

Key Findings, 2009

Energy Efficiency Occupations in the Bay Region



Centers of Excellence
Economic and Workforce Development
California Community Colleges

The Centers of Excellence, in partnership with business and industry, deliver regional workforce research customized for community college program decision making and resource development.

For additional information, access the Energy Efficiency Occupations environmental scan, available online at:

www.coecc.net/energy



C·O·E

CENTERS OF EXCELLENCE

Inform Connect Advance

www.coecc.net

Inside:

Research Objectives
Energy Efficiency Employers
Occupational Employment
Workforce Challenges
Education and Training



Research Objectives

Increasing energy and commodity costs, legislative requirements and consumer demand for a more sustainable environment have all led to a substantial push for a greener economy. To better understand the implications for community colleges, the San Francisco Bay and Greater Silicon Valley Centers of Excellence (COE) conducted a study of the energy efficiency sector and related occupations. The research objectives of this study were to:

- Estimate the current number and size of firms, as well as geographic concentration.
- Project future job growth over three years in energy efficiency occupations relevant to community colleges.
- Identify employer needs and challenges for hiring and training employees.
- Define skill sets and education requirements needed for key occupations.
- Identify industry interest in accessing community college education and training programs.

Energy Efficiency Employers

Type of Firm

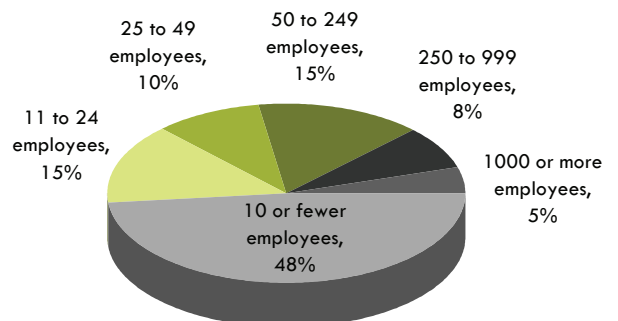
Firms that hire energy efficiency workers are found in different industries. This study focused on employers in the following three industry groups.



- In the 12-county Bay Area, approximately 3,800 firms were identified as employing energy efficiency workers in one or more of the eight occupations studied.¹
- Two-thirds of employers identify themselves as involved directly with energy efficiency work; the remaining one-third indicated they are indirectly involved with energy efficiency work.
- The primary services offered by energy efficiency employers include project management, construction, engineering, HVAC installation and repair, and lighting.

Size of Firm

The data compiled on the size of firms reveals that most of the firms are relatively small – 63% employ less than 25 employees – with a significant portion (48%) employing 10 or fewer employees. This data is reflected in the pie chart on the right.



Occupational Employment

Eight energy efficiency occupations were identified as high-growth and align with community college education programs. The combined employment in the Bay Area for the eight occupations totals at least 12,070 jobs (known employment from survey respondents) and could be as high as 34,640 jobs. The latter figure is an extrapolated estimate of employment, based on survey responses and an estimate of the total number of energy efficiency-related firms in the Bay Area. All eight occupations studied show significant growth over the next 3 years.

- The largest growth occupations are project managers for construction/design work with 2,850 new jobs anticipated (27% growth) and building performance or retrofitting specialists with 2,690 new jobs projected (58% growth).
- The fastest growth rate is projected for compliance analysts or energy regulation specialists (59%).

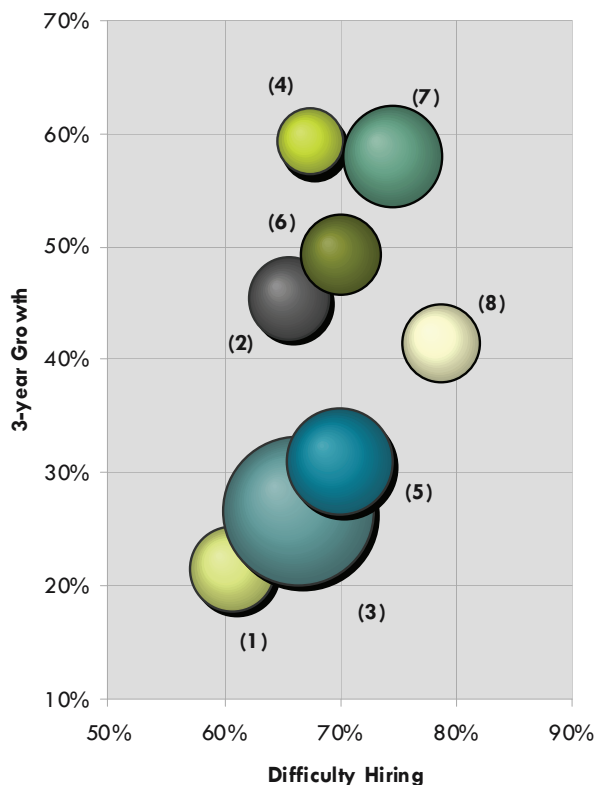
The table on the opposite page details these occupations and their growth potential.

¹Margin of error for the 706 survey respondents (out of the universe of 3,798) is 3.4 percent.

Occupational Employment

Energy Efficiency Occupations	Estimated 2008 Employment	3-year Projected	Growth Rate
Project managers for construction or design work are responsible for communicating with project partners and ensuring that the project is completed in a timely manner and within budget.	10,630	2,850	27%
Building performance or retrofitting specialists are contractors who improve the energy efficiency of homes or buildings by installing insulation, windows, lighting and other energy efficient products.	4,630	2,690	58%
HVAC mechanics, technicians or installers install, repair and maintain heating, ventilation, air-conditioning and refrigeration systems.	5,250	1,630	31%
Energy auditors or home energy raters are responsible for collecting, analyzing and validating energy usage in the field and preparing reports on a building or home's total energy profile.	2,980	1,470	49%
Resource conservation or energy efficiency managers assess current energy and resource consumption and develop strategies to reduce usage.	3,080	1,400	45%
Building controls systems technician combine some of the traditional skill sets of building technicians with advanced skills in controls programming, networking, and systems integration.	2,790	1,160	42%
Compliance analyst or energy regulation specialists evaluate if projects are meeting regulatory requirements and/or incentives and provide recommendations as needed to meet compliance.	2,000	1,190	59%
Building operators or building engineers troubleshoot, install, replace, and repair building energy systems and controls to optimize energy efficiency.	3,280	710	22%
Total, All Occupations (totals may not add due to rounding)	34,640	13,090	

Workforce Challenges



Employers indicate difficulty in hiring for all eight occupations. The chart below shows the 3-year projected growth rate of the eight occupations in relationship to the level of difficulty hiring. The area or size of each bubble represents the size of current employment for each occupation.

- 4 out of 5 employers experience difficulty finding qualified building control systems technicians.
- More than 70% of surveyed employers reported difficulty finding both HVAC mechanics, technicians or installers and qualified energy auditors or home energy raters.
- 3 out of 4 employers experience difficulty finding qualified building performance or retrofitting specialists.

- (1) Building operators or building engineers
- (2) Resource conservation or energy efficiency managers
- (3) Project managers for construction or design work
- (4) Compliance analysts or energy regulation specialists
- (5) HVAC mechanics, technicians or installers
- (6) Energy auditors or home energy raters
- (7) Building performance or retrofitting specialists
- (8) Building controls systems technicians

Education, Training, and Skill Requirements

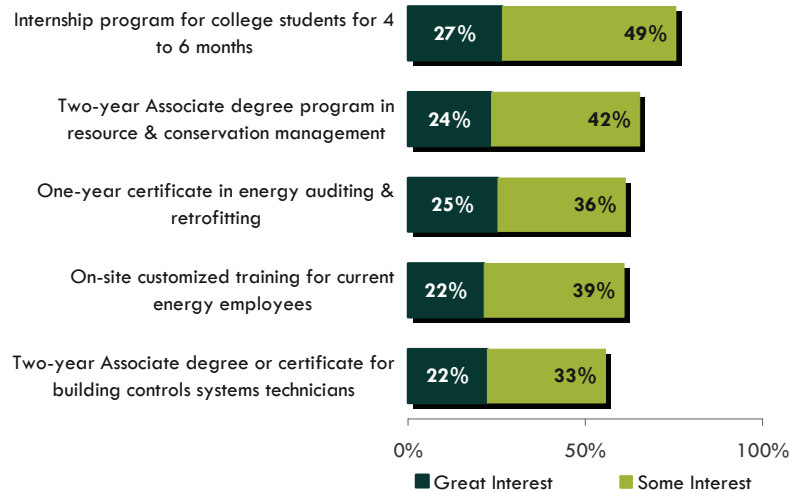
Employers expressed great interest in education and training programs that can be developed by community colleges:

- 3 out of 4 employers expressed great or some interest in an internship program for community college students.
- Two-thirds of employers were interested in a two-year Associate degree program for resource and conservation management.
- More than 60% of employers were interested in on-site customized training for their current employees.

Employers' Top 3 Most Important Knowledge and Skill Areas

1. Ability to communicate with customers, in writing and in person.
2. Understanding of local and state energy efficiency requirements and incentives for new and existing buildings.
3. General understanding of the mechanics and engineering of energy systems, including HVAC, lighting, and renewable energy systems.

Employer Interest in Community College Programs



For More Information

For more information on this study, contact:

John Carrese, Center Director
San Francisco Bay Region
(415) 550-4418
jcarrese@ccsf.edu

Jennifer Oliver, Center Director
Greater Silicon Valley Region
(408) 741-2653
jennifer_oliver@wvm.edu

Download the Energy Efficiency Occupations environmental scan, available online at www.coecc.net/energy

Research Partners



Industry Partners

