Greening the Workforce

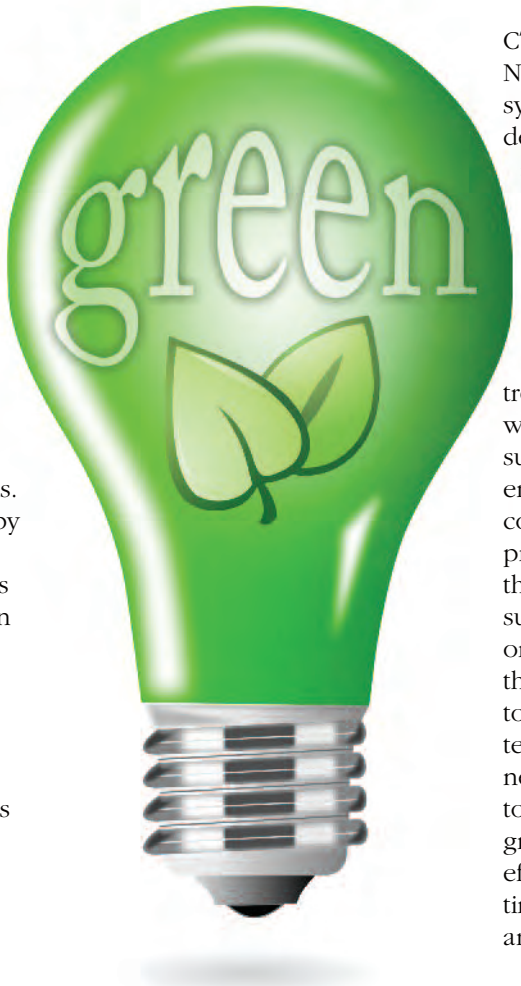
Have you noticed that suddenly everyone seems a lot more interested in anything "green"? It's not the color that is important; it's what green represents: a focus on preserving natural resources and the development of renewable energy.

As you plan your educational pathway, consider just what effect going green will have on your career. When gas prices spike to more than $4.00 per gallon, it is easy to see the need for homegrown fuel that promotes American agriculture and industry. Whenever you hear about the prospect of a Category 5 hurricane making landfall on the North Carolina coastline, everyone begins to pay closer attention to the effects of global warming. With issues so big, you might think that you cannot possibly make an impact on these truly global issues, but the truth is that you can.

Thirty years ago, anyone planning a career working with computers would have most likely sought a four-year degree in computer science, but now it is difficult to find an occupation or industry where computer technology is not a significant part of daily operations. The computer has become a tool by which we perform nearly every task. It is likely that green concepts will firmly root into any occupation that either uses energy or impacts the environment. In short, every job will be transformed at some level. Career and Technical Education (CTE) participants are likely to be the first affected by this change and will take a leadership role in clean energy production and environmental sustainability.

Whether you enter the skilled trades or the sciences, the ability to reduce one's "carbon footprint," is becoming paramount in the workplace. In the skilled trades, home builders are incorporating recycled materials, energy efficient appliances, and with increasing frequency, energy-generating fixtures, such as solar panels and wind turbines. This is changing the service industry that maintains these homes by creating a need for skilled technicians who understand and are trained to work with these new technologies.

In the sciences, researchers are focused on new and renewable energy production, making the products we already rely upon use less energy and finding ways to sanitize the energy that we already use. For each of these researchers, there is an estimated need for six "highly skilled" employees, which requires at least an associate degree, to work in support positions.



According to an October 2008 Issue Brief from the Association for Career and Technical Education (ACTE), "An estimated $71 billion was invested in new renewable energy capacity worldwide in 2007, and clean energy was the third-largest area of venture capital investment." The result of this is several million jobs being created or transformed to address the needs of the green movement. A critical need for workers with skills and knowledge of sustainable systems continues to expand.

CTE is leading the way! Across North Carolina's educational system, new programs are being developed and existing programs are retrofitting to support the burgeoning green-collar workforce. These jobs are high-skill, high-demand, and high-wage and are in fields as diverse as the workforce itself. Unfortunately, there is a tremendous shortage of individuals with the necessary skills in sustainability practices, and employers seeking more "green-collar" workers often face bleak prospects. In many instances, while the technologies to support the sustainability industry have been or are being created, industry lacks the skilled workforce necessary to implement and use these technologies. To some extent, the need for human capital is proving to be a barrier to the continued growth and expansion in energy efficiency and sustainability. At a time when unemployment rates are growing, this lack of skilled

workers leaves high-paying employers unable to fill positions of critical need.

CTE is evolving to fill these gaps. Through the concept of Career Clusters, curricula are linked so that students have clear pathways leading ultimately to these lucrative career options with industries desperate for skilled workers. CTE focuses on skills attainment as much as completion of academic programming.

These green concepts are rapidly filtering into all curricula; however, many green-collar programs are already offered across the state. One example, which was developed closely with industry and the North Carolina Biofuels Center, is an associate degree in Alternative Energy Technology: Biofuels and related certificate programs at Central Carolina Community College. Green program offerings will continue to expand. In February 2009, the State Board of Community Colleges approved the following courses that will be available across the State:

- Sustainable Development
- Green Building Overview
- Green Construction
- Green Consumerism
- Green Purchasing
- Alternative Fuels Technology
- Photovoltaic (PV) Technology
- Solar Thermal Technology
- Wind Power Technology
- Building Efficiency Operator
- Home Energy Rater
- Indoor Air Quality
- Microbial Investigation and
- LEED (Leadership in Energy and Environmental Design) Exam Preparation

North Carolina is on the forefront of developing a green workforce. Please remember to consider this as you establish your own education and career paths.

Top Green Jobs

The *Green Jobs Guidebook: Employment Opportunities in the New Clean Economy,* created by the Economic Defense Fund, has compiled a list of more than 200 jobs that are related to either preventing or adapting to climate change. The following is an abbreviated list of some of these new opportunities by industry sector. The entire Guidebook can be accessed at **http://www.edf.org/article.cfm?contentID=8466.**

Low Carbon Power and Renewable Power Generation
- Solar Hot Water Heater Manufacturing Technician
- Solar Lab Technician
- Solar Residential Installation Electrician
- Solar Operations Engineer

Wind Development, Manufacturing, Installation, and Maintenance
- Wind Farm Electrical Systems Designer
- Wind Turbine Electrical Engineer
- Wind Field Technician

Hydroelectric Power Operation Development, Manufacturing, Installation, and Maintenance
- Hydroelectro Component Machinist
- Hydroelectro Plant Structural Engineer
- Hydroelectro Installation Technician
- Hydrogeologist and Hydrologist

Geothermal Power Plant Development, Manufacturing, Installation, Engineering, and Management
- Geothermal Sheet Metal Worker
- Geothermal Electrical Engineer
- Geothermal Power Generation Engineer

Biogas and Biomass Generated Energy and Collection
- Landfill Gas Technician
- Biomass Plant Operations, Engineering, and Maintenance
- Biomass Collection, Separating, and Sorting

Plant Environmental, Health, and Safety
- Environmental, Health, and Safety Engineering Manager
- Plant Technical Specialist – Safety Equipment Testing
- Safety Investigator/Cause Analyst

Green Building Projects
- Residential or Commercial Green Building and Retrofit Architect
- Industrial Green Systems and Retrofit Designer
- Water Purification Systems Service Technician
- Weatherization Operations Manager

Automotive Operations, Vehicle Production, Manufacturing, and Modification
- Diesel Retrofit Installer
- Electric Vehicle Electrician
- Air Pollution Specialist

Biofuel Production Facilities Operations and Management
- Biofuel Plant Operations Engineer
- Biodiesel/Biofuel Plant Field Technician
- Alternative Fuels Policy Analysts and Business Sales

Climate Change Adaptation and Climate Studies
- Environmental Scientist
- Environmental Sampling Technician
- Climatologist