Employability Skills For Green Jobs

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But Seriously........

• Define sustainability
• Take a look at the funding pushing the “Green Economy” forward in the United States
• Learn about “Green-collar Jobs”
• ID skills needed for “Green Jobs” and some ways to impart those to the student
• Identify how CCC&TI is responding to the growing demand for sustainable technologies
In 1989, the World Commission on Environment and Development (Brundtland Commission) articulated what has become the most widely accepted definition of sustainability:

“To meet the needs of the present without compromising the ability of future generations to meet their own needs.
Since the 1980s, the idea of human sustainability has become increasingly associated with the integration of economic, social and environmental spheres.
Sustainable Business

Economically profitable
- The real green...

Environmentally-conscious
- Safe, healthy, minimizes waste, energy conservative

Socially progressive
- Innovative, family-friendly, diverse, living wage, fair labor
Energy Efficiency

- $19.5 billion for school construction, renovation and modernization
- $7.4 billion to the Department of Defense for facility construction, maintenance, and upgrades
- $2.25 Billion for the HOME Investment Partnerships Program block grant
- $357 million for renovation of National Institute of Standards and Technology facilities using green technologies
- $4.2 billion for Energy Efficiency and Conservation Block Grants
- $1.6 billion is provided to DOE for grants to make schools and hospitals, significant users of energy, more energy efficient
- $6 billion for repair of federal buildings to increase energy efficiency using green technology
- $200 million for energy efficiency upgrades at national parks and other public facilities
- $8.5 billion to HUD for construction and maintenance projects that will improve energy efficiency in public housing
Renewable Energy

• $2.648 billion to DOE for energy efficiency and renewable energy research, development, demonstration and deployment activities

• $10 billion is provided for new loan guarantees aimed at standard renewable projects such as wind or solar projects and for electricity transmission projects.

• $200 million to the Department of Defense for testing and deployment of renewable energy technologies
Smart Grid

• The Senate version of the Recovery Act invests $11 billion in smart-grid related activities, including work to modernize the electric grid.
• For every $1 million invested in smart grid installation, 5.2 direct utility jobs are created.
• An $11 billion investment in smart grid demonstration projects would create or retain a total of 57,200 direct jobs for utility workers.
Transportation Infrastructure

- $240 million to the Coast Guard for repair of bridges deemed hazardous.
- $500 million to secure high risk critical infrastructure such as dams, tunnels, and bridges.
- $27 billion is included for highway investments, particularly repair and maintenance projects. The vast majority of this funding will be distributed as grants using a formula set in current highway authorization law.
- $5.5 billion for competitive grants to state and local governments for transportation infrastructure investments.
- $800 million for repair and restoration of roads on park, forest, tribal and other public lands ($160 million to BLM, $60 million to US Fish and Wildlife Service, $180 million to the National Park Service, $280 million to NFS, $120 million to BIA).
- The Act will create over 405,000 direct jobs for highway construction workers and laborers.
Alternative Fuel Vehicles

• $350 million for grants administered through the Clean Cities program of the Department for acquisition and alternative fuel or fuel-cell vehicles

• $200 million for grants to states to plan and deploy electrical infrastructure projects that encourage the use of plug-in electric drive vehicles and for near term large-scale electrification projects aimed at the transportation sector, including seaports.

• $600 million to replace older motor fleet vehicles owned by the Federal Government with alternative fuel automobiles that will save on fuel costs and reduce carbon emissions.

• $300 million to the Department of Defense to lease alternative-fuel vehicles and purchase batteries and fuel cells for vehicles

• $200 million for grants to public transit agencies for capital investments that will reduce the energy consumption or greenhouse gas emissions of their public transportation systems
Growing and growing...

- Renewable energy represents 5 percent of global power capacity and 3.4 percent of global power generation.
- The largest portion of the renewable power capacity increase has been wind power.
- The fastest growing technology in the world is grid-connected solar photovoltaics (PV), with an increase equal to 1.5 million PV-powered homes worldwide.
- Production of biodiesel is up more than 50 percent.
- Policies to promote renewable energy have mushroomed.
What is “Green”?

*Green Economic Activity includes:*

- reducing the use of fossil fuels
- decreasing pollution and greenhouse gas emissions
- increasing the efficiency of energy usage
- recycling materials
- renewable sources of energy
A green occupation is any occupation which has the potential to be engaged in environmentally friendly work activities

**Occupation categories:**
- Somewhat broad categories of workers
- Defined by standard occupation classification (SOC) system
- Secondary data available (e.g. EMSI, state labor market information sites)

**Job titles:**
- More detailed and centered on specific work activities
- Requires primary data collection (e.g. survey)
Green-collar jobs are good jobs. Like blue-collar jobs, green-collar jobs pay family wages and provide opportunities for advancement along a career track of increasing skills and wages.

A job that does something for the planet, and little to nothing for the people or the economy, is not a green-collar job.
Green-Collar Jobs Provide Pathways Out of Poverty

• Most green-collar jobs are middle-skill jobs requiring more education than high school, but less than a four-year degree.

• Well within reach for lower-skilled and low-income workers as long as they have access to effective training programs and appropriate supports.

• Green-collar job strategies should provide opportunities for low-income people to take the first step on a pathway to economic self-sufficiency.
Green-Collar Jobs Require Some New Skills (and new thinking about old skills)

- The green economy demands workers with new skill sets.
- Some green collar jobs are brand new.
- Even more are existing jobs being transformed as industries transition to a clean energy economy: computer control operators who can cut steel for wind towers as well as for submarines; or mechanics who can fix an electric engine as well as an internal combustion engine.
- We must identify the specific skills the green economy demands.
- Then we need to invest in creating new training programs and retooling existing training programs to meet the demand.
Green-Collar Jobs Tend To Be Local Jobs

• Much of the work we have to do to green our economy involves transforming the places we live and work and the way we get around.
• These jobs are difficult or impossible to offshore.
• One of the major sources of manufacturing jobs -- a sector that has been extensively off-shored -- are components parts for wind towers and turbines. Because of their size and related high transportation costs, they are most cost-effectively produced as near as possible to wind-farm sites.
• Cities and communities should begin thinking now about ways their green strategies can also create local jobs.
A Green-Collar Job Strengthens Urban and Rural Communities

• Urban and rural America have both been negatively impacted over the past decades by a failure to invest in their growth
• Green-collar jobs provide an opportunity to reclaim these areas for the benefit of local residents
Green Jobs are Good for the Earth

- The "green" in green-collar is about preserving and enhancing environmental quality.
- Green-collar jobs are in the growing industries that are helping us kick the oil habit, curb greenhouse-gas emissions, eliminate toxins, and protect natural systems.
- Green Jobs are intent on improving lifestyles to become more sustainable overall.
# Green Occupations

<table>
<thead>
<tr>
<th>Increased Demand Occupations</th>
<th>Enhanced Skills Occupations</th>
<th>New and Emerging Occupations</th>
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This table outlines the key areas of focus in the context of green jobs, highlighting the demand for increased skills and the introduction of new and emerging occupations.
Green Jobs or Green Skills?

1. Bicycle repair and bike delivery services, car and truck mechanic jobs, production jobs, and gas-station jobs related to bio-diesel, vegetable oil and other alternative fuels
2. Food production using organic and/or sustainably grown agricultural products, urban agriculture
3. Green building, construction, heavy equipment operators, blasting, drilling
4. Waste Management and composting on a large scale
5. Deconstruction, hauling and reuse of construction and demolition materials and debris
6. Hazardous materials clean up, testing, remediation
7. Plumbing for hydronics, boilers, solar thermal
8. Manufacturing jobs related to large scale production of a wide range of technologies (i.e. solar panels, bike cargo systems, green waste bins, etc.)
9. Recycling, materials reuse/producing products made from recycled, non-toxic materials
10. Non-toxic household cleaning in residential and commercial buildings
11. Parks and open space maintenance and expansion
12. Printing with non-toxic inks and dyes and recycled papers
13. Public transit jobs
14. Renewable energy installation and maintenance
15. Arborist, landscape design, horticulturalist
16. Whole home performance testing (i.e: HVAC, attic insulation, weatherization, etc.)
17. Retrofit for residential and/or commercial buildings
What are the Soft Skills Needed?

**Traditional**
- Interview Skills
- Resume Writing
- Personality Assessment
- Conflict Resolution
- Communication Skills
- Relationship Building
- Appearance

**New / Green**
- Customer Service
- Teamwork/Holistic Perspective
- Responsibility to Triple Bottom Line
  - Social
  - Environmental
  - Economic
- Living wages
- Global Community
- Analytical/Systems Thinking
“Green Collar” Jobs

- Renewables Market Specialist
- Restoration Technician
- Green Building Consultant
- Reclaimed Water Technician
- Solar Energy Installer
- Facilities Manager
- Integrated Pest Management Specialist

Source: http://jobs.greenbiz.com
Education

Pathways
- Business/Industry
- HVAC
- Plumbing
- Electrical
- Carpentry
- Weatherization

Jobs
- Business owners
- Crew chiefs
- General laborers

Certifications
- Building Operator’s Certificate
- Building Performance Institute
- NABCEP
How is this Delivered to the Student?

• Sustainable Development Course
  – Taught by an expert in the field of sustainable development
  – Personalized to career path

• Activity-based Learning
  – Taught by a professional in the field
  – Emphasis on teamwork and real world experience

• Renewable Energy Overview (VLC online course!)

• Employment Connections
  – Emphasis on soft skill development and skill identification
  – CRC - Career Readiness Certificate
Sustainable Development

• Learning the triple bottom line
• Provides student an understanding and perspective of their role in a global system
• Inspires a holistic perspective and the ability to make decisions in an analytical, systemic, team-oriented, manner
Hands-on Learning

• Live Installations
• Instructional Props
• Service Learning Projects
• Field Trips
• Visits from Industry Representatives
Employment Connections

• Job Shadowing
• Resume and Job Portfolio Development
• Soft Skill Development
• Practicing Interviews
• Occupational Research
• Career Readiness Certification
Next Steps / Future Directions

- Mobile demonstration laboratory
- WNC Energy Training Partnership
- I-BEST Model
F.O.R.E.S.T. Lab

Finding Opportunities in Renewable Energy & Sustainable Technology

• Funded by the North Carolina Green Business Fund to promote a message of sustainable technology

• Inspiring new business development

• Demonstrating renewable energy feasibility and building science importance

• Educational outreach

Green building techniques
Building science principles and practices
Photovoltaics
Solar water and space heating
Small wind technologies
High performance HVAC
Healthy, recycled, and sustainable materials
Locally sourced products and services
Resources

• EMSI – Economic Modeling Specialist Inc. provides an excellent moderate perspectives on green jobs and green economy
  – http://www.economicmodeling.com/resources/whitepapers/

• O*Net Resource Center - Green Economy Resources - green economic sectors, green increased demand occupations, green enhanced skills occupations, and green new and emerging occupations
  – http://www.onetcenter.org/green.html

• Green Jobs Network – job listing and career development resources
  – http://www.greenjobs.net/

• NC Department of Commerce - the state's advocate for economic, community and workforce development
Contact Information

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