Developing an Exploratory Green Job Curriculum

By Bill Leahy and Laura Worthington
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www.sustainenergy.org
Biographies

William M. Leahy - Chief Operating Officer

Bill manages the operation of the Institute for Sustainable Energy at Eastern Connecticut State University (ECSU). He holds a BS and MS in Industrial Education from Central Connecticut State University and MS in Business from Rensselaer. He earned a Certified Energy Manager (CEM) and Certified Sustainable Development Manager (CSDM) from the Association of Energy Engineers and is a LEED Accredited Profession from the US Green Building Council. Leahy has forty years of experience in public education and energy management.

In 2002, Leahy was appointed Director at the Institute for Sustainable Energy at Eastern Connecticut State University. Institute is the recipient of the 2004 National Energy Star Partnership Award for Leadership in Energy Education from the US Department of Energy and Environmental Protection Agency, as well as numerous recognitions from regional and state organizations.

Laura Worthington - Energy Technical Specialist for Education & Training

Laura has worked for the Institute since August 2009 developing energy education and green jobs curriculum. She also delivers and coordinates workshops, conferences and educational outreach.

Laura holds a BS in Physical Geography from the University of Liverpool in England, a PGCE in Secondary Education from Edge Hill University England, and a MS in Secondary Education from Eastern Connecticut State University. Laura is also pursuing a second MS in Global Sustainability from Central Connecticut State University.

Laura currently holds Teacher certification in the United Kingdom and Connecticut State Teacher certification in Earth Science.
Abstract

The Institute for Sustainable Energy is under contract with the Workplace Inc. on the ‘Pathways from Poverty’ DOL grant and has developed a model curriculum for a post-industrial urban areas with high unemployment. By offering an exploratory curriculum to disadvantaged workers, the program is designed to provide a variety of employment opportunities that lead to family supporting sustainable green careers in the private sector.
The Institute’s Mission is “…to identify, develop and become an objective energy and educational resource regarding the means for achieving a sustainable energy future in Connecticut.”
Pathways out of Poverty
DOL - ARRA Grant

U.S. DEPARTMENT OF LABOR
Employment and Training Administration American Recovery and Reinvestment Act of 2009

• To fund projects that provide *training and placement services* to prepare individuals seeking pathways out of poverty to sustainable careers.

• Training programs will prepare individuals for careers in any of the seven energy efficiency and renewable energy industries

• 600 applications were submitted for 30 competitive grants awarded.
“Green-Up Bridgeport” is a U.S. DOL-funded initiative in which unemployed Bridgeport residents living in selected zip codes will be trained for in-demand green collar jobs. Participants will receive job training placement assistance and follow-up.

Text source http://www.workplace.org/greenup.asp

http://www.workplace.org/bluegreen.asp
Pathways Out of Poverty

Green-Up Bridgeport is a skilled trade training program that is not targeted to any one industry but instead will train people in occupations that have increased demand across a range of green industries.

- $4.0 million over 2 years
- Targets residents in specific Bridgeport neighborhoods
- Provides Counseling, Educational programs, Job Training and Support Services.
Outcomes and Deliverables (in 24 months!)

- **Outreach to the Community:** 800
- **Identify Eligibility and Enrollment:** 700
- **Begin Education/Training Activities:** 600
- **Complete Education/Training Activities:** 500
- **Complete Training with credentials:** 400
- **Placed into employment:** 350
- **Retention after 180 days:** 275
Kick off for “Green–up Bridgeport”
Secretary of Labor, Hilda Solis
March 29, 2010
What is a Green Collar workforce?

Not just another day at the office
Preparing participants for careers in energy efficiency, renewable energy efficiency and sustainability

**Pre-Curriculum**
- Identifying
- Testing
- Orientation
- Career Interview
- Tutoring
- Childcare
- Transportation

**Exploratory Curriculum**
- Exposure to career options
- Teachers with field experience
- Field trip
- Group discussions and hands on tasks

**Identify areas of focus**

**Post Curriculum**
- Develop Profile
- Career Counseling
- Training Classes
- Credentials
- On the Job Training
- Placement
- Follow-up
General Credentials

- OSHA 10 & 30
- Hazwoper
- Lead Abatement
- Asbestos Removal
- Brownfield Mitigation
- Customer Service
- Commercial Drivers License
- Fleet Maintenance
Recognized Credentials

- Building Performance Institute (BPI)
- North American Board of Certified Energy Practitioners
- US Green Building Council
- Association of Energy Engineers
- Environmental Protection Agency
SOAR

Sustainable Operations Alternative and Renewable Energy Initiative

- Sustainable Landscaping
- Building Operations
- Renewable Energy Applications
- Alternate Fuel Vehicle Mechanics
- Green Building Design
- 9 Programs
Identify Candidates

Testing and Screening

Orientation

Exploratory Curriculum

Counseling and career planning

Internship

Entry Level Job

Employment

Individual Counseling and support

Testing and Screening

OrientaBon

Individual Counseling and support

Exploratory Curriculum

Counseling and career planning

Internship

Entry Level Job

Employment
Original Client Flow Chart

1. Outreach/Recruitment
  - Eligibility Determination
    - NO → CTWorks One-Stop Services
    - YES → Assessment Math/Reading

2. Assessment Math/Reading
   - Green Career Advisor/Case Manager Employment Plan Development
3. 101 Green Awareness Courses: Ex. HVAC, Automotive, Construction, Installation, Plumbing
   - Work Readiness
   - Green Occupational Skills
   - Job Shadow/Internships/Mentoring
   - Job Placement
4. Contextual Literacy/Numercy Skills Training
Steps for Career Tracking Jobs

1. Introduction & General Awareness
2. Career Exploration
3. Skill Development
   1. Classroom & Labs
   2. Apprenticeship
4. Certificate of Completion
5. National Credentials
6. Licensing
Green Building Construction
Day One

Green Building Energy System
Day One

Transportation Management
Day One

Resource Management
Day One
Hundreds of career opportunities

**Renewable Energy Careers**
- Solar Photovoltaic installation and Technicians
- Solar Thermal Installation and Technicians
- Biofuel, Geothermal, Hydroelectric and wind Technicians

**Transportation Careers**
- Auto Body Repair Technician
- Bus system operator
- Train system operator
- Mechanics helper
- Auto Mechanic
- Diesel retrofit installer
- Auto and bus service technician
- Truck and bus mechanic

**Green Construction Careers**
- Weatherization Technicians
- Efficient Envelope Specialist or Contractor
- Green Trades; Carpenter, Electrician, Plumber, Steel Worker and Welder
- Renewable Energy Installation
- HVAC Technician
- Construction Manager
- LEED Associate or Professional

**Careers in the Brownfield sector**
- Soil conservationist
- Environmental restoration worker
- Soil conservation Technician
- Soil conservation supervisor
- Brownfield planning and recovery
- Soil remediation
- Low impact land development
Introducing careers

Career Focus: Retrofit and renovation worker
- **Job Description:** Responsible for replacing older technologies with newer, more energy-efficient alternatives through retrofit or renovation installation practices.
- Remodels, retrofits, and repairs for interior and exterior structures.
- Improvements to meet state building codes.
- Determines project cost and feasibility.

*How are retrofit and renovation workers examples of green careers?*

Career Focus: Green Landscaper
- **Job Description:** Responsible for landscape maintenance, promotes green landscaping techniques such as native planting, rainwater recapturing, green pesticide application.

*How is a green landscaper different from a traditional landscaper?*

Career Focus: Building Products Purchaser
- **Job Description:** Responsible for preparing orders and arranging transportation for purchased goods.
  - Promote sustainable purchasing of green products and examine sample products to estimate their quality.
  - Negotiate contracts with companies and review orders to meet supply and demand needs.

*What knowledge of building operation would be useful for a building products purchaser?*

Career Focus: Electric Vehicle Electrician
- **Job Description:** Including the design and implementation of electric vehicles with high current charging systems where needed.
  - Usually training is done through technical school electronics experience.
  - This field has projected growth as the electric vehicle industry grows and is therefore a sustainable career.

*What are the positives of a green transportation career?*
The Green Economy

The National Center for O*NET Development, as part of its efforts to keep up with the changing world of work, investigated the impact of green economy activities and technologies on occupational requirements and the development of New and Emerging (N&E) occupations. Results of the research led to the identification of green economic sectors, green increased demand occupations, green enhanced skills occupations, and green new and emerging (N&E) occupations. These occupations are now reflected in the O*NET-SOC system.

For the National Center for O*NET Development’s research on the green economy, read Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations. In addition to the report on the green economy, the National Center for O*NET Development maintains a Green Book of References that is updated quarterly.

Learn, discuss, and share promising practices in creating partnerships for Green Job Workforce Solutions and for leveraging Recovery Act Investments at the Green Jobs Community of Practice.

Major work activities of the green economy cover a broad spectrum. To efficiently and effectively determine the potential occupational implications of green technology, workplace activities were categorized under different green economy sectors:

- Renewable Energy Generation
- Transportation
- Energy Efficiency
- Green Construction
- Energy Trading
- Energy and Carbon Capture and Storage
- Research, Design, and Consulting Services
- Environment Protection
- Agriculture and Forestry
- Manufacturing
- Recycling and Waste Reduction
- Governmental and Regulatory Administration
Green Building Construction: Group Activity

In your group think about all of the construction materials for a specific building type.

Think about where the materials come from and if they could be recycled.

Now list any sustainable alternatives that could be used.
Green Building Energy System: **Discussion** Green Products Purchasing

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**Discussion**

- What do building managers need to purchase?
- Do any of these products have the potential to be green? Which ones? How?
Transportation: **Activity**

In groups discuss and answer the following questions.

- Why is it important for Mass Transit workers to use green initiatives? How does mass transit impact the environment?
Resource Management: **Career Focus:**
Brownfield Site Technician

- **Job description:** Responsible for planning site investigations and designing remediation projects.
  - Works with engineers and contamination scientists to provide information about soil quality related to construction and development issues.
  - Conducts site inspections.

**Why is it important for Brownfield technicians to work with building engineers?**
Green Construction

- Encouraging workforce progression

<table>
<thead>
<tr>
<th>Role</th>
<th>* Credentials</th>
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<tbody>
<tr>
<td>Green Building and Retrofit Contractor</td>
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<tr>
<td>LEED Accredited Professional</td>
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<tr>
<td>Site Supervisor Technical Operator</td>
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<tr>
<td>Green Construction Skilled Trades</td>
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<tr>
<td>Building Envelope Specialist</td>
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<tr>
<td>Weatherization Technician</td>
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<tr>
<td>Construction Laborer</td>
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Example of the Green Building Construction Job Ladder
Client Portfolio

• Testing
• Interest Inventory
• Background and Training
• Experience

• Select Career Training or Program
• Credentialing and Job Training
Engage Participants

• Discussion
• Hands on activities
• Recognizing skills and experience
• Use of effective questioning.
• Relating activities to aspects of the many careers within each ladder.
Selecting an appropriate Career Track

Complete “Job Interest” form
• Which Job Ladder?
• Which Job Titles?
• What are the Educational Requirements?
• What are the Skill Requirements?
• What are the Experiential Requirement?
• Why you are interested in this job?
• Is it a Good Match?
Last Steps
Placement and Follow-up

• Shadowing
• On-the-Job Training program
• Apprentice Programs
• Entry Level Job in chosen field
• Career Advancement
• Follow-up
Issues

• Limits because of Candidate Background
• Participants Math and Communication Skills Levels
• Who are the Educational Providers?
• Where are the Green Jobs?

Questions?