New Jersey Going Green

New Jersey State Data Center
Annual Network Meeting
New Brunswick, NJ
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Research Economist
New Jersey Department of Labor and Workforce Development
Overview

• Context
• Defining green
• Green in New Jersey
• Snapshots of current green demand
• Snapshots of education programs
• Tools
Context: New Jersey’s Green LMI Improvement Grant Scope

• Project assesses employer demand and supply responses (training / education) in green / sustainable programs

• Deliverables include inventory of education / training programs, analysis of program completer data, career information, sophisticated online tool for job matching, Web Site for dissemination
Context: Sector Strategy to Connect Demand and Supply

**Demand:**
**Employer Needs**
- Analysis of traditional labor market information (LMI) data
- Analysis of online job postings for indications of current hiring needs
- Employer interviews to determine medium-term workforce education and training needs

**Supply:**
**Education and training responses**
- Database of green / sustainable training and education programs
- Analysis of training / education program completion in green programs
- Analysis of the capacity of state’s education and training providers to meet the needs of the green economy (interviews and data review)
- Creation of career materials providing an overview of labor market, high demand occupations, skills and credentials in green / sustainable industries

**LWD Programs**
Defining green jobs (BLS)

• U.S. Bureau of Labor Statistics (BLS) defines green jobs as either
  – Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources.
  – Jobs in which workers’ duties involve making their establishment’s production processes more environmentally friendly or use fewer natural resources.

• BLS has developed a list of 300 industries
  – Surveys to measure the green work of firms are in development

Source: U.S. Bureau of Labor Statistics
http://www.bls.gov/green/
Defining green jobs (O*NET)

• *Greening the World of Work* Report (2009)
• Three types of green jobs
  – **Increased demand**: Increase in employment demand; no major changes in work requirements
    • Architectural drafters, chemical technicians, electricians, natural science managers, team assemblers, welders
  – **Enhanced skills**: significant change to the work and worker requirements
    • Civil engineers, construction laborers, farmers and ranchers, machinists, plumbers, roofers, sheet metal workers
  – **New and emerging**: need for unique work and worker requirements, which results in the generation of a new occupation
    • Air quality control specialists, chief sustainability officers, energy auditors, fuel cell technicians, recycling coordinators, solar energy installation managers

Source: Occupational Information Network
http://www.onetcenter.org/green.html
New Jersey’s Green Industries

• Green Energy Production / Renewable Energy
  – Companies producing electricity, heat, or fuel generated from renewable sources; products in the Green Energy supply chain

• Energy Efficiency – Green Building / Construction / Design
  – Producers of products and services that improve the energy efficiency of buildings and the efficiency of energy storage and distribution

• Environmental Remediation / Waste Management
  – Firms involved with the reduction or elimination of waste materials
### New Jersey’s Green Increased Demand Occupations

<table>
<thead>
<tr>
<th>Job Title</th>
<th>2009 Employment</th>
<th>Education/Training Requirements</th>
<th>2008-2018 Average Annual Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laborers and Freight, Stock, and Material Movers, Hand</td>
<td>73,700</td>
<td>Short-term on-the-job training</td>
<td>2,560</td>
</tr>
<tr>
<td>Customer Service Representatives</td>
<td>5,6250</td>
<td>Moderate-term on-the-job training</td>
<td>2,440</td>
</tr>
<tr>
<td>Carpenters</td>
<td>26,200</td>
<td>Long-term on-the-job training</td>
<td>390</td>
</tr>
<tr>
<td>First-Line Supervisors/Managers of Production and Operating Workers</td>
<td>16,250</td>
<td>Work experience in a related occupation</td>
<td>240</td>
</tr>
<tr>
<td>Industrial Truck and Tractor Operators</td>
<td>14,850</td>
<td>Short-term on-the-job training</td>
<td>480</td>
</tr>
<tr>
<td>Electricians</td>
<td>14,000</td>
<td>Long-term on-the-job training</td>
<td>390</td>
</tr>
<tr>
<td>Computer Software Engineers, Systems Software</td>
<td>13,050</td>
<td>Bachelor's degree</td>
<td>210</td>
</tr>
</tbody>
</table>
New Jersey’s Green Enhanced Skills Occupations

<table>
<thead>
<tr>
<th>Job Title</th>
<th>2009 Employment</th>
<th>Education/Training Requirements</th>
<th>2008-2018 Average Annual Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck Drivers, Heavy and Tractor-Trailer</td>
<td>43,050</td>
<td>Moderate-term on-the-job training</td>
<td>1,050</td>
</tr>
<tr>
<td>General and Operations Managers</td>
<td>39,300</td>
<td>Bachelor's or higher degree, plus work experience</td>
<td>1,210</td>
</tr>
<tr>
<td>Maintenance and Repair Workers, General</td>
<td>32,000</td>
<td>Moderate-term on-the-job training</td>
<td>670</td>
</tr>
<tr>
<td>Shipping, Receiving, and Traffic Clerks</td>
<td>22,100</td>
<td>Short-term on-the-job training</td>
<td>590</td>
</tr>
<tr>
<td>Construction Laborers</td>
<td>21,250</td>
<td>Moderate-term on-the-job training</td>
<td>370</td>
</tr>
<tr>
<td>Automotive Service Technicians and Mechanics</td>
<td>20,400</td>
<td>Postsecondary vocational training</td>
<td>520</td>
</tr>
<tr>
<td>Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products</td>
<td>13,100</td>
<td>Work experience in a related occupation</td>
<td>330</td>
</tr>
</tbody>
</table>
Current Demand
Demand Snapshot: Preliminary Findings from Employer Interviews

• Green training or credentials are often seen as necessary but not sufficient for firms, especially those in Energy Efficiency.
• Employers recognize their dependence on government policy to drive demand.
• Firms have diversified their portfolio of services in response to market slowdowns.
Labor Market Information as a Tool to Inform Sector Strategies

Traditional LMI

Employer Interactions

Real Time LMI

OUTCOME DATA / Feedback loop

Talent Development Strategy
## Strengths / Weaknesses

<table>
<thead>
<tr>
<th>Source</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
</table>
| Traditional LMI   | • Rigorous collection methodology  
                    • Representative samples                                               | • Time lag  
                    • Hiring data not available by state  
                    • Difficult to discover emerging skills / occupations                  |
| Job Postings Data | • “Real time”  
                    • Proxy for demand  
                    • Substantive characteristics about each listing                      | • Postings ≠ hiring  
                    • Changes in methodologies limit trend analysis  
                    • Not all openings are posted                                           |
| Employer interactions | • Provides context  
                       • Hiring challenges  
                       • Insight into future demand                                            | • Not necessarily representative  
                       • Can requires additional resources                                     |
Background: Job Postings Data Analysis

• Used in analysis since 2007
• Data provider: Burning Glass Technologies
• Incorporated data into special projects, typically comparing job listings to unemployment claims in the same occupation
• Incorporated into new and existing tools for people seeking jobs and training
  – Real Time Jobs in Demand online tool
  – Demand Occupations list
• 2009 New Jersey Going Green report: “Where the Jobs Are” analysis
  – First use of text analysis of job titles within job postings
  – Created keywords and taxonomy of occupational groups
Green Job Postings: Preliminary Analysis, First quarter 2011

• Over 130,000 jobs posted in first three months
• In first quarter 2011, 17 percent of New Jersey online job postings were in one of the three O*NET green categories
  – Most of the postings (62 percent) were in the Enhanced Skills category
  – About 33 percent of green postings were Increased Demand positions
  – The remaining 5 percent were New and Emerging occupations
Green Job Postings: Preliminary Analysis, First quarter 2011

• Two percent of online job postings had one or more green skills included in their content.

• Sixty percent of occupations with green content were defined as green by O*NET
  – Both Increased Demand and Enhanced Skills occupations had a similar share of green content (five percent).
  – Less than 10 percent online postings for New and Emerging occupations specifically mentioned green skills.
Occupations defined as green by O*NET had little green content in their online job postings.
## Sample Occupation Profile: Engineers

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Conventional Jobs</th>
<th>Green Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineers</td>
<td>2615 (89.5%)</td>
<td>308 (10.5%)</td>
</tr>
</tbody>
</table>

### Most green

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Conventional Jobs</th>
<th>Green Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering Technicians</td>
<td>50 (23.6%)</td>
<td>35 (52%)</td>
</tr>
<tr>
<td>Environmental Engineers</td>
<td></td>
<td>29 (22%)</td>
</tr>
</tbody>
</table>

### Green skills in occupation

- **Electrical Engineering Technicians**
  - Leadership in energy and environmental design, energy efficiency, photovoltaic energy, retrofitting, natural gas, energy modeling

- **Environmental Engineers**
  - Environmental health, environmental stewardship, air pollution control, water treatment, remediation systems

- **Health & Safety Engineers**
  - Environmental protection, ISO 14001 standards, environmental management, environmental regulations
### Sample Occupation Profile: Physical Scientists

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Conventional Jobs</th>
<th>Green Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Scientists</td>
<td>694 (83.8%)</td>
<td>134 (16.2%)</td>
</tr>
</tbody>
</table>

#### Most green

Geoscientists (except Hydrologists and Geographers)

- 40 (83.3%)

#### Green skills in occupation

- site remediation
- environmental protection
- environmental science
- environmental regulations
- soil collection
- hydrogeology
- soil logging
- site remediation
Education Programs
Many providers are focusing on Energy Efficiency/Green Construction
# A Closer Look:
## Green Training at NJ Community Colleges

<table>
<thead>
<tr>
<th>114 Non-Credit Program Offerings</th>
</tr>
</thead>
<tbody>
<tr>
<td>71% (81) Energy Efficiency: Green Building/Construction</td>
</tr>
<tr>
<td>2% (2) Environmental Remediation/Waste Management</td>
</tr>
<tr>
<td>13% (15) Sustainability Processes</td>
</tr>
<tr>
<td>1% (1) Green Energy Production/Renewable Energy</td>
</tr>
<tr>
<td>13% (15) Other Industry Findings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>36 For-Credit Offerings</th>
</tr>
</thead>
<tbody>
<tr>
<td>11% (4) Energy Efficiency: Green Building/Construction</td>
</tr>
<tr>
<td>3% (1) Environmental Remediation/Waste Management</td>
</tr>
<tr>
<td>17% (6) Sustainability Processes</td>
</tr>
<tr>
<td>14% (5) Green Energy Production/Renewable Energy</td>
</tr>
<tr>
<td>53% (19) Other Industry Findings</td>
</tr>
</tbody>
</table>
BPI is the most offered “green” credential training in NJ.

- BPI: 51
- LEED: 28
- Other Industry Credential: 22
Tools

• Innovative software for resume matching/job search
• New Talent Network website: greenjobsnj.com
• Green training search for the Eligible Training Provider List (ETPL)
Additional drop down menu for industry-based searches.
Search results for Green Training

Your search found the following programs:

### Results For Training Programs Search

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Total Clock Hours</th>
<th>Total Cost of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Green Contractor Training Course - LEED GA, LEED AP, and EPA Lead</td>
<td>24</td>
<td>$1,999.00</td>
</tr>
<tr>
<td>Green Education Services, LLC - PVS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York, Out of State</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Green Jobs Training - LEED GA, LEED AP, and BPI Building Analyst</td>
<td>56</td>
<td>$2,899.00</td>
</tr>
<tr>
<td>Green Education Services, LLC - PVS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York, Out of State</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Sustainability Training Package: LEED GA+AP and BPI BA+Envelope</td>
<td>68</td>
<td>$4,835.00</td>
</tr>
<tr>
<td>CleanEdison, LLC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Randolph (Morristown), Morris</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPI Certification for Energy Auditors</td>
<td>28</td>
<td>$1,595.00</td>
</tr>
<tr>
<td>Rutgers University Advanced Technology Extension (RATE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piscataway, Middlesex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Program Rating: N/A (0)
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