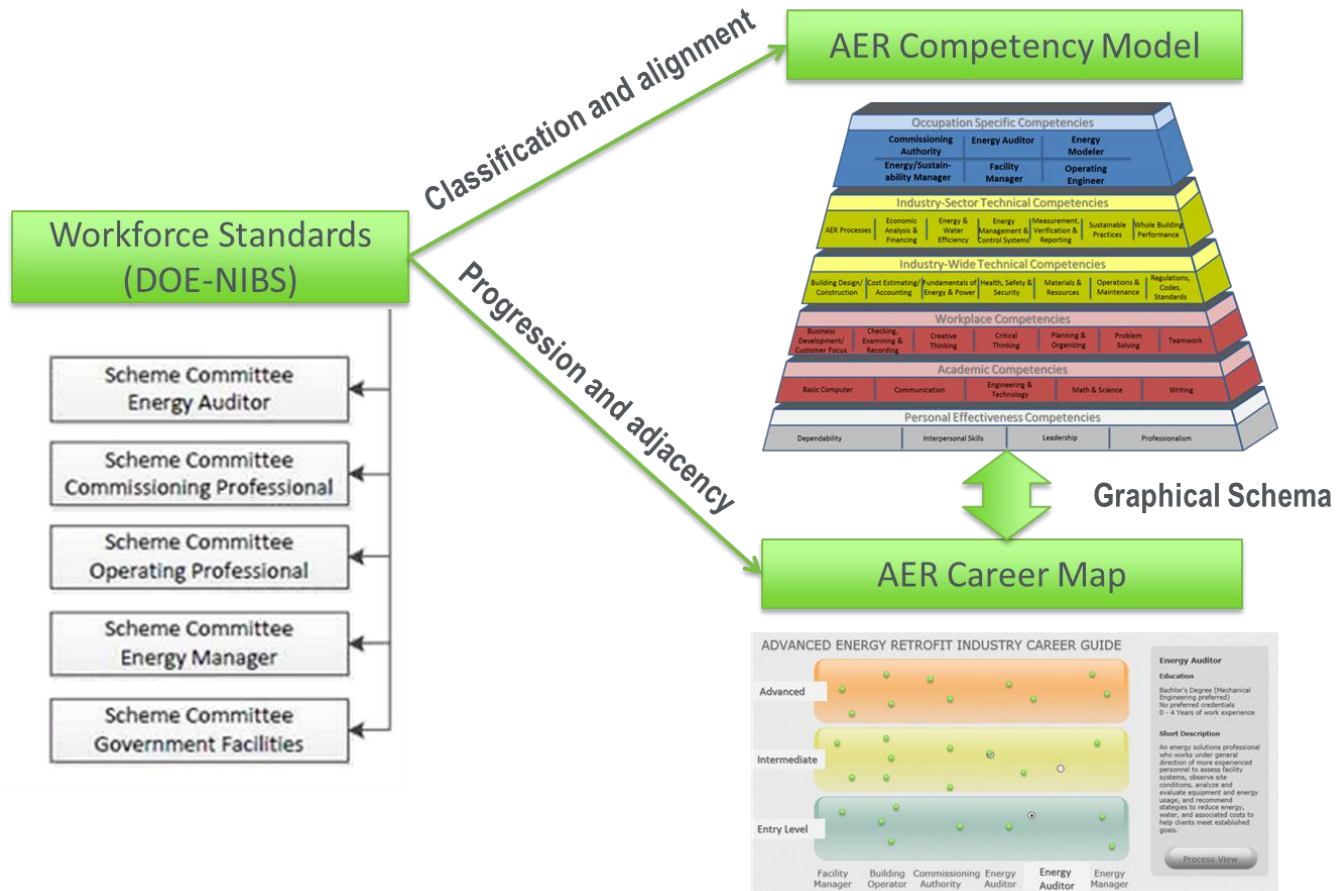


Penn State Consortium: Advanced Critical AER Education, Training and Credentialing

2014 Building Technologies Office Peer Review



Project Summary

Timeline:

Start date: Feb. 1, 2013

Planned end date: April 30, 2015

Key Milestones

1. Complete draft competency model; 9.1.13
2. Complete career map framework; 4.30.14

Budget:

Total DOE \$ to date: \$578,856 (2012-2013)

Total future DOE \$: \$850,000 (2014-1015)

Target Market/Audience:

Professionals, employers, and education program leaders in selected AER fields including energy auditor, building operator, energy manager, & commissioning authority

Key Partners:

Pennsylvania State University	National Institute of Building Sciences
Facility Engineering Associates	NJ Institute of Technology
Consortium for Building Energy Innovation (CBEI) (formerly EEB Hub)	Penn College of Technology

Project Goal:

Development and translation of clear competencies, workforce development pathways and career ladders aligned with new national building energy efficiency workforce guidelines for four of the advanced energy job titles: Energy Manager; Building Operations Professional; Energy Auditor; Commissioning Professional

Purpose and Objectives

Problem Statement: This project addresses the need for clearly defined competencies in critical fields supporting Advanced Energy Retrofit (AER) projects.

Target Market and Audience: Professionals and employers in key AER fields of *Energy Auditors, Building Operators, Energy Managers, and Commissioning Authorities in addition to Federal Facility Managers.*

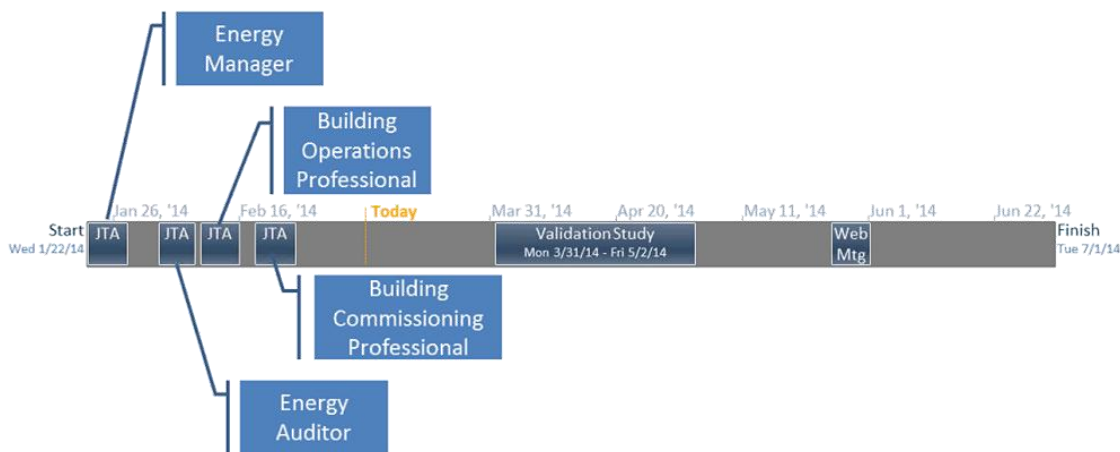
Impact of Project: Clearly defined entry points and pathways for advancement in AER workforce sectors will be achieved through:

1. The establishment of a competency model and career map for the AER workforce sector that is aligned with newly defined workforce standards
2. Achievement towards this goal is being evaluated by
 - a. Organization of new workforce standards (NIBS) using the DOL competency modeling framework and a career map
 - b. Use of competency model and career map as a guide for shaping professional development and recruiting in the AER sector
 - c. Improved project process performance on AER projects

Approach

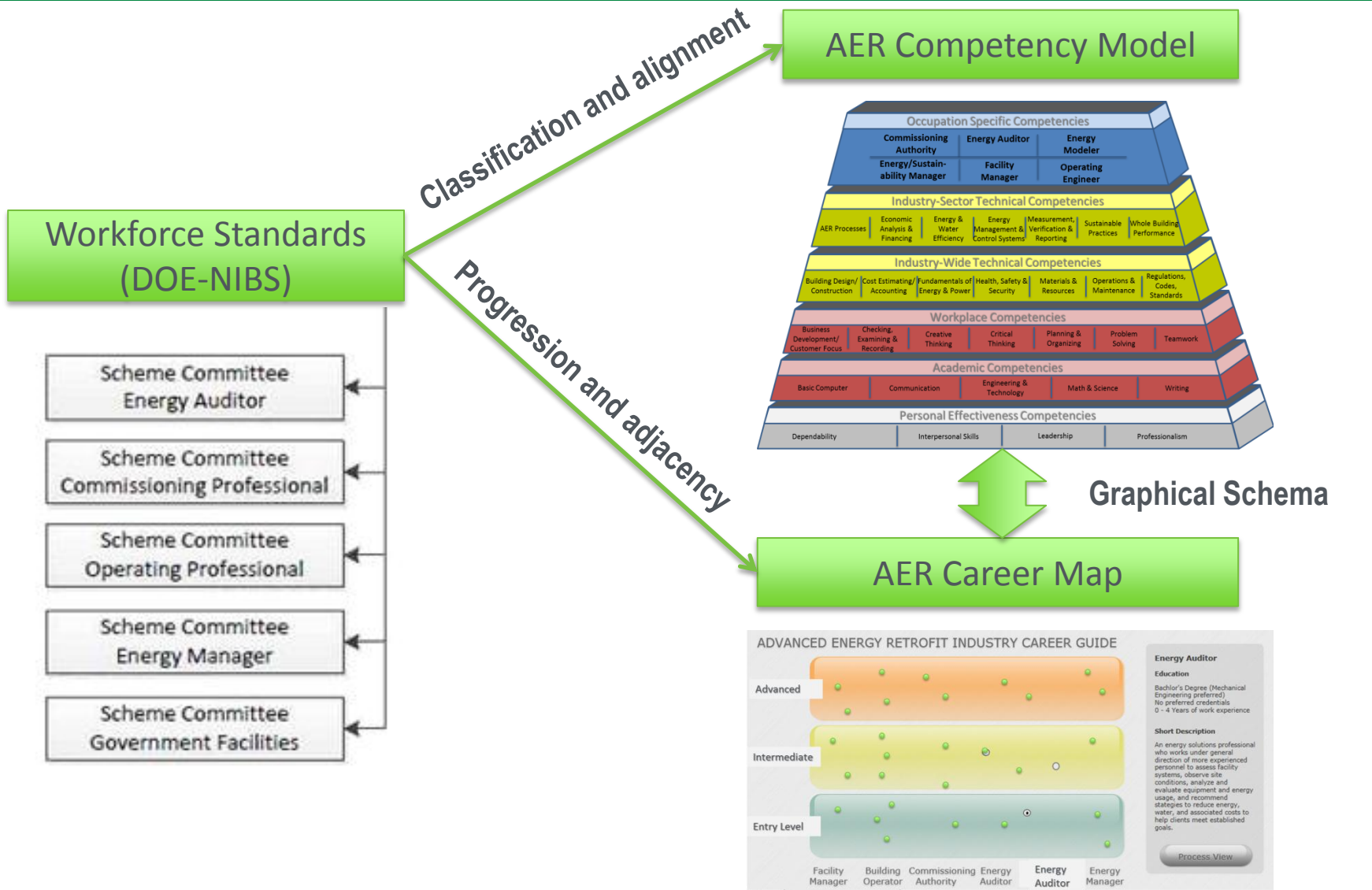
Approach:

- Utilized recently completed Job Task Analysis (JTA) for energy efficient building workforce into a competency model format to support the development of newly defined AER workforce standards by NIBS (In progress)



- Entry-level, intermediate, and advanced job descriptions were developed for energy managers, energy auditors, facility managers, commissioning agents in preparation for the development of a career map
- Developed and tested new education and curriculum strategies for energy auditing including delivery of benchmarking and level 1 audits through education and training programs including Building Retuning.

Approach



Approach

Key Issues:

- Significant overlap and confusion exists across job titles and shared job responsibilities.
- Extensive knowledge and skills associated with positions (e.g. Energy Auditor) critical blurs understanding of critical *performance* competencies that are needed to advance AER business processes

Distinctive Characteristics:

- Use of competency modeling theory in support of traditional JTA's and psychometrics in the definition of professional workforce standards.
- Exploration of integrative of education programming - e.g. participants performing energy assessments &/or building retuning as a part of hands-on experiential learning.

Progress and Accomplishments

Lessons Learned: through analysis of JTA data, industry focus groups, and interviews with successful AER firms

- Job titles and **skills sets are cross functional** across the standard definitions of job types
- Need exists to **elevate and cultivate performance competencies** in the AER marketplace; in particular AER process knowledge and facilitation and business development skills
- **Business Development** skills were the most highly sought-after in existing AER firms. Technical skills and tools exist. Need expressed was for increased business acumen and client relationship-building
- **Facilitation skills and process knowledge** is needed in AER projects to align business practices and risk investments by building owners, occupants, and AER investors

Progress and Accomplishments

Accomplishments: (1) Provided version 1.0 competency model to NIBS in support of workforce standard development (2) Developed and tested portable and scalable education strategies in key value-added building energy auditing processes (3) Developed draft job descriptions for entry, mid, and advanced positions in key verticals

Market Impact: Work products have not yet been released in marketplace

1. Next steps will align 1,2&3 (above) with nationally recognized workforce standards and support the roll-out of these standards
2. Project is expected to support roll out and market penetration of workforce standards under development by BTO and NIBS
3. Expected impacts in training program design and credentialing program scaffolding

Awards/Recognition: Invited presentations of work by IFMA, NIBS, and BOMA

Project Integration and Collaboration

Project Integration: Achieved through collaborative work processes and convening of market actors through the Consortium for Building Energy Innovation (CBEI –formerly the EEB Hub), including the use of stakeholder platforms, interviews with focus groups of AER professionals, and participation in Board of Direction for Workforce Standard (NIBS)

Partners, Subcontractors, and Collaborators: Penn State provided process plan and coordination, Facility Engineering Associates led classification schemes and convening of industry input into job descriptions, NJIT supported process and convened input into roles and responsibilities relating to AER processes.

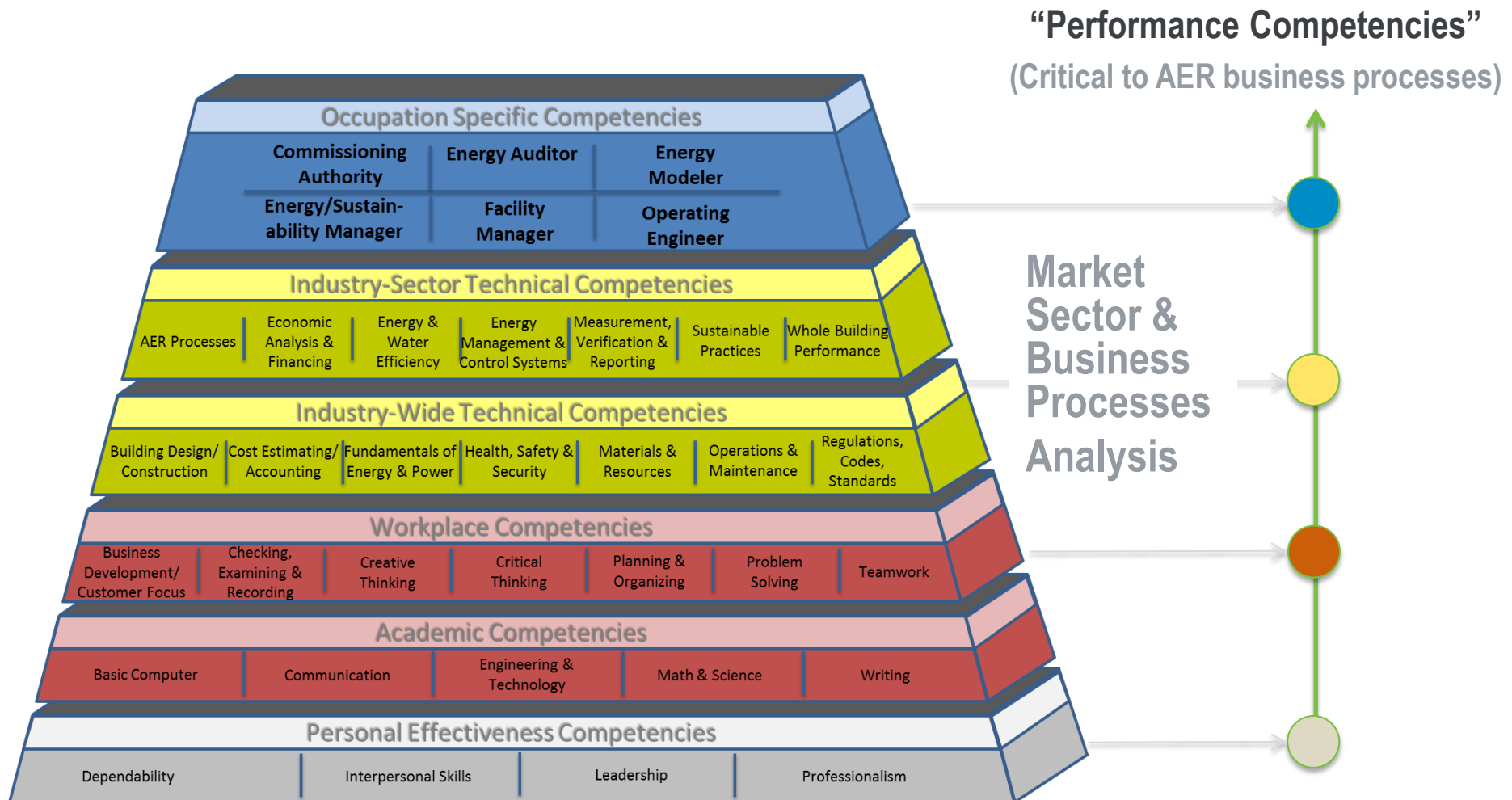
Communications: Kick-off meeting for establishment of national workforce standards (NIBS), IFMA World Workplace (Philadelphia, 2013)

Next Steps and Future Plans

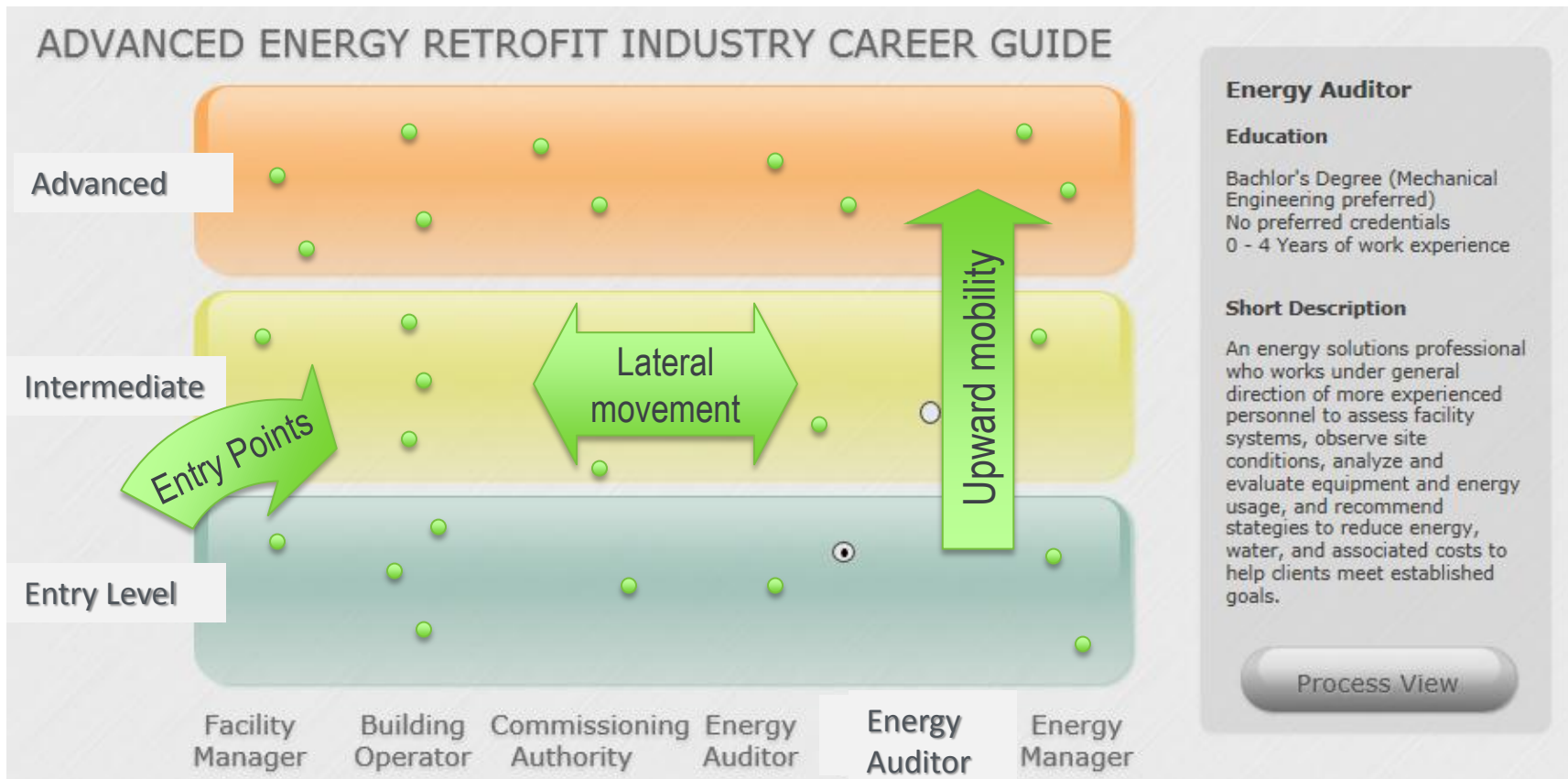
Next Steps and Future Plans:

1. Competency model will be revised based on new workforce standards under development by NIBS in 2014
2. Career and competency map will be designed to complement and support roll-out of new workforce standards
3. Development of new energy auditing education programs will be pursued through other funding sources and limited support of Benchmarking and Reporting training
4. Evaluate targeted education and workforce programs to inform identification of critical performance competencies

AER Competency Model and Identification of “Performance Competencies”



AER Career Map Concept



Competency Database Sample

Knowledge Grouping	SubTier	Knowledge	Skills
<i>Economic Analysis & Financing</i> - Funding mechanisms, financial analysis tools, and ability to build a financial business case and support funding of projects	AER	Incentives, rebates and credits	Ability to construct a business case
		Tax implications and expiration dates	Ability to perform financial analyses
		Typical measure costs	Energy accounting and analysis skills
		Typical ownership leases	Energy analysis skills
		Typical project costs	Financial skills
		Utility units, bills, and billing rates	Forecasting skills
			Risk analysis skills
	Finance	Client procurement method	
		Construction finance	
		Cost avoidance calculations	
		Costs for services	
		(continued)	
	Utility	Consumption charge	
		Demand charge	
		Energy billing procedures	
		Fuel escalation charges	
		(continued)	

Project Budget

Project Budget: 2012 - \$0.20M
2013 – \$0.37M

Variances: none

Cost to Date: \$0.57M

Additional Funding: Additional funding from PSU Match (\$1.9M) and BNY Melon Foundation (\$0.1M)

Budget History

FY 2012– FY2013 (past)		FY2014 (current)		FY2015 – April 2016 (planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
\$0.28M	\$0.29M	\$0.5M	\$0.9M	\$0.35M	\$0.05M

Project Plan and Schedule

Project Schedule												
Project Start: Feb 1, 2013	Completed Work											
Projected End: April 30, 2014	Active Task (in progress work)											
	◆ Milestone/Deliverable (Originally Planned) use for missed											
	◆ Milestone/Deliverable (Actual) use when met on time											
	FY2013				FY2014				FY2015			
Task	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)
Past Work												
Q2 Alignend workplan with BTO - NIBS		◆	◆									
Q3 Competency model schema complete			◆									
Q4 Draft Competency model to NIBS				◆								
Current/Future Work												
Q3 Revised Competency Model							◆					
Q4 Draft Career Map								◆				
Go / no- ReviewGo									◆			
Q1 Draft AER scheme of entry points										◆		
Q2 Graphical schemes advacnement paths											◆	