

# Solar Energy

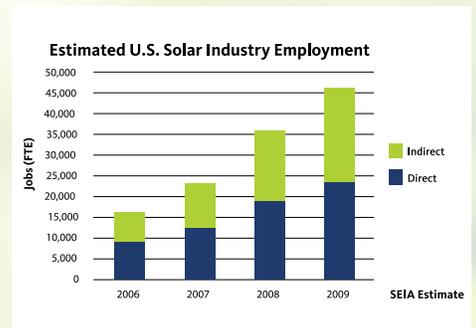


## How Green is Changing Solar Energy Jobs

One of the fastest growing renewable energy sectors is the solar energy industry. As solar energy technology advances and the demand for renewable energy grows so follows the need for solar power workers. Solar Energy, Photovoltaics, (including modules, system components, and installation) will grow from a \$36.1 billion industry in 2009 to \$116.6 billion by 2019 (Clean Energy Trends, 2010).

Demand for solar energy workers has been stimulated by Recovery Act spending and new federal tax incentives. Investment in solar energy and solar photovoltaics continue to expand and solar energy jobs will continue to increase. This expansion in the marketplace is also fueled by the federal mandate that power companies increase their production through renewable means by 2012.

With solar energy at the core of the new energy economy and the growing demand for skilled solar energy workers, there is tremendous opportunity for your school to grow within the solar energy marketplace. Your students need to be going into the workplace with the skills that are expected of them. Your school has the opportunity to connect students to the jobs of the 21st century.



Source: Solar Energy Industries Association: U.S. Solar Industry Year in Review

## The Future of Solar Energy Employment

### Solar Energy Employment Projections

- Employment in solar energy and the supply chain is projected to exceed 60,000 jobs by the end of 2010.
- Job growth is averaging 10,000 jobs per year added in the U.S. in the solar energy sector.

EMPLOYER	SOLAR /CLEANTECH FOCUS	SOLAR ENERGY / PHOTOVOLTAIC JOBS
Construction, Renovation, Building and Property Management Companies	Renewable energy generation	Solar Energy Installation
Utilities	Sustainable communities	Photovoltaics, Concentrating Solar Power
Municipal & State Government	Sustainable communities	Inspect, Repair, and Write Codes for laws
Regulatory Agencies	Water usage regulation	Write policies and procedures
Photovoltaic Manufacturing	Solar panels	Solar panel fabrication technician, design, inspect
Contractors, Real Estate Companies	Green Buildings	Install, inspect, maintain, repair solar photovoltaics, solar water heaters, solar thermal; Work with solar panel manufacturers and electrical technicians to identify need to bring systems up to code, recommend systems, install, inspect, maintain

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# Solar Energy *cont.*

## Drivers of Growth in Solar Energy

### Employment and Education Changes for Solar Energy Workers

Solar power worker is an emerging occupation and it requires a new skill set associated with the technology to be installed. The technology is rapidly changing and requires workers to be up-to-date on the latest equipment, codes and installation practices.

There are opportunities for newly trained workers as well as retraining of traditional construction workers. For example roofers and electricians, can perform the work with solar photovoltaics after receiving the necessary short-term training. And traditional plumbers and HVAC technicians are good candidates to receive training to become solar thermal installers.

## Education – Connecting your Curriculum to the 21st Century

### What does this all mean for the education of solar energy workers?

The core requirements for an education in the construction trades will still consist of the completion of an apprentice program, an associate degree, or a certificate program with specialties training/ courses in solar energy. There are a limited number of schools that are beginning to offer an associates degree in solar energy.

There is a growing need in the marketplace for construction workers to receive specialized training in solar energy, especially in photovoltaics and solar thermal energy. Currently there are a limited number of schools and programs to train students and workers in solar energy. There is tremendous opportunity for schools to recruit new students as well as experienced workers for this specialized training.

### Essential Solar Energy Courses & Competencies

- Introduction to Solar Energy
- Passive Solar Systems
- Passive Solar Systems Lab
- Solar Thermal Systems
- Solar Thermal Systems Lab
- Photovoltaic Fundamentals
- Photovoltaic Lab
- Solar Hot Water Heaters and Pool Heating Systems Design and Installation
- Concentrating Solar Power (CSP) Fundamentals
- Smart Grid: Solar Energy

### Additional Resources, Certificates and Certification

- North American Board of Certified Energy Practitioners: Solar PV Objectives and task analysis and NABCEP™ Solar PV Installer Certification; Solar Thermal Objectives and task analysis and NABCEP™ Solar Thermal Installer. [www.nabcep.org](http://www.nabcep.org)

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