	Metro Boston	RFP
Higher Education	Holyoke Community College	Holyoke	Western	Study
Sheriffs	Sheriff's Department - Suffolk House of Corrections	Boston	Metro Boston	Study
Higher Education	Salem State University	Salem	Northeast	Construction
Higher Education	Springfield Tech Community College	Springfield	Western	RFP
UMASS	UMass Medical Center - Worcester	Worcester	Central	Study
UMASS	UMass Medical Center - Jamaica Plain	Boston	Metro Boston	Study
Higher Education	Worcester State University	Worcester	Central	Study
Public Safety	South Middlesex Correctional Center	Framingham	Northeast	Study

Sheriffs	Sheriff's Department - Essex - Middleton	Middleton	Northeast	Study
Judiciary	1 Small Sites	Various	Western	Study
Public Safety	9 Small Sites	Various	Western	Study
Judiciary	10 Small Sites	Various	Central	Study
Public Safety	10 Small Sites	Various	Central	Study
Judiciary	9 Small Sites	Various	North Shore	Study
Public Safety	5 Small Sites	Various	North Shore	Study
Judiciary	3 Small Sites	Various	Southeast	Study
Public Safety	4 Small Sites	Various	Southeast	Study
Judiciary	1 Small Sites	Various	Greater Boston	Study
Public Safety	4 Small Sites	Various	Greater Boston	Study
Judiciary	4 Small Sites	Various	Metro West	Study
Public Safety	8 Small Sites	Various	Metro West	Study
Judiciary	1 Small Sites	Various	Cape	Study
Public Safety	6 Small Sites	Various	Cape	Study
Public Safety	4 Small Sites	Various	Boston	Study
Public Safety	5 Small Sites	Various	South Shore	Study
Q1, 2013				
Public Safety	MCI - Concord	Concord	Northeast	Study
Higher Education	Fitchburg State University	Fitchburg	Central	Study
Higher Education	Mass College of Art and Design	Boston	Metro Boston	Study
Higher Education	Middlesex Community College	Bedford	Northeast	Study
Sheriffs	Sheriff's Department - Berkshire -New	Berkshire	Western	RFP
Sheriffs	Sheriff's Department - Middlesex - Billerica	Billerica	Northeast	RFP
Sheriffs	Sheriff's Department - Plymouth - Main	Plymouth	Southeast	RFP
Health and Human Services	Central Youth Service Center - Westborough	Westborough	Central	Study
Sheriffs	Sheriff's Department - Bristol - New Bedford	Dartmouth	Southeast	Study
Energy & Environmental Affairs	20 Small Sites	Various	Western	Study
Sheriffs	2 Small Sites	Various	Western	Study
Sheriffs	1 Small Sites	Various	Central	Study
Sheriffs	2 Small Sites	Various	North Shore	Study
Energy & Environmental Affairs	17 Small Sites	Various	Southeast	Study
Sheriffs	1 Small Sites	Various	Greater Boston	Study
Energy & Environmental Affairs	14 Small Sites	Various	Cape	Study

Sheriffs	3 Small Sites	Various	Cape	Study
Energy & Environmental Affairs	11 Small Sites	Various	South Shore	Study
Sheriffs	2 Small Sites	Various	South Shore	Study
Q2, 2013				
Health and Human Services	Taunton State Hospital	Taunton	Southeast	Construction
Higher Education	Mass College of Liberal Arts	North Adams	Western	RFP
UMASS	UMass Boston	Boston	Metro Boston	Study
Higher Education	Westfield State University	Westfield	Western	Study
Administration & Finance	Wang Building	Boston	Metro Boston	Study
Health and Human Services	Western Yough Service Center	Springfield	Western	Study
Department of Transportation	30 Small Sites	Various	Western	Study
Administration & Finance	1 Small Sites	Various	Greater Boston	Study
Health and Human Services	10 Small Sites	Various	Southeast	Study
Higher Education	1 Small Sites	Various	Southeast	Study
Administration & Finance	1 Small Sites	Various	Metro West	Study
Department of Transportation	15 Small Sites	Various	Metro West	Study
Department of Transportation	20 Small Sites	Various	Cape	Study
Higher Education	1 Small Sites	Various	Cape	Study
Q3, 2013				
Administration & Finance	State House	Boston	Metro Boston	RFP
Administration & Finance	State Transportation Building	Boston	Metro Boston	RFP
Health and Human Services	Solomon Carter Fuller Mental Health	Boston	Metro Boston	Construction
Health and Human Services	Cape Cod / Islands Mental Health Center	Bourne	Southeast	Construction
Health and Human Services	Brockton Mental Health Center	Brockton	Southeast	Construction
Health and Human Services	Corrigan Mental Health Center	Fall River	Southeast	Construction
Health and Human Services	Harry C. Solomon Mental Health Center	Lowell	Northeast	Construction
Health and Human Services	Quincy Mental Health Center	Quincy	Metro Boston	Construction
Health and Human Services	Worcester State Hospital	Worcester	Central	Construction
Health and Human Services	DMH Western Mass Area Office	Northampton	Western	Construction
Higher Education	Mass Maritime Academy	Bourne	Southeast	Study
Sheriffs	Sheriff's Department - Berkshire - Old	Pittsfield	Western	Study
Sheriffs	Sheriff's Department - Bristol - North Dartmouth	Dartmouth	Southeast	Study
Judiciary	Lawrence Trial Court (Fenton Center)	Lawrence	Northeast	Study
Energy & Environmental Affairs	18 Small Sites	Various	Western	Study

Energy & Environmental Affairs	35 Small Sites	Various	Greater Boston	Study
Energy & Environmental Affairs	12 Small Sites	Various	Metro West	Study
Energy & Environmental Affairs	29 Small Sites	Various	Boston	Study
Q4, 2013				
Higher Education	Berkshire Community College	Pittsfield	Western	Study
Health and Human Services	Chelsea Soldiers Home	Chelsea	Metro Boston	Study
Public Safety	MCI - Shirley Medium	Shirley	Central	Study
Public Safety	Souza Baranowski Correctional Center	Lancaster	Central	Study
Health and Human Services	Mass Hospital School	Canton	Southeast	Study
Health and Human Services	Western Mass Hospital - Westfield	Westfield	Western	Study
Higher Education	Greenfield Community College	Greenfield	Western	Study
Sheriffs	Sheriff's Department - Norfolk - Dedham	Dedham	Southeast	Study
Administration & Finance	2 Small Sites	Various	Central	Study
Department of Transportation	16 Small Sites	Various	Central	Study
Department of Transportation	16 Small Sites	Various	North Shore	Study
Department of Transportation	16 Small Sites	Various	Southeast	Study
Economic Affairs	3 Small Sites	Various	Southeast	Study
Department of Transportation	9 Small Sites	Various	South Shore	Study
Health and Human Services	3 Small Sites	Various	Cape	Study
Q1, 2014				
Higher Education	Cape Cod Community College	Barnstable	Southeast	Study
Administration & Finance	Mass Information Technology Center	Chelsea	Metro Boston	Study
Higher Education	Roxbury Community College	Boston	Metro Boston	Study
Sheriffs	Sheriff's Department - Franklin	Greenfield	Western	Study
Administration & Finance	State Archives Building - Boston	Boston	Metro Boston	Study
Administration & Finance	2 Small Sites	Various	Western	Study
Higher Education	4 Small Sites	Various	Western	Study
Higher Education	3 Small Sites	Various	North Shore	Study
Department of Transportation	6 Small Sites	Various	Greater Boston	Study
Health and Human Services	8 Small Sites	Various	Greater Boston	Study
Higher Education	2 Small Sites	Various	Metro West	Study
Health and Human Services	8 Small Sites	Various	Metro West	Study
Administration & Finance	1 Small Sites	Various	Boston	Study
Department of Transportation	1 Small Sites	Various	Boston	Study

Health and Human Services	3 Small Sites	Various	Boston	Study
Q2, 2014				
Health and Human Services	10 Small Sites	Various	Western	Study
Health and Human Services	12 Small Sites	Various	Central	Study
Health and Human Services	15 Small Sites	Various	North Shore	Study