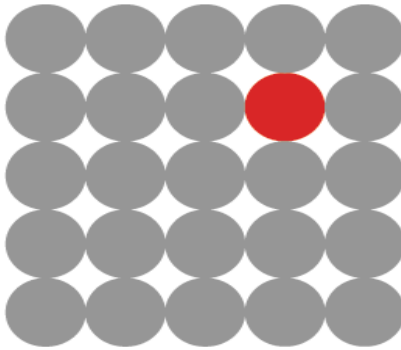


# Green Technology:

Resources for Serving Females  
and Special Populations



**California Special Populations**

Prepared by the Joint Special Populations Advisory Committee

[www.ispac.org](http://www.ispac.org)

2010

## **Introduction**

“Emerging green jobs are creating opportunities for workers to enter careers that offer good wages and pathways to long term job growth and prosperity,” said U.S. Secretary of Labor Hilda Solis in announcing \$500 million in federal funds to train workers for “Green” jobs.

California’s Career and Technical Education (CTE) Joint Special Populations Advisory Committee (JSPAC) strongly supports green technology training as an avenue to high paying sustainable jobs. While JSPAC believes all students can benefit from the green movement, the committee is focused on the recruitment, participation, and retention of females and individuals from special populations in green technology training programs. (Special populations are defined as individuals who are economically disadvantaged including single parents and displaced homemakers, disabled, limited English proficient, or training in career areas nontraditional to their gender.)

To help increase the number of females and students from special population in green training programs at local training sites, this document is designed to assist CTE faculty and staff at the local level. It contains:

- An overview of strategies for improving access and retention to green training programs for females and students from special population groups
- An overview of resources to foster a more complete understanding of green jobs and the green economy
- A listing of green curriculum resources for inclusion in training programs
- A listing of California sites where green training programs are currently operating. These programs may serve as models for replication.

This is a “living” document. As new resources are identified they will be added to the document.

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## Strategies for Improving Access & Retention to Green Training for Females & Special Populations

### **Career Guidance**

- Ensure that all students are exposed to opportunities in green technologies. Include potential wages, working conditions, and location of green jobs.
- Emphasize the positive impact of green jobs. Females are often particularly responsive to careers that have a humanitarian component.
- Encourage students to take math and science classes since these are often the gateway to green technical training programs.
- Make certain that students are aware of the economic requirements for sustainable living in their communities. Visit [www.insightcced.org](http://www.insightcced.org) to find the Californians for Economic Sufficiency (CFES) financial need data for all 58 counties in California. Green jobs provide high wages that will help students become self-sufficient.

### **Recruitment**

- Review all recruitment and training materials to ensure they include positive images of females and special populations in green technology training programs.
- Provide students with examples of role models working in green programs.
- Recruit in groups. The existence of a like cohort provides encouragement and support.

### **Classroom Strategies**

- Make a special effort to welcome females and special populations to green training programs. Start a support group or social network for these students.
- Make direct connections between the concepts taught and their practical and beneficial applications.
- When asking questions, keep in mind that females often take longer to answer a question. Research has shown that waiting an additional 3-5 seconds elicits more responses from females.
- Set up situations where the objective is to come up with creative solutions rather than to “win” by identifying a correct answer.
- Pose a question to be answered later. For example, ask a question at the end of the class that will start the next class discussion. This technique extends the time for reflection and often benefits females and special populations.
- Create a sense of community in the classroom where students can support one another. Encourage work in groups and flexible seating arrangements.
- Incorporate female and special populations role models in the classroom, offer job shadowing opportunities, and provide students with mentors.

### **Other Supports**

- Offer tutoring to help students catch-up and keep-up. Encourage study groups.
- For areas requiring physical strength offer stamina building and strengthening classes.

### **Professional Development**

- Ensure staff members understand the importance of providing opportunities for financial security to females and special populations through green programs.

## Resources for Understanding the Green Economy

### **Centers of Excellence**

<http://www.coecc.net/green/>

Because it is important to understand what “green” is in terms of industries, occupations and educational programs, COE has provided the following definitions:

“Green Job” - An occupation that 1) directly works with policies, information, materials and/or technologies that contribute to minimizing environmental impact, and 2) requires specialized knowledge, skills, training, or experience in these areas.

#### **Three Types of Green Jobs -**

1. Jobs that require an upgrade in current skills making traditional workers more employable. (Will require revision to existing curriculum.)
2. Jobs that require an additional related skill necessary for continued employment within a traditional occupation. (Will require revision to existing curriculum.)
3. Completely new Green Jobs. (Will require new skills and the development of new programs.)

#### **Green Industry Clusters**

1. Renewable Energy: Energy Generation, System Installation and Storage
2. Green Building and Energy Efficiency
3. Biofuels Production and Farming
4. Transportation and Alternative Fuels
5. Water, Wastewater and Waste Management
6. Environmental Compliance and Sustainability Planning

Centers of Excellence have many resources available for download at the website. They include: [“Understanding the Green Economy in California”](#) and [“Green Program Crosswalk”](#) – A crosswalk linking Green jobs to California Community College Training Program TOP codes

### **Environmental Defense Fund, “Green Jobs Guidebook”**

[www.edf.org/cagreenjobs](http://www.edf.org/cagreenjobs)

The Green Jobs Guidebook is a resource for job seekers, students, guidance counselors, career advisors, policy makers and anyone else interested in knowing about the tremendous potential of California’s existing and growing green jobs marketplace. The Guidebook is an expansive listing of green jobs throughout the California economy that includes job descriptions, salary information, minimum education requirements, potential certifications, employer types, job market growth potential, and more.

### **Clean Technology and the Green Economy (2008)**

Published by Collaborative Economics, Inc

<http://www.coecon.com/cleantech.html>

The document defines California’s green economy and answers the questions of what makes up the green economy, what jobs are being created, and what policy issues need to be addressed.

### **Green Technology Electronic Magazine**

<http://www.green-technology.org/subscribe.htm>

The magazine is a compilation of recent sustainability news, research and resources.

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## Green Curriculum Resources

### **Advanced Transportation Technology and Energy program (ATTE)**

<http://www.attecolleges.org>

ATTE is designed to provide students, technicians, faculty, and the public with the education, training and resources they need to effectively learn, teach and work with advanced transportation and energy technologies. Through ATTE regional hubs, they are offering training and curriculum to community colleges and their partners. Regional hubs are located at the following community colleges: City College of San Francisco, Cerritos, College of the Desert, Cypress, Fresno, Long Beach, San Diego Miramar, Rio Hondo, Sacramento City, and West Valley.

ATTE has developed secondary curriculum in the areas of: Alternative Fuels, Green Building, Energy Efficiency, and an Overview of Energy.

### **Career Academy Support Network**

<http://casn.berkeley.edu/>

At this website click on the “curriculum” section which contains abstracts and links to secondary curriculum for green programs. The green curriculum database can search by:

- Industry sector
- Grade level 9-10 or 11-12
- Subject areas of career exploration, career-technical education, English, history/social sciences, interdisciplinary, laboratory science, language other than English, mathematics, physical education, or visual and performing arts,

### **Connect Ed. The California Center for College and Career**

[www.ConnectEdCalifornia.org](http://www.ConnectEdCalifornia.org)

ConnectEd has developed curriculum for engineering and mathematics that include many green technology areas. Among them are: Wind Power, a pre-algebra curriculum in which students apply mathematic principles to build the most efficient wind turbine possible, Green Design, an integrated curriculum related to commercial building design and construction, and Retrofit Renovation an integrated curriculum related to residential design and construction.

### **Iowa Mathematics and Science Education Partnership**

[www.iowamathscience.org](http://www.iowamathscience.org)

The Iowa Mathematics and Science Education Partnership has developed a middle school curriculum unit for grades 6-8 on Green Energy that includes Alternative Energy, Global Warming, Community Awareness, Green Careers and more.

## CA and National Green Career Resources

### **Treehugger.com**

[www.treehugger.com](http://www.treehugger.com)

TreeHugger is the leading media outlet dedicated to driving sustainability mainstream. Partial to a modern aesthetic, we strive to be a one-stop shop for green news, solutions, and product information. **And a great GREEN JOBS job board!**



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## US Department of Labor, Women's Bureau

<http://www.dol.gov/wb/>



The Women's Bureau is taking the lead in ensuring that women of all ages and socioeconomic groups are aware of and prepared to succeed in the emerging "green" jobs sectors. The Women's Bureau is collaborating with many groups to raise awareness, expand training options, and promote the recruitment and retention of women in green career pathways.

## California Green Training Sites

### California Community Colleges' Green College Master Course List

[www.cccco.edu](http://www.cccco.edu)

This is a [listing by college of programs](#) in Energy Efficiency, Renewable Energy, and Water Efficiency. To access this document visit, the CA CC Chancellor's Office website at [www.cccco.edu](http://www.cccco.edu) then click on "Divisions," then "Career Technical Education" (under Economic Development and Workforce Preparation), Under "What's New," click on "Green Technology Programs Document".

**Environmental Defense Fund's Green Jobs Guidebook** (described above, available at [www.edf.org/cagreenjobs](http://www.edf.org/cagreenjobs)) also contains:

- Information on cutting edge green job training and placement programs
- Listings of valuable green job apprenticeship programs sponsored by labor unions and private companies
- Information on over 260 community college green job programs

### Green Technology.org has prepared two on-line documents

[www.green-technology.org](http://www.green-technology.org)

- **Our Green College**

<http://www.green-technology.org/ccsummitdirectory.html>

This is a Directory of Sustainability Programs at California Community Colleges. The listing includes descriptions based on data provided by the colleges with links for more information.

- **Directory of California School District Sustainability Programs.**

[www.green-technology.org](http://www.green-technology.org)

This is a companion listing to the community college list. The information is voluntarily provided by California school districts. Enter your school [HERE!](#)

### San Francisco Bay Area Community Colleges Clean Energy and Environmental Technology Courses and Programs.

<http://baccc.net>. Search the site for "BACEC Regional Programs – 3.doc."

For all community colleges in the San Francisco Bay Region, this document lists the clean energy and environmental technology courses at the college and whether certificates or degrees are available. It also lists the name and email of contact persons at the college.

### California Partnership "Green" Academies

In 2009 the State of California and PGE funded numerous "Green" Partnership Academies. A listing of these academies by industry sector and CA community college region and is contained in Appendix A.

## Appendix A

**Secondary "Green" Academies in California**  
**by Community College Regions and Industry Cluster**  
**Title, School, District, County**  
**Funded by California Partnership Academies and PG&E**

### Regions 1 and 2 - North-Far North

#### **Building Trades and Construction**

- Building Design and Construction -- Fair View HS, Chico USD, Butte, Co.
- Green Academy -- Paradise HS, Paradise USD, Butte Co.

### Regions 3 and 4 - Bay-Interior Bay

#### **Agriculture and Natural Resources**

- Eco Technology Academy -- College Park HS, Mt. Diablo USD, Contra Costa Co.
  - Also Manufacturing and Product Development
- Green Academy -- San Lorenzo HS, San Lorenzo USD, Alameda Co.
- Green Academy -- Lincoln HS, San Francisco USD, San Francisco Co.

#### **Building Trades and Construction**

- Construction Technology Academy -- Yerba Buena HS, East Side UHSD, Santa Clara Co.
- Green Remodeling and Construction -- Mt. Pleasant HS, East Side UHSD, Santa Clara Co.

#### **Energy and Utilities**

- Efficient Use of Energy and Water Green Academy -- Woodside HS, Sequoia USD, San Mateo Co.
- Green Academy (Oakland Tech HS, Oakland USD, Alameda Co.
- Green Careers Academy -- Overfelt HS, East Side UHSD, Santa Clara Co.
  - Also Manufacturing and Product Dev.
- New Energy Academy, -- Berkeley HS, Berkeley USD, Alameda Co. PG&E

#### **Engineering and Design**

- Green Technology and Sustainability Academy -- Andrew P Hill HS, San Jose USD, Santa Clara Co.
  - Also Energy & Utilities
- Green Ventures Academy-Culinary Arts -- Kennedy HS, Fremont USD, Alameda Co.
  - Also Manufacturing and Product Development

#### **Transportation**

- Automotive Technology and Alternative Energy -- El Cerrito, HS West Contra Costa USD, Contra Costa Co.

### Region 5 – Central

#### **Agriculture and Natural Resources**

- Central Agriculture. Science Academy -- Central HS, Fresno USD, Fresno, Co.

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## **Energy and Utilities**

- Alternative Energy Resources Occupations -- Porterville HS, Porterville USD, Tulare Co.
- Clean and Green Academy -- Edison HS, Fresno USD, Fresno Co. CPA and GP&E
- New Energy Academy -- Foothill HS, Twin Rivers USD, Sacramento Co. PG&E
- New Energy Academy -- Venture HS, San Joaquin Co. Office of Educ., San Joaquin Co. PG&E
- Solar Energy and Utility Career Academy -- Independence HS, Kern USD, Kern Co., PG&E

## **Engineering and Design**

- CAD and COMM -- Pleasant Grove HS, Elk Grove USD, Sacramento Co.
  - Also Information Technology
- Green Engineering Academy -- Franklin HS, Elk Grove SD, Sacramento Co.
- Green Technology/Alternative Energies Academy -- Weber Institute, Stockton USD, San Joaquin Co.

## **Manufacturing and Product Development**

- Manufacturing "Fast Track" -- Ceres HS, Ceres USD, Stanislaus Co.

## **Region 6 - South Coast**

No Green Academies

## **Regions 7 and 8 - Los Angeles-Orange**

### **Agriculture and Natural Resources**

- Agriculture and Environmental Science Academy -- Littlerock HS, Antelope Valley UHSD, LA Co.
- Green Environmental Science -- Ganesha HS, Pomona USD, LA Co.
  - Also Engineering and Design

### **Building Trades and Construction**

- Clean and Green Academy -- San Fernando HS, Los Angeles USD, LA Co.

### **Energy and Utilities**

- Green Energy -- Santee Education Complex, Los Angeles USD, LA Co.
- Solar and Wind Academy -- Sylmar HS, Los Angeles USD, LA Co.
  - Also Manufacturing and Product Development
- Water and Energy Technology -- Valley Region Byrd HS, Los Angeles USD, LA Co.

### **Engineering and Design**

- Engineering Design for Global Outlook -- Thomas Jefferson HS, Los Angeles USD, LA Co.
- Falcon Academy of Sustainable Technologies (FAST) -- Palmdale HS, Antelope Valley USD, LA Co.
- Green Architectural Design Academy -- Garfield HS, Los Angeles USD, LA Co.
- "Reach for the Sun" Solar Energy Academy - ATTEI -- La Mirada HS, Norwalk USD, LA Co.
- Science, Arts, and Global Engineering - SAGE -- Belmont HS, Los Angeles USD, LA Co.
- School of Environmental Research & Science -- Eastside HS, Antelope Valley UHSD, LA Co.
  - Also Manufacturing and Product Development

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## **Finance and Business**

- Green and Clean Business Academy -- La Serna HS, Whittier USD, LA Co.
- Technology and Business Academy -- Birmingham Community Charter HS, Los Angeles USD, LA Co.

## **Health Science and Medical Technology**

- Health and Environmental Science -- University HS, Los Angeles USD, LA Co.

## **Hospitality, Tourism, and Recreation**

- Culinary Arts and Sustainable Agriculture -- Venice HS, Los Angeles USD, LA Co.
  - Also Agriculture and Natural Resources

## **Transportation**

- Automotive Technology Skills Academy (Mark Keppel HS, Alhambra Unified, LA Co.)

## **Region 9 - Desert**

### **Hospitality, Tourism, and Recreation**

- Culinary Organic Recyclable Environment CORE -- Arroyo Valley HS, San Bernardino City USD, San Bernardino Co.
  - Also Agriculture and Natural Resources

## **Region 10 - San Diego Imperial**

### **Building Trades and Construction**

- GreenBuild Tech Academy -- North Co. Trade Tech, Charter School, Vista USD, San Diego Co.

### **Engineering and Design**

- Eco Engineering -- Southwest HS, Sweetwater USD, San Diego Co.
- Environmental Design -- Santana HS, Grossmont USD, San Diego Co.
  - Also Manufacturing and Product Development

### **Information Technology**

- Environmental Technology Academy -- Kearny HS, San Diego USD, San Diego Co.
  - Also Manufacturing and Product Development