Careers in Energy Efficiency
Workforce Trends and Opportunities

Session Moderator:
Larry Martin
Planning and Employer Services Manager
Regional Employment Board of Hampden County, Inc.
Careers in Energy Efficiency
Program Overview

- Panelist Introductions
- The Role of the Workforce Investment Boards and their partnerships
- Report presentation on employment opportunities in Energy Efficiency
- Panelist presentations
- Moderator questions to panel
- Audience question and answer
Careers in Energy Efficiency

Panelists

Marybeth Campbell
MA Clean Energy Center
Director-Workforce Development Program

Mark Newey
Center for Ecological Technology
Director Energy Efficiency and Green Building Programs

Joe Kerigan
Springfield Partners for Community Action
Energy Director

Gary Kaplan
JFY Networks
Executive Director

John Walsh
WMECO
Regional Conservation & Load Management Manager

J. David Marley
Diversified Construction Services LLC
President-CEO
Careers in Energy Efficiency
Workforce Investment Boards

- Addressing exist and projected workforce needs
- Brokering and convening partnerships
- Working closely with the One-Stop Career Centers
- Labor Market Information
- Industry and Sector Trends
- Strategic Planning
- Working closely with Business, Education and Economic Development
Careers in Energy Efficiency
Regional Employment Board of Hampden County, Inc.
Visit us online at www.rebhc.org

- Pathways Out of Poverty “Gateway to Green Jobs” Training Program funded through the MA Clean Energy Center

- Federal Department of Labor “State Energy Sector Partnership” grant submission for Hampden and Worcester Counties (Southern Tier of Statewide application)


- Partnership and support of Federal Department of Labor “Pathways out of Poverty” grant submissions for Holyoke Community College and the City of Springfield.

- Partner in development of a “Green Regional Strategy” for the “Pioneer Valley Plan for Progress”, an economic development strategy.
Green Careers Coach at One Stop Career Center, available to Franklin Hampshire job seekers as well as GED and ESOL learners and programs: workshops include “Intro to Green Jobs;” “Building Your Green Connections;” and “Meet the Green Professional.”

Lead in the Northern Tier Energy Sector Partnership seeking to build training over the next three years in energy efficiency and renewable energy across four counties with three community colleges, UMASS and over a dozen employer partners.

Lead in green careers pathway development in the Mid-Mass STEM project, working with North Central and Worcester regions to define training/education pathways for youth, dislocated workers, and veterans and secure business mentors in renewable energy and green manufacturing.
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Berkshire County Regional Employment Board
www.berkshirereb.org

- **Pathways Out of Poverty Grant** - Together with its project partners, Berkshire Community College is implementing a Clean Energy Sector Pathway Program to address the needs of the region’s clean energy businesses, as well as provide opportunities to the rising number of low-income, unemployed and dislocated workers.

- **Northern Tier Clean Energy/Green Jobs initiative** – Lead by Franklin/Hampshire REB, we are partnering to develop a series of clean energy, green job initiatives in HVAC and Photovoltaic sectors in the Berkshires.

- **Center for Ecological Technology/Berkshire Community Action Council** – stimulus resources have provided opportunities to develop numerous weatherization programs
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WIB Partners in Clean Energy

- Massachusetts Clean Energy Center
- Commonwealth Corporation
- Regional Career Centers
- Greenfield Community College
- UMass-Amherst
- Springfield Technical Community College
- Holyoke Community College
- Western New England College
- Berkshire Community College

- Center for Ecological Technology (CET)
- CAP Agencies
- Springfield Partners for Community Action
- Community Based Agencies
- Labor Unions
- HAP
- Economic Development Partners
- Business and Industry
Careers in Energy Efficiency

- This report is funded by:
  - National Grid
  - NSTAR Gas & Electric
  - Conservation Services Group
  - The Barr Foundation
  - JFY NetWorks
  - New England Clean Energy Council

- Prepared by Kevin Doyle, Bruce Ledgerwood and Art Wilcox

- Research was managed by:
  - Kevin Doyle
  - Principal, Green Economy
  - 137 Newbury Street, 6th Floor
  - Boston, MA 02116
  - (617) 877-5804
  - kevinldoyle@gmail.com
Careers in Energy Efficiency

Other Research Documents

- 2010-2012 MA Joint Statewide Three Year Electric Energy Efficiency Plan
- U.S. DOE Energy Efficiency & Retrofit Jobs in the Buildings Industry-Workforce Overview
How Big is the Opportunity

• In 2006:
  – The U.S. had approximately 113 million residential buildings;
  – Residential buildings account for:
    • 21% of primary energy consumption;
    • 37% of electricity consumption; and
    • 20% of carbon dioxide emissions
  – $225.6 billion was spent on energy for residences; and
  – 59% of residential buildings were built in 1979 or before.

• By 2020:
  – Residential buildings built before 1995 will use approximately
    70% of all energy consumed in residential buildings.

Sources: DOE Building Technologies Program’s 2008 Buildings Energy Data Book; and Pacific Northwest National Laboratory Analyses
Creating Meaningful Career Paths for the Long-Term

- **Home Performance Contractor**
  - Home Performance with Energy Star
  - Comprehensive retrofit analysis and implementation

- **HVAC Installer**
  - Install heating and cooling appliances

- **QA/QC Inspector**
  - Inspect contractors’ installations and NGATs
  - Provide feedback on results
  - Provide additional training to installer

- **Duct Test & Seal Technician**
  - DT&S Testing forced-air heating appliances

- **Weatherization Installer**
  - Perform natural gas appliance tests (NGAT)
  - Install EE measures in homes

- **Weatherization Specialist**
  - Energy education
  - Basic home audits

- **Annual Income**
  - $$$$
Energy Efficiency Industry

**Program Administrators**
- DSM Planners
- DSM Evaluators
- DSM Program Managers

**Program Management Contractors**
- DSM Engineers
- DSM Program Fulfillment Staff
- Account Managers

**Design and Engineering Firms**
- Structural Engineers
- Architects
- Lighting/Electrical Engineers
- Mechanical Engineers
- Commissioning Services
- Consulting Engineers
- Industrial Process Engineers
- Building Energy Modeling

**Building and Construction Firms**
- General Construction
- Plumbing Contractors
- Electrical Contractors
- Refrigeration Contractors
- Mechanical Contractors
- Energy Performance Services

**Energy Services Companies**

**Technical Support Services**
- Marketing
- Training
- Benchmarking
- Life-Cycle Cost Analysis
- Energy Rate Analysis
- Energy Tracking Accounting

**Equipment Vendors**
- Mechanical/ HVAC
- Industrial Energy Management
- Lighting/Electrical
- Motors
- Refrigeration
- Compressors
- Insulation
- Windows
- Process Industry Equipment
- Office Equipment
- Building Management

**Facility/Building Owner/Manager’s Staff**
- Business Operations
- Procurement
- Construction Services
- Building Operations
- Equipment Maintenance

Existing Field
New Specialization
on Development
Focus of NECEC Residential Retrofit Energy Efficiency Workforce Study

This study focused narrowly on job creation/retention from funds/programs that directly supported residential retrofitting of existing single family homes and 1-4 unit multiple family units.

It did not include an examination of:

- Residential energy efficiency programs aimed at new construction
- Commercial/industrial energy efficiency programs
- Residential energy efficiency for buildings with more than 4 units
- Expected pilot programs aimed at deep retrofits
- New municipal programs funded with Energy Efficiency Community Block Grants through ARRA (such as “Renew Boston”)
Statewide Verification of Employment Need Projections Via Contractor Survey

Who was surveyed? Identified contractors and subcontractors serving the Low-Income and RCS programs in all parts of Massachusetts.

What questions were asked? The survey included questions about:

- Work load
- Interest/ability to expand production by 25%, 50%, 100%, 150%
- Current number of employees
- Preferred recruiting sources
- Training needs
- Opinions related to need for an energy efficiency training center
- Inventory of trucks, insulation blowers, blower doors, infrared cameras
- Open question for opinions/commentary related to ramp-up needs
### Estimating Funding Increases

**RCS and Low-Income Programs**

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<td>Energy Efficiency Reconciliation Factor</td>
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<td>ARRA (Low Income Program actual)</td>
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<td>ARRA (other – estimated)</td>
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<td>Program Year</td>
<td>Total $</td>
<td>Total Employee</td>
<td>FTE Mgr</td>
<td>FTE Adm Ast</td>
<td>FTE Auditors</td>
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<td>2008</td>
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<td>2012</td>
<td>88,563,645</td>
<td>683</td>
<td>55</td>
<td>55</td>
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<td>2013</td>
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# Projected Residential Conservation Services Program Workforce 2008-2012

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<tr>
<th>Year</th>
<th>Total $</th>
<th>Total Employees</th>
<th>Mngrs</th>
<th>Adm Ast</th>
<th>Auditor</th>
<th>Project Coord.</th>
<th>Insulate Installers</th>
<th>Air Sealing Installers</th>
<th>HVAC Contract Installers</th>
<th>Admin Staff</th>
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<td>2008</td>
<td>52,655,556</td>
<td>498</td>
<td>37</td>
<td>50</td>
<td>39</td>
<td>41</td>
<td>162</td>
<td>17</td>
<td>114</td>
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<td>2009</td>
<td>105,374,997</td>
<td>911</td>
<td>67</td>
<td>83</td>
<td>51</td>
<td>92</td>
<td>211</td>
<td>51</td>
<td>285</td>
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<td>2010</td>
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<td>91</td>
<td>111</td>
<td>61</td>
<td>132</td>
<td>253</td>
<td>81</td>
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<td>Year</td>
<td>Low-Income Program</td>
<td>RCS Program</td>
<td>Total</td>
<td>Change</td>
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<td>798</td>
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<tr>
<td>2009</td>
<td>525</td>
<td>910</td>
<td>1,435</td>
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<td>1,975</td>
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<td>2011</td>
<td>801</td>
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<tr>
<td>2012</td>
<td>683</td>
<td>2,020</td>
<td>2,703</td>
<td>+ 683</td>
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# Combined Totals of Workforce Needs by Selected Job Categories

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<thead>
<tr>
<th>Year</th>
<th>Auditor FTEs</th>
<th>Change</th>
<th>Insulation/AS FTEs</th>
<th>Change</th>
<th>HVAC/R FTEs</th>
<th>Change</th>
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<tr>
<td>2008</td>
<td>95</td>
<td>----</td>
<td>276</td>
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<td>184</td>
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<tr>
<td>2009</td>
<td>125</td>
<td>+30</td>
<td>488</td>
<td>+212</td>
<td>380</td>
<td>+196</td>
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<tr>
<td>2010</td>
<td>157</td>
<td>+32</td>
<td>677</td>
<td>+189</td>
<td>516</td>
<td>+136</td>
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<tr>
<td>2011</td>
<td>189</td>
<td>+32</td>
<td>799</td>
<td>+122</td>
<td>754</td>
<td>+238</td>
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<tr>
<td>2012</td>
<td>227</td>
<td>+38</td>
<td>805</td>
<td>+6</td>
<td>791</td>
<td>+37</td>
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Careers in Energy Efficiency
Factors that have Changed Since 2008 and Industry Response

- **Changes in energy prices.** Some energy prices, which had risen to record highs in 2008, have dropped significantly. This has somewhat reduced that portion of residential energy efficiency demand which is driven by customer desire to save money on rising energy bills.

- **Recession in the building industry.** The economic recession has hit the construction and remodeling industry particularly hard, throwing thousands of Massachusetts carpenters, remodelers, electricians, HVAC/R workers and plumbers out of work, and pushing many existing contractors and subcontractors to pursue new markets such as energy efficiency.

- **Industry hiring response in 2008.** The state’s 2008 push to prepare for a cold winter of high energy prices paid a dividend that we are happily reaping now. RCS administrative vendors significantly expanded their corps of auditors and reached out to new installation contractors. The auditors hired in 2008 now have more experience and knowledge, improving the state’s ability to serve a large number of customers per auditor.

- **Improved information about ARRA funds.** More detailed information about exactly how funding sources such as the ARRA and RGGI might be invested in the residential energy efficiency market is becoming available. Primary actors have taken steps to lock in existing contractors, recruit new ones, and the hiring of auditors and administrative workers.
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Opportunities for Discussion

- Contractor expansion
- Certified Energy Managers
- Project Managers
- Back Office Jobs
- Smart Grid (Upcoming)
- Deep Retrofits
- Renewable Energy
Careers in Energy Efficiency
Panelists Presentations

**Marybeth Campbell**  
MA Clean Energy Center  
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Diversified Construction Services LLC  
President-CEO
Careers in Energy Efficiency
Moderator Questions

Marybeth Campbell – Based on the Green Communities Act and Federal initiatives in research and workforce development what kinds of projects are asking for funding statewide that will impact employment and training opportunities? What is the states vision for the smart grid?
Careers in Energy Efficiency
Moderator Questions

**Gary Kaplan** - Your organization is a nationally recognized leader in training programs and green initiatives in the urban core of Boston and through MA.

Where do you see the employment opportunities for those that do not have a college degree or a GED-HSD. Are there truly careers at this educational level?
John T. Walsh - WMECO is one of five utilities that had to submit a three year plan in response to the Green Communities Act. What impact will this have on job opportunities for unemployed skilled workers such as electricians and HVAC-R technicians? What project opportunities will there be for additional contractors or for community-based organizations looking for jobs in the marketing requirements of this plan?
Mark Newey – CET has been a leader in clean energy initiatives in western MA and has added many new energy auditors, weatherization technicians, operations and back-office staff.

As you expand the number of contractors your organization works with, what skills are they looking for in new employees?

Is basic training in air sealing or energy auditing enough without basic pre-apprentice construction trades training to provide “value added” for these contractors?
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Moderator Questions

- **Joseph Kerigan** – The amount of funding per home for your program is almost 4X the amount for the MassSave program, therefore the scope of your work can also focus on heating units, window replacement and other large skill intensive projects.

What are your contractors looking for in skills now and in the next 3 years?
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Moderator Questions

David Marley – As a successful business owner who works with a collaborative of contractors as well as educational institutions on large scale projects, what skills, certifications, degrees or technical training are you looking for in future employees. What about your partners?
Careers in Energy Efficiency
Audience Questions
Careers in Energy Efficiency
Workforce Trends and Opportunities

Thank You for your participation in today’s panel discussion