

Strategies

for Meeting Workforce Demand

By Lisa Cohn and Elisa Wood, with Charles Thurston

Just how bad is the shortage of workers in the solar industry? Mark Culpepper, a SunEdison vice president, says on a scale of one to 10, the US hovers at a manageable five. But if the industry grows as expected, watch out.

Extending the federal tax credits for solar through 2016 is expected to create 440,000 permanent jobs in the US solar industry, according to Navigant Consulting. These jobs will be in manufacturing and distribution, as well as the building trades, spurring new demand for electricians, plumbers, roofers, designers and engineers. The immediate concern among companies is finding enough qualified installers.

"Those are big numbers. The industry is going to have to adapt and figure out ways to accelerate the development of qualified personnel. Right now I would call it a marginal roadblock. In the future, it could become a very big road block," says Mark Culpepper, a SunEdison vice president. In preparation for a tightening of the workforce, solar companies are taking a careful look at the best ways to attract employees.



caramiadesign.com

MORE WORKERS NEEDED

Job demand tends to be highly localized as specific states and cities initiate programs for rapid growth of PV installations. SunEdison's Culpepper describes them as "mushrooms popping up all over the country." The most prominent mushroom is California, which dominated the market with 58% of all PV installations last year, according to the Solar Energy Industries Association.

In fact, high-demand solar jobs are expected to grow by about 50% over the next year in California's Bay Area, creating 1,900 new jobs in the region and 5,000 statewide according to a report, "The Bay Region Solar Industry Workforce Study," completed in March by the San Francisco Bay and Greater Silicon Valley Centers of Excellence.

"A lack of workers is one of the biggest problems in the industry," says Abigail Baxley, executive director of the Northern California Solar Energy Association.

NAVIGATE CYBERSPACE

Internet recruiting has become an easy and inexpensive way to find employees for many US businesses, and the solar industry is no exception. Solar companies rely heavily on their own Web sites and job posting boards to attract applicants. Sites like Craigslist, which gets over 30 million hits a month in the US, can deliver a large volume of responses quickly. Sites that offer content about clean energy or environmental issues can narrow the field to job seekers with an interest in solar technologies.

"I like Greenjobs the most because they are hyperlinked directly from the job posting at Solarbuzz and have a great Web site full of solar industry resources. Another site, Indeed, returns the most listings from several portals. They also have great salary survey information. Monster and CareerBuilder both have benefits, including learning resources for effective career searches," says Liz Merry, owner of Verve Solar, a Davis, California consulting firm. Merry teaches a class called "Find Your Dream Job in Solar" for the Solar Living Institute and elsewhere.

SolarCity, a solar installation company headquartered in Foster City, California, received tremendous response when it posted a position on Craigslist, LinkedIn and Renewable Energy World Online. Within 6 hours, the ad attracted more than 100 responses.

Depending on a company's recruiting budget, selecting appropriate sites for posting an opening may be limited. Some Web sites offer free listings while others charge a fee.

RECRUIT TRAINING PROGRAM GRADUATES

Community and junior colleges have stepped up to train workers for the emerging green-collar economy. Solar companies partner with colleges to help them develop curriculum materials and design programs, particularly for solar installers—then they recruit their graduates.

"The community college system is an excellent way for employers to find well-qualified applicants. Part of the reason is that we're so connected to the industry," says



Web-Based Solar Recruiting Resources

Company	URL	Fee Based	Free
EcoEmploy.com	ecoemploy.com	✓	
Energy Jobs Portal	energyjobsportal.com	✓	
Environmental Career Opportunities	ecojobs.com	✓	
Environmental Career.com	environmentalcareer.com	✓	
Greenjobs	greenjobs.com	✓	
GreenBiz.com	greenbiz.com		✓
North American Board of Certified Energy Practitioners	nabcep.org		✓
Renewable Energy World	renewableenergyworld.com	✓	
Solar Energy International	solarenergy.org		✓
SolarJobs.us	solarjobs.us		✓
SolarPro	solarprofessional.com		✓

Internet recruiting Some online recruiting resources are market specific, while others draw from many industries and all parts of the country.

John Carrese, director of the San Francisco Bay Center of Excellence, hosted at City College of San Francisco. Carrese worked with the industry to develop the Bay Region Industry Workforce study.

“The companies can also help us with faculty and student internships. They can help train faculty to teach. If colleges can build programs tailored to the occupations and do it with industry input, the industry will hire those graduates,” Carrese says.

Many of SolarCity’s workers, for instance, begin by attending a six-week program that the firm helped develop at San Mateo County Community College in San Bruno, California. Other community colleges offer two-year programs that give the graduate an Associate of Applied Sciences degree. Lane Community College in Eugene, Oregon, for instance, offers an Energy Management Technician degree with an optional emphasis on renewable energy. The rigorous 100-credit program is housed in the Science Division and is ISPQ accredited by the Institute of Sustainable Power. Program Coordinator Roger Ebbage says the program began in September 2003 and has seen this year’s enrollment nearly triple the first year’s.

The pool of potential workers is growing on college campuses as state governments ramp up funding to cultivate a green-collar workforce. About 750 to 800 students have trained through the New York State Energy Research and Development Authority (NYSERDA) program over the last several years. And next year the number of participants could double, according to Adele Ferranti, who oversees NYSERDA’s workforce development program.

Not all training programs are equal, however. Weekend training workshops are cropping up around the country, but neophyte installers need far more than two days to understand the complexity and rigor of rooftop solar work. “Weekend workshops are a starting place where novices can explore the industry in short classes. But to find workers with solid training, companies need to look to graduates with nationally recognized certifications, such as those who attended local community or junior college programs. These programs offer the depth and breadth of training necessary in the industry today,” says

NorCal Solar’s Baxley.

SEARCH FOR CERTIFIED WORKERS

Employers seeking assurance about an installer’s level of training may want to hire workers who are certified through the North American Board of Certified

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Courtesy sanjuancollege.edu

In high demand San Juan College in Farmington, NM, has a wait list for enrollment in its certificate and degree programs in PV system design and installation.

Courtesy solarenergy.org



In training Solar Energy International students have been taking advantage of SEI's in-depth trainings to jump start solar careers for over 17 years. SEI has more ISPQ-certified master trainers than any other institution and expects to train about 2,400 people in 2008.

Energy Practitioners (NABCEP). To achieve the certification, students must pass a national exam and complete a specific combination of on-the-job and classroom work.

Colleges are increasingly trying to align their curriculums with NABCEP standards. Meanwhile, the Interstate Renewable Energy Council (IREC) reviews and accredits its training programs to ensure they are meeting certain

international standards, including training students properly to pass the NABCEP test. IREC lists accredited colleges and other institutions on its Web site, irecusa.org.

Borrego Solar Systems often begins its search by looking for installers who are NABCEP certified—but it is not easy. “We’re looking for technical people,” says Mike Hall, president. “It’s hard. There aren’t many sources. You can get a list of the NABCEP-certified installers, which is a pretty good source for people on the installation and design or engineering side. But there are only a small number of NABCEP-certified workers.” As of September 2008, that number stands at 514 for PV installers and 72 for thermal installers.

MINE THE TRADES

The housing market slump has increased the pool of available tradespeople. Solar installation companies report that they seek out these workers—often through word-of-mouth in local markets—and train them in the skills unique to solar installations.

Still, it can be difficult attracting much-needed electricians, partially because of an unwritten code in the trades that electricians do not climb roofs, according to SunEdison's Culpepper. “In the trades, roofers typically tend to be at the bottom of the hierarchy. Electricians are at the top. So you find yourself with this interesting mix in the solar field—electricians working on roofs,” Culpepper says. How does an employer

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Outsourcing to Accommodate Growth

Typically integrators need crews for larger jobs faster than they can be trained, so they outsource part of the job, as is customary on any construction project. The outsourced crew provides its own insurance, license and credentials. However, the solar contractor may be forced to guarantee against any potential work defects that crop up under a client warranty. Details of the subcontract may mitigate this liability. “When we sign contracts with subcontractors, we may require them to take a piece of the warranty risk,” explains Mike Hall, president of Borrego Solar Systems.

Even though subcontractors may be held accountable for their work after installation is complete, the integrator still is likely to be left holding the bag on a warranty. “If a subcontractor performs in a way that is detrimental to the brand, any smart integrator would cover those issues, though it would be invisible to the customer,” says Isabelle Christensen, director of customer education at REC Solar

in San Luis Obispo, California. “Unfortunately, in the solar industry there are a whole gamut of processes but not too much standardization.”

One successful strategy that large integrators rely on is to maintain standing relationships with subcontractors in related trades. “Borrego works with a lot of electrical subcontractors in Southern California, where large jobs involve complicated alternating current work,” says Hall. “In these relationships,” he adds, “new business often flows both ways.”

Integrators and distributors may also develop strategic relationships with specialized solar installers, especially when the market demands skills not considered integral to their core business. “A lot of solar companies that are doing just grid-tied projects want us to handle their off-grid client work,” says Scott Gould, president of Energy Alternatives in Arkville, New York. “They also need us to design these systems, since they are more complicated than grid-tied configurations.” ●

“On-the-job training is the key,” notes Liz Merry, owner of Verve Solar. “It’s a new industry and there isn’t a lot of talent in terms of numbers. Companies need to see who’s skilled in other industries, adapt their talent and leadership skills and give them some training.”

overcome this problem? For one thing, pay and benefits must be competitive. Many companies provide an attractive, long-term environment for workers by offering full benefits, ownership in the company and stock options. And it is important that a solar company develop a reputation as a good place to work. “A lot of it is word-of-mouth. The trades tend to be tight-knit. If things work out for one person, they will talk to others,” Culpepper says.

IN-HOUSE TRAINING

Workers who come from the trades may have the right general skills, but need training to understand the specifics of solar installations. Many companies find on-the-job training shapes the kind of workers they need.

SolarCity often begins looking for an entry-level installer by searching for someone with a construction background. “We love someone with experience in carpentry, roofing, tools and heights. As the economy has slowed down in the housing market, we have had a tremendous response from workers who have been displaced,” says Juan Ajuayo, SolarCity’s director of human resources. The company then begins in-house training, which Ajuayo says is critical to building a capable workforce. “We have a formal training department that has trained 80 to 85 workers,” he explains.

Borrego sometimes hires workers just out of local community colleges. However, even with these employees, the company insists on in-house training, Hall says. All new employees receive two formal days of training to start. They also receive safety training. Before they go out in the field, they are required to take part in a day of office or warehouse training. They also participate in a mentoring program in which new employees are assigned to managers or other senior employees.

BUYING AND STEALING

“Some integrators’ strategy is to have a very aggressive merger and acquisition campaign to acquire crews and companies,” says Isabelle Christensen, director of customer

education at REC Solar in San Luis Obispo, California. SunEdison, for instance, has grown into one of North America’s largest solar energy services providers since it opened its doors with a handful of employees in 2003. The company now has more than 300 workers, some of whom it gained through acquiring companies in California, Hawaii and Oregon.

“Some of these companies, however, are growing too rapidly and quality might suffer,” cautions REC Solar’s Christensen.

Whatever the motivation for absorbing a crew, the key to a smooth transition is ample due diligence, she suggests. “The acquiring company has to do extensive checks—with the Better Business Bureau, for Diamond Certification, and so on—and interview clients, competitors and employees to see what they say about the company.”

Other companies even engage in downright thievery to find employees. They attend renewable energy conferences for the sole purpose of pilfering trained workers. “Absolutely, there is a lot of stealing of employees,” SolarCity’s Ajuayo says.

While some integrators will acquire entire crews, most prefer to recruit individuals. “You can inherit some personality issues with an entire crew,” points out Hall. “And while you can retrain to instill best practices for quality, you still might have some resistance with an acquired crew that has its own group sense of what practices are best.”

Will consolidation among installers mean that the US solar industry will one day wind up as just a handful of national integrators? “I don’t think we will see that much US consolidation in terms of pure installation of projects,” says Borrego’s Hall. “But I think we will see a consolidation of distribution channels, so there will be a smaller number of people buying the PV from the manufacturers, who will want to off-load huge amounts of product at once. It’s an odd value-chain right now.”

Whatever techniques solar companies use—Internet advertising, college partnerships, cultivating tradespeople, acquiring smaller companies or luring employees away from others—they must brace for a worker shortage. The work is coming. The workers may not follow quickly enough. ☎

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