



# Career and Technical Education's Role in Energy and Environmental Sustainability

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The demand for energy sustainability has created two parallel workforce phenomena – the development of new careers in the green industry, such as solar panel installers and wind turbine technicians; and the “greening” of all other jobs. From construction to business management, sustainability issues are growing increasingly important in a number of career pathways.

These jobs are high skill, high wage and in high demand. They exist in sectors as diverse as landscaping and automotive manufacturing. 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, the industry lacks the skilled workforce necessary to implement and use these technologies. To some capacity, the need for human capital is proving to be a barrier to the continued growth and expansion in energy efficiency and sustainability.

The sustainability industry has the power to dramatically revive employment in many areas around the country, as green-collar careers can replace the jobs of workers in areas with stagnant job growth or layoffs. However, there must be a greater focus by policymakers and business and industry leaders on providing the training and retraining necessary to help shape this new workforce and ensure the continued pipeline of skilled workers.

## CTE PROVIDES SOLUTIONS

Career and technical education (CTE) programs are poised and ready to ease the workforce bottleneck that could limit job growth in

sustainability and meet the need for green-collar job training across career areas. Despite the fact that the term “sustainability” has only been around for two decades, and mainstream public interest has only recently peaked, high-quality CTE programs already exist around the country to help prepare students for sustainable careers.

CTE offers early exposure to students regarding sustainable energy career options through curriculum integration, provides the “cutting edge” training necessary to ensure future employees meet workforce pipeline needs, and sets an example through state-of-the art green buildings that become part of the curriculum.

## Exposing Students to Green Curriculum

Today's CTE is becoming more rigorous in response to growing workforce skill needs, and at the same time remains extremely relevant to students and their lives. It offers unique opportunities for students to explore career options at the same time they are receiving the strong academic and technical foundation necessary to succeed in the 21st century economy. CTE can be the answer to ensuring that students gain the sustainability knowledge they need to be successful in whatever career they may choose, and that students are exposed to careers in sustainability early enough to consider them as future options.

A number of high schools have started to offer this type of exploration and integration of sustainability concepts. Aiken University High School in Cincinnati has instituted a special environmental sciences program where coursework in all subjects is linked to environmental issues. A CTE Tech Prep articulation agreement that provides college credit will allow students to follow a clear career path to Cincinnati



State University in a variety of environmental fields. In other areas, CTE programs are integrating the concepts into already existing programs. Massachusetts CTE instructors attended the Massachusetts Green Building Expo in May 2008 to learn how to integrate green building practices, renewable energy and sustainable design into their courses.

## Preparing the Green Workforce

While exposing students to sustainability and possible careers is critical, perhaps the most important role for CTE to play in efforts to increase the United States' energy sustainability is to directly prepare students to be leaders in the future workforce. CTE programs at community and technical colleges are in a unique position to evolve and adapt quickly to the changing technologies in the energy industry, and to create new training programs to meet the growing demands for a skilled and environmentally conscious workforce in this area.

A sampling of recent new programs includes those in water conservation, wind energy, biofuels, photovoltaics, environmental systems technology, energy maintenance and green building technology. Numerous programs in these areas are appearing all around the country, and many of the new training programs are the direct result of business-education partnerships with strong industry support.

## Setting an Example through Green Facilities

One of the fastest growing elements of the sustainability movement is the building of green facilities, and the U.S. Green Building Council offers a special Leadership in Energy and Environmental Design (LEED) certification specifically for schools. For CTE facilities, both the challenges and the benefits of sustainability elements can be more extreme. Issues such as air quality and energy usage are more complicated in high-tech labs than in more traditional classroom spaces, and there is more equipment to evaluate and upgrade.

In spite of the challenges, CTE facilities are joining in efforts to build more sustainable facilities, which in turn become dynamic learning labs for students and can even have an impact on recruiting students to careers in sustainability. Both high schools and community and technical colleges are involved in a wide range of efforts, including

installing solar panels, utilizing daylighting, recycling materials, installing nonpolluting carpet and paint and low-flow water fixtures, and undergoing full-scale renovations or sustainable new building.

## POLICY ACTION NEEDED

At all levels of education, from career exploration to specific job training, CTE has an essential role to play in energy and environmental sustainability. Without critical CTE activities providing a skilled and ready workforce, the investments in new energy-efficient and sustainable technology will be for naught.

Around the country, CTE programs focused on a wide variety of green ideas and practices have stepped up to ensure the continued pipeline of skilled workers with a strong knowledge foundation. Community and political leaders, along with local business and industries, should look to CTE programs as the answer to this workforce challenge, and aim to invest in and expand these programs and opportunities so that even more students can participate. CTE programs are flexible and responsive to economic and workforce needs, placing them in a prime position to serve the growing and evolving green industry.

Specifically, policymakers should focus on the following activities:

- Developing and funding high school and community and technical college programs which address the need for high-wage, high-demand careers in sustainable energy and environmental programs. ACTE supports legislation like that introduced by Representative Jerry McNerney (D-CA) that will develop CTE programs of study and facilities in the areas of renewable energy.
- Training to ensure educators have the knowledge about new green and sustainable technologies necessary to prepare students.
- Modernizing and upgrading CTE facilities and equipment to focus on green/sustainable issues and to convert spaces into classrooms that allow hands-on education focusing on green technical skills.
- Supporting the infusion of energy sustainability concepts throughout the secondary and postsecondary curriculum to ensure that students are exposed to skills and ideas that will be necessary in a wide range of future careers.