

Key Findings, 2009

Energy Efficiency Occupations

in the
San Diego-Imperial 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.



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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 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

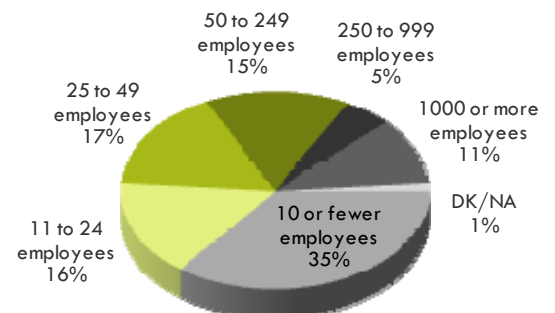
Firms that hire energy efficiency workers are found in different industries. This study focused on employers in the following three industry groups.



- In San Diego and Imperial Counties, more than 1,100 firms were identified as employing energy efficiency workers in one or more of the eight occupations studied.¹
- Three out of five employers identify themselves as involved directly with energy efficiency work; the remaining indicated they are indirectly involved with energy efficiency work.
- The primary services offered by energy efficiency employers include consulting, construction, HVAC installation and repair, engineering, project management, lighting and electrical.

Size of Firm

The data compiled on the size of firms reveals that most of the firms are relatively small – 51% employ fewer than 25 employees – with a significant portion (35%) 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 San Diego-Imperial Region for the eight occupations totals at least 3,225 jobs (known employment from survey respondents) and could be as high as 11,780 jobs. The latter figure is an extrapolated estimate of employment, based on survey responses and an estimate of the number of energy efficiency-related firms in the region. All eight occupations show significant growth over the next 12 months and three years.

- In the next 12 months, the largest growth is projected for project managers for construction and/or design work with 160 new jobs (6% growth) and building controls systems technicians with 100 new jobs (7% growth).
- Over the next three years, the fastest growing occupation is compliance analyst/energy regulation specialist (53%).

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

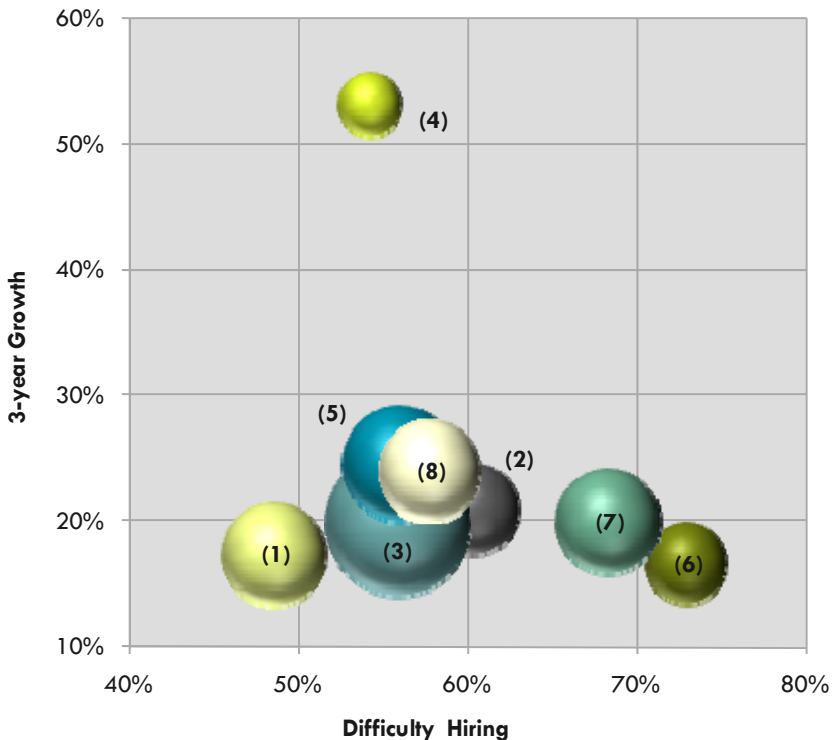
¹Margin of error for the 158 survey respondents (out of the universe of 1,135) is ± 7.24 percent.

Occupational Employment

| Energy Efficiency Occupations | Estimated 2009 Employment | 3-year Projected Growth | Growth Rate |
|--|---------------------------|-------------------------|-------------|
| Project managers for construction or design work are responsible for communicating with project partners and ensuring the project is completed in a timely manner and on budget. | 2,910 | 580 | 19.9% |
| HVAC mechanics, technicians or installers install, repair and maintain heating, ventilation, air-conditioning and refrigeration systems. | 1,790 | 440 | 24.6% |
| 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. | 1,550 | 310 | 19.9% |
| Building operators or building engineers troubleshoot, install, replace, and repair building energy systems and controls to optimize energy efficiency. | 1,510 | 260 | 17.4% |
| Building controls systems technician combine traditional skill sets of building technicians with advanced skills in controls programming, networking and systems integration. | 1,410 | 340 | 24.0% |
| Resource conservation or energy efficiency managers assess current energy and resource consumption and develop strategies to reduce usage. | 1,160 | 240 | 20.9% |
| 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. | 920 | 150 | 16.6% |
| Compliance analyst or energy regulation specialists evaluate if projects are meeting regulatory requirements and/or incentives and provide recommendations as needed to meet compliance. | 540 | 290 | 53.2% |
| Total, All Occupations (totals may not add due to rounding) | 11,780 | 2,610 | |

Workforce Challenges

Employers indicate difficulty in hiring for all eight occupations. The chart below shows the 12-month projected growth rate of the eight occupations in relationship to the level of difficulty hiring. The area of each bubble represents the size of current employment for each occupation.



- More than 49% of employers surveyed reported great or some difficulty finding qualified applicants for all eight occupations.
- Three out of four employers have difficulty finding energy auditors or home energy raters.
- Forty-two percent of employers indicated they experience great difficulty finding qualified building controls systems technicians.

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

Education, Training, and Skill Requirements

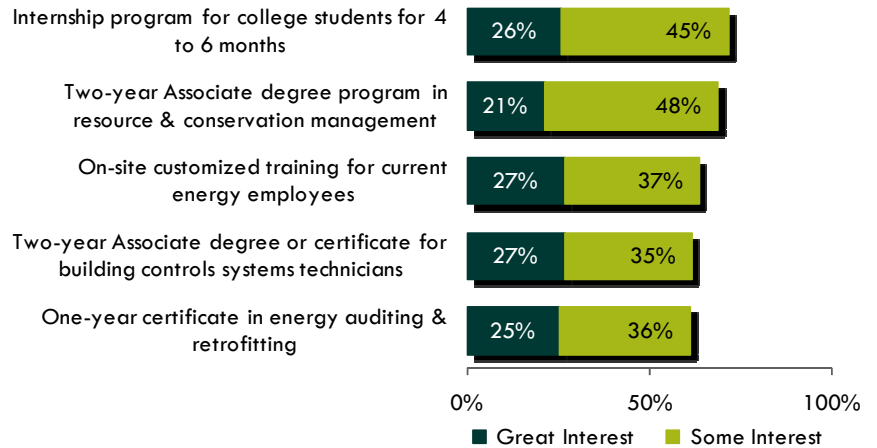
Employers expressed great interest in education and training programs that can be developed by community colleges:

- More than 30% of employers prefer an associate degree or program certificate specific to the occupation for HVAC mechanics, technicians or installers (39%) and building operators or engineers (31%).
- Close to 40% of employers surveyed prefer hands on experience in the industry for building controls systems technicians (38%) and HVAC mechanics, technicians or installers (37%).
- A majority of employers prefer a bachelor's degree in a related field, but not specific to the occupation, for compliance analysts or energy regulation specialists (63%) and resource conservation or energy efficiency managers (51%).

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

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Coming soon! The San Diego-Imperial Region Energy Efficiency Occupations environmental scan will be available to download at www.coecc.net/energy in August, 2009.

Research Partners



Industry Partners

