



**Greater Los Angeles Region**

2015-2016

# Solar Jobs Guidebook



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Thanks to Wells Fargo for its support  
of GRID Alternatives Greater Los Angeles  
workforce development program.



# Solar Jobs Guidebook

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## INTRODUCTION

The solar industry has been an important part of America's economic recovery. Since 2010, the United States solar market has seen enormous growth, adding more than 115,000 new solar jobs. One factor holding back even more remarkable growth has been the lack of a trained workforce; in fact a recent survey reported that more than 75% of employers in all solar sectors reported having difficulty finding employees. This Solar Jobs Guidebook was created to provide a road map to industry jobs to help job seekers access opportunities in this growing industry.

GRID Alternatives is a non-profit solar installer whose mission is to make renewable energy technology and training accessible to underserved communities. Through a volunteer and job training model, GRID Alternatives gives individuals the opportunity to get real world, hands-on experience in the solar industry and related fields. GRID's work supports the solar industry's continued growth and advancement by providing a pipeline of job-ready candidates to meet the ever expanding demand for workers, making a connection between industry need and communities and individuals in need of jobs and productive career pathways.

Over the last year, GRID Alternatives Greater Los Angeles (GLA) has increased its investment in workforce development activities across the Southland including, but not limited to, partnerships with community colleges and job training programs, grant writing to expand workforce development efforts, and the formation of a Workforce Development Committee geared specifically towards improving our programs and services.

Special thanks and acknowledgement for all of these efforts must go to GLA's Workforce Development Officer Adewale Ogunbadejo; GLA's Workforce Development Committee Chair Deep Patel; and to Karen Diaz GRID's SolarCorps Workforce Development Fellow, for their successful efforts to bridge this gap and connect our volunteers and job trainees to well-paying, good green jobs.

We hope the information in this guide helps to illuminate the way forward.



**Michael Kadish**

EXECUTIVE DIRECTOR

GRID Alternatives Greater Los Angeles

This Solar Jobs Guidebook is broken down into four primary sections:

## **I. SOLAR JOBS OVERVIEW**



This section provides an overview of three major job tracks that are most accessible to entry to mid-level candidates, construction, design and sales & marketing.

## **II. JOB TRACKS**

This section provides a detailed description of specific, entry level employment opportunities and potential career paths within each of the three categories of accessible jobs.



## **III. INSIGHT FROM EMPLOYERS**

This section provides insight into what employers are looking for in potential candidates. It also takes a look at the corporate cultures of some of the top residential solar companies in the Southern California region.



## **IV. TRAINING AND RESOURCES**

This section provides links and resources that can be used to learn more about potential employment and career opportunities within the solar industry.





**SECTION ONE**

## SOLAR INDUSTRY OVERVIEW

Solar energy is a clean, renewable energy source that may be used to compliment or supplement conventional energy sources. Solar energy has many benefits and applications, including heating water, generating power to operate remote equipment, and helping to reduce overall utility costs by reducing the use of grid power.

Today, thousands of people power their homes and businesses with individual solar photovoltaic (PV) systems. Utility companies are also using PV technology for large power stations. Solar panels used to power homes and businesses are typically made from solar cells combined into modules that hold about 40 to 60 cells. A typical home energy system will use 10 to 20 solar panels. The panels are





mounted at a fixed angle facing south, west, or east, or mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. For large electric utility or industrial applications, hundreds of solar arrays are interconnected to form a large utility-scale PV system.<sup>1</sup>

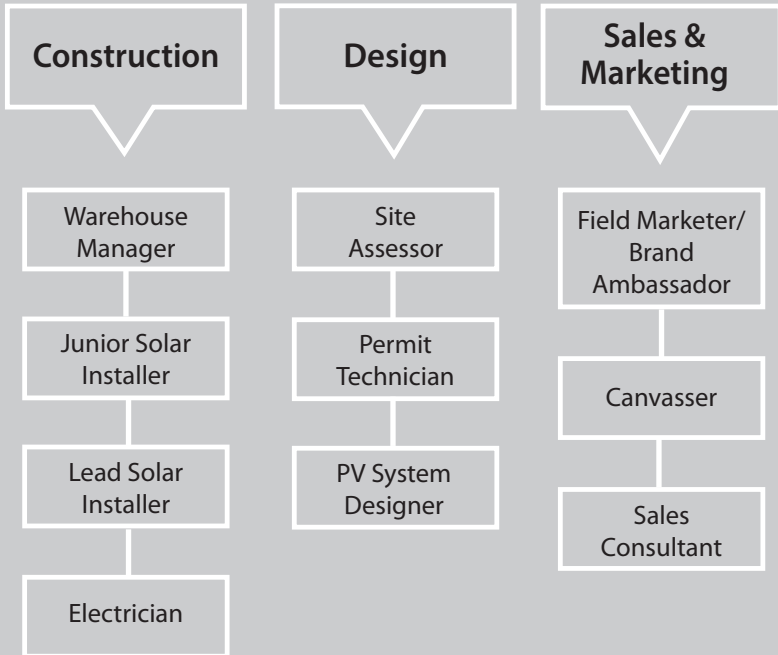
Europe is the most advanced market for solar energy generation. Germany leads the world in installed solar energy capacity, followed by Italy, the US, Spain, and China. China dominates manufacturing of PV cells, the leading technology used to produce solar power, accounting for about two-thirds of global production.<sup>2</sup>

The US solar power generation industry includes about 240 companies that provide a small but growing amount of the nation's electricity. Overall, solar energy accounts for less than one percent of the energy consumed in the US.<sup>3</sup> This makes the potential for future growth massive.



## Solar Industry Jobs- Entry to Mid-Level

The solar industry can be broken down into three main job tracks. They are **CONSTRUCTION**, **DESIGN**, and **SALES & MARKETING**.



Under the main job tracks are the specific job titles that fall within each of these categories. You can find a more detailed description of each job listing in the **Job Tracks** section of this booklet starting on page 15. All occupations are broken down by salary, responsibilities, qualifications and benefits. We also include case studies of individuals who are now in the solar industry and how they got there.

According to the US Department of Labor-Bureau of Labor Statistics, employment of construction laborers and helpers is projected to grow 25 percent from 2012 to 2022, much faster than the average for all occupations. Laborers and helpers work in all fields of construction, and demand for these workers will mirror the level of overall construction activity. The median annual wage for construction laborers and helpers was \$29,160 in May 2012.<sup>4</sup>

Most construction laborers and helpers learn their trade through short-term on-the-job training. There are usually no specific education requirements.

**DUTIES TYPICALLY REQUIRE:**

- Basic tasks that require physical labor on construction sites
- Work at great heights and outdoors in all weather conditions
- Working knowledge of solar panel components, equipment, and installation



## THE FACTS:

### Solar Employment:

Eighty-three percent of the more than 35,000 new solar workers added in 2015 were new jobs, rather than existing positions that have added solar responsibilities, representing 29,000 new jobs created.

- Since the last census in 2014, one in every 83 new jobs in the U.S. was created by the solar industry, representing 1.2% of all new jobs.
- Installation represents the largest solar employment sector, at nearly 57% of all solar jobs, and is projected to add nearly 20,000 jobs in 2016.
- Solar employment overall is expected to grow by 14.7% over the next 12 months, representing the addition of approximately 30,000 new solar workers.
- Employers from each of the solar industry sectors examined in the census expect significant employment growth over the next 12 months, with all of them projecting percentage job growth in the double-digits.
- Wages paid by solar firms are competitive, with the average solar installer earning \$21 per hour, which is comparable to wages paid to skilled electricians and plumbers and higher than average rates for roofers and construction workers. Salespeople earn an average of \$28 per hour, while production and assembly workers average \$18 per hour.
- The solar industry is a strong employer of veterans of the U.S. Armed Services, who constitute 8.1% of all solar workers – compared with 7% in the national economy.

*Source: The Solar Foundation 2015 Solar Jobs Census.*



**JOB  
TRACK  
TWO**

## DESIGN

Those in the design sector of solar typically perform site-specific engineering analysis or evaluation of energy efficiency, and solar projects involving residential, commercial, or industrial customers. They may also design solar domestic hot water and space heating systems for new and existing structures, applying knowledge of structural energy requirements, local climates, and solar technology.

### **SOME OTHER RESPONSIBILITIES MIGHT INCLUDE:**

- Conduct engineering site audits to collect structural, electrical, and related site information for use in the design of residential or commercial solar power systems
- Design or coordinate design of photovoltaic (PV) or solar thermal systems, including system components, for residential and commercial buildings
- Create checklists for review or inspection of completed solar installation projects
- Create plans for solar energy system development, monitoring, and evaluation activities
- Develop design specifications and functional requirements for residential, commercial, or industrial solar energy systems or components
- Provide technical direction or support to installation teams during installation, start-up, testing, system commissioning, or performance monitoring
- Review specifications and recommend engineering or manufacturing changes to achieve solar design objectives
- Test or evaluate photovoltaic (PV) cells or modules

## SALES & MARKETING

Sales & marketing is defined as the creation, communication, and delivery of value as well as the management of customer relationships for its lifetime. <sup>5</sup> Marketing and sales/sales management work includes market research, connecting with customers, building strong brands, shaping the market offerings, delivering and communicating value, creating long-term growth, and developing marketing strategies and plans. <sup>6</sup>

Sales representatives are an important part of the deployment of solar to the end user. Sales representatives' primary duties are to make wholesale and retail buyers and purchasing agents interested in their merchandise and to address any of their clients' questions and concerns. Sales representatives demonstrate their products and explain how using those products can reduce costs and/or increase sales. <sup>7</sup>

### **DUTIES CAN INCLUDE:**

- Study target audiences and building advertisements around those target audiences
- Expand the needs of returning customers and the acquisition of new customers
- Stay abreast of new products and the changing needs of their customers in a variety of ways
- Attend trade shows at which new products and technologies are showcased to meet other sales representatives and clients and discuss new product developments
- Participate in company-sponsored meetings to review sales performance, product development, sales goals, and profitability
- Follow leads from other clients, track advertisements in trade journals, participate in trade shows and conferences, and may visit potential clients

*Our job profiles have been put together based on feedback from solar companies and the aggregation of solar job postings in 2014.*





## CONSTRUCTION JOBS

### WAREHOUSE MANAGER

#### **YEARS OF EXPERIENCE**

- 1-3 years

#### **EDUCATIONAL LEVEL AND QUALIFICATIONS**

- Most require high school degree or the equivalent, and provide on-the-job training
- Preferred qualifications:
  - o At least one year of field and classroom experience in solar
  - o Entry-level PV exam, apprenticeship, or Associate's degree

#### **AVERAGE SALARY**

- \$26,760/year OR \$12.86/hour

#### **RESPONSIBILITIES**

- Assist at construction job sites, supplying or holding materials or tools for solar installers
- Clean the work area and equipment
- Organize and maintain inventory in warehouse
- May also engage in many of the same activities as more experienced installers, including: Preparing the installation site; Designing system's layout based on characteristics of the site; Measuring, cutting, assembling, and bolting structural framing and solar module; Packing and unpacking the truck and assembling components

#### **REQUIREMENTS**

- Have some general electrician or plumbing knowledge (Preferred)
- Fast learner
- Ability to follow directions
- Problem solving skills
- Basic math skills
- Physical dexterity
- Resource management
- Communication skills
- Familiarity with the installation process
- Ability to work on a roof, outdoors, and/or in cramped quarters
- Possess a driver's license and successfully pass a drug test

# JUNIOR SOLAR INSTALLER

## **YEARS OF EXPERIENCE**

- Preferred 1-3 years

## **EDUCATIONAL LEVEL AND QUALIFICATIONS**

- High school or equivalent
- Preferred qualifications:
  - o Previous experience in PV installations, roof work, general construction, or carpentry
  - o Certification from an accredited program
  - o Some PV technical training
  - o Basic understanding/experience with electrical wiring of AC and DC systems
  - o Experience working with all types of building materials (stucco, wood, concrete, etc.) and various roof types (shingle, concrete, metal etc...)

## **AVERAGE SALARY**

- Starting \$14.75/hour up to \$21/hour

## **RESPONSIBILITIES**

- Assist with site preparation and clean up, and complete installation reports and paperwork
- Maintain a clean work site
- Maintain inventory of equipment for each installation
- Pull inventory for each installation job
- Pre-assemble job components in the warehouse.
- Electrical wiring of solar array/system (AC and DC)
- Identify electrical, environmental and safety hazards associated with the installations and identify methods and locations for laying out, orienting, and mounting modules or arrays to ensure efficient installation, electrical configuration, or system maintenance
- Install photovoltaic (PV) systems in accordance with codes and standards using drawings, schematics and instructions
- Follow safety protocol

## **REQUIREMENTS**

- Experience with the safe use of manual and power tools
- Ability to work in extreme environments, e.g. hot sun, crawl spaces, ladders, roofs, etc.
- Ability to lift an average minimum of 50 lbs.
- Enjoy working on a team
- Strong interest in renewable energy
- Conduit bending skills
- A clean driving record, criminal background and drug test
- OSHA 10-Hour Construction Certificate
- Working knowledge of NEC (National Electrical Code)

## SPOTLIGHT ON CONSTRUCTION



### Solar Installer Andrew Gonzalez

"I found out about GRID Alternatives while I was attending Los Angeles Trade Technical College. Volunteering

at GRID has been a great learning experience for me. I learned great leadership skills, people management skills, how to install solar panels, wire junction boxes, pull wire, bend EMT (conduit), and so much more.

I am currently working in the solar industry as a solar panel installer. I got the job while volunteering at GRID. A solar company recognized my work and it's all thanks to (my experience with) GRID.

A day in the solar industry: arrive at the warehouse, get materials for the job for that day, go over your roof plans, drive to the job site, and then get permission from the homeowner to start your work. From there you get up on the roof, tie in to roof harness mounts, lay out the solar array (chalk out the roof), find rafters, drill your holes, lay in you mounts then your racks etc...

GRID Alternatives helped me navigate through the solar industry. With hard work, dedication and commitment, I am on my way to a stable future."

# LEAD SOLAR INSTALLER

## **YEARS OF EXPERIENCE**

- 2-5 years

## **EDUCATIONAL LEVEL AND QUALIFICATIONS**

- Certification and/or some PV education is preferred

## **AVERAGE SALARY**

- \$20-\$30/hour based on experience

## **RESPONSIBILITIES**

- Supervise worksites in an efficient and safe manner
- Ensure quality work for work team
- Ensure timely completion of projects
- Constantly work to improve performance and productivity of team
- See installation through inception and completion
- Mechanical and structural mounting of racking, modules and electrical equipment
- Electrical wiring of solar array/system (AC and DC)
- Document completion of installations
- Maintain a neat and clean job site
- Attend training sessions on new products, installation methodology and safety as directed
- Represent the company in a professional manner at all times, consistently maintaining a professional and courteous attitude when dealing with residents, coworkers and the general public
- Perform other duties as assigned by management

## **REQUIREMENTS**

- Experience in all aspects of PV installation
- Ability to work in extreme environments (example: hot sun, cold, crawl spaces, etc.)
- Must be willing and able to climb ladders, stairs, work on rooftops and work on feet for long periods of time
- Excellent customer service skills
- Professional and positive attitude and appearance
- Pass a pre-employment criminal and drug screen
- Clean driving record and a valid state driver's license
- Attention to detail
- Comfort working at heights and on rooftops with proper safety apparatus
- Ability to read and interpret drawings, sketches, layouts and wiring diagrams
- Good communication skills and the ability to interact positively in a team environment

# ELECTRICIAN

## **YEARS OF EXPERIENCE**

- 4-5 years of electrical installation and repair experience

## **EDUCATIONAL LEVEL AND QUALIFICATIONS (PREFERRED)**

- Previous experience in PV installations, roof work, general construction
- Certification from an accredited program
- Advanced conduit bending skills
- Working knowledge of the NEC (National Electric Codes)
- OSHA 10 or willing to get certified
- Journeyman/Master license/C-10
- Solar/NABCEP certification

## **AVERAGE SALARY**

- \$50,000/year

## **RESPONSIBILITIES**

- Ensure work performed is of good workmanship and compliant with current NEC and local codes
- Troubleshoot system problems and resolve electrical issues
- Work with local inspectors to satisfy local requirements and expectations
- Read and understand electrical and structural diagrams
- Assist with completion of installation reports and paperwork
- Maintain tool management standards

## **REQUIREMENTS**

- Knowledge of solar components, technology, equipment, electrical, roof, and ground work
- Detailed knowledge of solar best practices
- Strong interest in renewable energy
- Ability to read and understand electrical wiring and structural diagrams
- Valid driver's license and clean driving record
- Mandatory employer drug testing, medical exam and reference check
- Ability to comfortably lift 50-100lbs, climb ladders, work with tools, and work in crawl spaces and on rooftops in varying temperatures
- Ability to perform advanced electrical calculations
- Knowledge of NEC and ability to navigate it
- Understanding of wire and conduit sizing and how to make adjustments for environmental factors
- Excellent customer service skills
- Excellent written and verbal communication skills
- Ability to thrive in a team environment
- Willingness to work in high, precarious places with outdoor weather conditions and risk of electrical shock
- Ability to work independently with minimum supervision in a fast-paced, high-growth environment.



# DESIGN JOBS

## SITE ASSESSOR

### **YEARS OF EXPERIENCE**

- Minimum: 6 months experience in solar panel installation
- Preferred: 1-3 years or PV3 or equivalent design

### **EDUCATIONAL LEVEL**

- High School degree or equivalent
- Basic electrical knowledge regarding the main electrical panel
- Preferred: Apprentice-level or post-secondary credential; Certification

### **AVERAGE SALARY**

- \$15-\$20/hour

### **RESPONSIBILITIES**

- Evaluate sites in-person or remotely to determine how much energy can be harvested at a given location
- Assess electrical systems and understand NEC (National Electric Codes)
- Measure and document customers' roofs
- Understand and analyze roof construction
- Perform shading analysis using devices
- Calculate potential costs and savings
- Communicate site details to the company's solar designers and installation teams
- Coordinate and obtain all permits and environmental clearances
- Photograph completed work

### **REQUIREMENTS**

- Valid driver's license and clean driving record
- Ability to lift and maneuver 32-foot folding ladder
- Ability to travel to multiple sites
- Experience with Solmetric SunEye, SolarPathfinder and other related programs
- Electrical/thermal and roofing knowledge
- Knowledge of NEC codes
- Strong customer service skills
- Be detail oriented
- Energetic, self-starter, and a strong desire for upward mobility
- Comfort and skill working in a fast-paced environment
- Proficiency with Microsoft Office

# PERMIT TECHNICIAN

## **YEARS OF EXPERIENCE**

- Preferred: Some knowledge of solar or construction

## **EDUCATIONAL LEVEL**

- High school degree or equivalent

## **AVERAGE SALARY**

- \$12-\$15 per hour

## **BENEFITS**

- Incentive programs
- Medical, dental, and vision insurance included
- Opportunities to advance

## **RESPONSIBILITIES**

- Prepare permit submittal packages in accordance with jurisdictional requirements
- Drive or mail permit packets to local municipalities
- Pick up any permits submitted immediately following the specified turnaround time
- Communicate with jurisdictional employees to understand any changes in permitting requirements
- Understand specific permitting requirements and provide that information to the team
- Work with local jurisdictions to move toward ideal permitting conditions
- Organize time efficiently each day to maximize resources
- Follow up with old cases and email appropriate departments to move accounts forward in permitting process
- Represent the company in a professional and friendly manner
- Maintain a clean and neat appearance wearing business casual clothing or company specific apparel

## **REQUIREMENTS**

- Ability to successfully pass a pre-employment criminal and drug screen
- Clean driving record, valid state driver's license and comfort driving everyday
- Ability to perform some manual labor tasks
- Ability to collaborate with colleagues across the organization
- Excellent customer service skills
- Professional appearance and interaction
- Excellent verbal and written communication skills
- Excellent organizational and time management skills
- Strong computer skills



## SPOTLIGHT ON DESIGN



### Designer Vichuda Fuentes

"I originally took an AutoCAD class along with a Photovoltaics class at Golden-West College in Huntington Beach. After I took the class I fell in love with both drafting and solar. That is when I found out about GRID Alternatives and began volunteering. I began to speak with some of the staff and they told me that I can use the knowledge I gained from my coursework to become a solar designer.

I was hired into GRID Alternatives Greater Los Angeles as a SolarCorps Project Fellow in February of 2014. After I complete my year of service as a SolarCorps Fellow I will become a full time employee of GRID Alternatives in the Project Management department.

On a day-to-day basis, my duties include system designing, permitting, inventory maintenance and project coordination. My day typically starts at 8am and ends around 5pm. One of the things I most enjoy about the job is the flexibility it provides. There are times when I have many things to do outside of the office and if need be, I can design remotely. I am constantly learning on the job, for example each city has certain requirements necessary to pull the permit so you must stay abreast of what each jurisdiction requires. It has encouraged me to take multiple classes on topics such as the National Electrical Codes, OSHA, and electrical wiring so that I can perform my job in the most competent manner possible.

For anyone looking to work in the solar industry as a designer I would recommend that you master the basics of design both structurally and electrically. Constant practice and use of free online tools will make you a better candidate!"

# PV SYSTEM DESIGNER

## **YEARS OF EXPERIENCE**

- 1-5 years of experience working with AutoCAD or other design program in similar or related field

## **EDUCATIONAL LEVEL**

- Applied associates program that combines green building and residential PV system design
- Preferred: Bachelor's degree conferred or in progress in one of the following areas: Architecture/Drafting, Engineering, Environmental Studies, or a related major

## **AVERAGE SALARY**

- \$54,000/year or \$26/hour

## **RESPONSIBILITIES**

- Prepare technical Sketch-up/AutoCAD based drawings and ensure that designs meet the client's requirements. Plan sets include electrical schematics, structural details, and equipment specifications
- Collaborate with Sales, Project Managers and Installers to ensure the customer is satisfied with the look and performance of their PV system
- Work with local permitting jurisdictions to ensure that proposals and designs meet requirements
- Review site intake sheets provided by outside sales consultants, complete preliminary designs, and draft sales proposals
- Keep apprised of design and financial considerations and the general market with a goal of staying competitive and offering efficient options for clients
- Work both in a team environment and under little supervision

## **REQUIREMENTS**

- Familiarity with the latest NEC, IRC, IBC, IFC codes and other regulations set by the local jurisdictions
- Knowledge of residential and commercial construction
- Ability to handle multiple projects simultaneously and independently, including prioritizing, organizing, and planning effectively to meet all deadlines
- Valid driver's license
- Ability to read and interpret building plans, building codes, technical bulletins, code books, and other related documents
- Excellent attention to detail
- Strong math skills
- Excellent customer service
- Strong communication skills, both written and verbal
- Strong technical aptitude
- Self-directed, independent, and solution-oriented
- Proficient in Windows XP Professional and/or Windows 7, Microsoft Office suite including Excel and Word, and learning program design software
- Preferred: Working knowledge of Adobe Creative Suite or Creative Cloud, Camtasia, Captivate, Articulate Development Suite, HTML, and other authoring software

# INSPECTION TECHNICIAN

## **YEARS OF EXPERIENCE**

- Preferred: 1-3 years of experience in general construction

## **EDUCATIONAL LEVEL**

- High school diploma
- Preferred: College degree

## **AVERAGE SALARY**

- Average salary \$16-20/hour

## **BENEFITS**

- Full benefits package including health, vision, dental insurance
- Vacation, sick and holiday pay
- 401(k) retirement plan

## **RESPONSIBILITIES**

- Schedule inspections and supervising deadlines
- Prepare job sites for inspection, including ladder set-up and opening electrical equipment
- Communicate with clients about follow-ups and installation timelines throughout the installation
- Keep track of documentation and filing
- Follow up on open cases, emails and voicemails in a timely manner
- Work with municipality plan checkers to drop off, understand and record technical corrections, and pick up approved permit packs

## **REQUIREMENTS**

- Valid driver's license and a clean driving record
- Ability to pass a pre-employment criminal and drug test
- Ability to set up and secure 20-foot ladders
- Ability to work in extreme environments (example: hot sun, cold, crawl spaces, etc.)
- Willingness and ability to climb ladders and stairs, work on rooftops, and work on feet for long periods of time
- Excellent customer service skills
- Proficiency with Windows XP Professional and/or Windows 7 and Microsoft Office Suite, including Excel and Word
- Ability to read and interpret building plans, building codes, technical bulletins, code books, and other related documents
- Strong technical aptitude
- Strong communication skills, both written and verbal
- Ability to learn quickly and work well in a team environment
- Organized and self-motivated
- Preferred: Familiarity with OSHA safety rules



# SALES & MARKETING JOBS

## FIELD MARKETER/BRAND AMBASSADOR

### YEARS OF EXPERIENCE

- Preferred: Background in promotions, brand ambassador experience, canvassing, sales, appointment setting, or customer service

### EDUCATIONAL LEVEL

- Preferred: High School diploma

### AVERAGE SALARY

- \$700 weekly, with top performers making well over \$1000 a week

### BENEFITS (MAY OR MAY NOT INCLUDE)

- Medical, dental, vision, flexible spending accounts
- Vacation, sick and holiday pay

### RESPONSIBILITIES

- Increase overall awareness of branding through event marketing, canvassing, and by establishing key partnerships within the service area
- Represent the face of the company through public events
- Engage potential customers and explaining the benefits of going solar

### REQUIREMENTS

- Display enthusiasm and a can-do attitude
- Be a natural leader and motivator who thrives in performance driven environments
- Be able to work under minimal supervision

## CANVASSER

### YEARS OF EXPERIENCE

- Preferred: Background in sales or marketing; Previous experience canvassing for home renovations, improvements or solar

### AVERAGE SALARY

- \$10-\$25/hour plus commission

### BENEFITS (MAY OR MAY NOT INCLUDE)

- Flexible and part-time schedules
- Weekend work opportunities

### RESPONSIBILITIES

- Support field-level marketing campaigns
- Identify qualified prospects for solar energy systems
- Create interest in solar using advocacy methods such as door-to-door interactions, trade shows, farmers' markets and community events and venues
- Collect referrals, qualify homes as solar ready, and set appointments for consultations

**REQUIREMENTS**

- Computer/Internet access and a mobile phone
- Reliable transportation to get to/from work areas
- Proficiency in the English language, both written and verbal; Spanish language skills are a plus
- Ability to pass a pre-employment background check and drug screen
- Ability to work on feet all day
- Good verbal communication skills, very organized and detail-oriented
- Be a quick learner, motivated to grow and have a superior work ethic
- Self-motivated and able to work with minimal supervision

## SALES CONSULTANT

**YEARS OF EXPERIENCE**

- Preferred: 2-5 years consumer sales, call center and/or solar experience

**EDUCATIONAL LEVEL**

- At least some college course work completed
- Preferred: Associates or Bachelor's degree

**AVERAGE SALARY**

- Typically based on sales + commission

**RESPONSIBILITIES**

- Manage lead flow to ensure customer satisfaction and successfully grow team sales by securing new sales leads
- Actively build connections and relationships in different territories
- Prepare and deliver sales presentations
- Close deals and execute sales contracts
- Update and maintain company Customer Relationship Management (CRM) database
- Provide customers with information such as quotations, warranties, credit information, funding options, incentives and tax rebates
- Analyze customers' current and projected electrical usage and financial return on investment

**REQUIREMENTS**

- Ability to meet and exceed set quotas and work in a fast paced, high pressure environment
- Ability to work collaboratively
- Sound judgment in the customer qualifying process
- Strong multi-tasking, time management and organization skills
- Excellent interpersonal and customer service skills via telephone and in person
- Highly proficient with Microsoft Office Suite and CRM databases
- Ability to work weekend and evening hours
- Valid state driver's license and clean driving record
- Ability to pass pre-employment background and drug screen



### Sales Representative Rhonda Rhoque

"A summary of my position is to increase the volume and velocity of sales by the solar consultants. I assist with proposal development, tracking and reporting, new and old opportunity follow up, accurate contract reporting, and change order facilitation. I also identify trends,

opportunities, and successes through reports, research, data collection, and analysis, and I attend and support events to help generate leads. I work cross functionally between departments serving as a liaison between our field marketing team, order management, project management, and operations. I also help train the field marketing team and new consultants.

After almost two years of outside sales, I decided to pursue a different aspect of solar sales. I searched for positions and found my current position as Sales Associate.

What does a day in my position look like? Daily activities would be checking and responding to emails. However, it varies from day to day. This is why I enjoy it so much. I have the ability to work from home or go into the office. I may have a phone meeting with the whole sales team or a one-on-one with an individual consultant. I run reports to check the status and manage projects. I interact with customers answering any questions they may have, and get necessary documents signed. I stay informed about procedural processes and changes with the different utilities, and keep abreast of new developments in the industry. I also organize and facilitate events such as the First National Sales Associate training."





## INSIGHT FROM EMPLOYERS

*“We’re interested in quality, not quantity. We have a very small front office, with two people who handle paperwork and the logistics of the installs. We want one, good strong team of installers who can complete installs in the shortest timeframe possible. As the volume in sales increases, we will hire more employees as needed – Sky’s the limit.”*

As part of our research we spoke to 10 of the top solar companies in Southern California to gain more insight into what employers are specifically attuned to while recruiting for potential employees. We also wanted to get a better idea on company culture, preferred background, and other skills. Here is what some of the companies we interviewed told us.

### **GENERAL INSIGHT**

#### **What are the desired personality traits/characteristics?**

- At least a few years’ experience
- Detail-oriented
- Willing and able to follow instruction and direction
- Professional
- Ethical
- Responsible
- Respectful

#### **What qualities matter most in an ideal candidate?**

- Team player
- Eagerness to learn
- Knowledge
- Leadership skills
- Punctuality/reliability
- Strong work ethic
- Ability to get along well with others
- Excellent verbal and written communication skills

#### **How important is a driving record and background check and what are you looking for?**

- Depends on clientele being served
- Very critical in residential market
- Clean DMV record
- No DUI’s in the last seven years

- Clean criminal background check going back seven years
- Minor offences are typically okay as long as not drug-related
- Proof and/or references that lifestyle changes have been made is helpful
- Clean drug test is very important

**What characterizes a typical employee at your company?**

- Safety-conscious
- Reliable
- Professional
- Inquisitive
- Resourceful
- Hardworking
- Independent
- Adaptable

**What is one word that best describes your company culture?**

- Laidback but professional
- Blue-collar, hard-working
- Progressive
- Dynamic
- Fast-paced

**CONSTRUCTION-SPECIFIC INSIGHT**

**What's an ideal profile/desired skills of a candidate?**

- Safety is key
- Conduit bending and routing
- Roof experience
- Electrical experience
- Mechanically inclined
- Fall protection training
- Basic solar knowledge
- Trainability/fast learner
- NABCEP and/or vocational, community college training

**SALES & MARKETING-SPECIFIC INSIGHT**

**What are sales needs?**

- Always in need of good sales people
- Proven sales history is good
- Used to closing at least 20%
- Coachable

**What is the pay scale?**

- Sales positions with commission can make upwards of \$100K
- Sales consultants are strictly commission



## SECTION FOUR

# TRAINING & RESOURCES

## LOS ANGELES TRADE TECHNICAL COLLEGE

### **RENEWABLE ENERGY PROGRAMS INCLUDE PV, SOLAR THERMAL, EFFICIENCY**

<http://college.lattc.edu/cdm/program/solar-energy-systems-installation-maintenance-program/>

Los Angeles Trade-Technical College offers various programs for individuals interested in working in the emerging fields of renewable energy and energy efficiency. The programs prepare students to take the entry level certification in various areas such as Solar PV (NABCEP - North American Board of Certified Energy Practitioners) and Weatherization (BPI - Building Performance Institute). It is recommended that students begin with the foundational certificate of achievement, and then move to the full certificates and degree programs. The certificates are stackable, meaning as students reach each new level, courses do not have to be repeated. The programs share many courses but allow students to concentrate on the areas of interest, such as Solar PV (solar panels), Solar Thermal (hot water), or energy efficiency.

### **DEGREES & CERTIFICATES INCLUDE:**

- Energy Systems Technology Fundamentals: Certificate of Achievement
- Solar PV Technician: Certificate of Achievement
- Solar Thermal Technician: Certificate of Achievement
- Weatherization & Energy Efficiency: Certificate of Achievement
- Renewable Energy: AS Degree w/ Energy Efficiency Emphasis
- Renewable Energy: AS Degree w/ Solar PV Emphasis
- Renewable Energy: AS Degree w/Solar Thermal Emphasis

## LOS ANGELES VALLEY COLLEGE

### **RENEWABLE ENERGY PROGRAM INCLUDES: PV & SUSTAINABLE CONSTRUCTION MANAGEMENT**

<http://www.lavc.edu>

This program provides the student with knowledge and experience in the rapidly growing field of Solar Photovoltaic Systems, with particular emphasis on the theory, design, installation and maintenance of residential and commercial installations. The basic elements of these systems will be covered – beginning with a review of basic electrical principles. No prior knowledge of electricity or electronics is required, although it would be helpful.

Topics covered include PV System components and configurations, site analysis and surveys, sizing, and financial analysis. There is a considerable amount of hands-on activity so the students will get experience with actual industry standard components and systems, including grid –interactive, bimodal and stand-alone PV systems.

The programs prepare the students with the knowledge to take the Solar PV NABCEP Exam (North American Board of Certified Energy Practitioners). An important part of the courses are the opportunity to select, survey and design a PV system at a location of the students' choosing. In addition, additional hands-on, laboratory and related studies are included, including the opportunity to build, test and characterize a Photovoltaic (PV) module from individual PV cells.

**DEGREES & CERTIFICATES INCLUDE:**

- Certificate of achievement in Solar Energy Design & Management
- Associate of Solar Energy Design and management (AS)

## RIO HONDO COLLEGE

**ALTERNATIVE ENERGY TECHNOLOGY PROGRAM**

<http://www.riohondo.edu/academics/alternative-energy-technology-certificate/>

The courses listed in the Associate of Science Degree are designed to prepare an individual for transfer and/or entry-level employment within the alternative energy industry as an integrator, designer, or as a maintenance or repair worker.

**STUDENT LEARNING OUTCOMES**

- The skills developed during classes will enhance the student's ability to complete the (NABCEP) North American Board of Certified Energy Practitioners and to become a specialist in the Solar Photovoltaic industry.
- Upon completion of this program an individual will have the knowledge and skills necessary to install residential and commercial solar and wind power systems.
- The individual will know and understand Green Building Design principles and also have the skills to successfully perform residential and commercial/industrial energy audits.

**DEGREES & CERTIFICATES INCLUDE:**

- Alternative Energy Technology Certificate of Achievement
- Associate of Science Degree in Alternative Energy Technology

## SANTA MONICA COLLEGE

**SUSTAINABLE TECHNOLOGIES PROGRAM**

<http://www.smc.edu/AcademicPrograms/EarthScience/Pages/Solar-Technologies-Program.aspx>

The goal of the Sustainable Technologies Program is to provide students high quality training that will enable them to obtain desirable employment in the green collar economy. The Solar Photovoltaic Installation Certificate is designed to provide students the skills necessary to place and advance in the solar energy industry. It is also designed to provide students with a holistic perspective on the role of solar power in a changing global economy and climate.

**DEGREES & CERTIFICATES INCLUDE:**

- Solar Photovoltaic Installation Certificate of Achievement

# LONG BEACH CITY COLLEGE

## **ELECTRICAL PROGRAM**

<http://www.lbcc.edu/Electrical/ElectricalProgram.cfm>

### **DEGREES & CERTIFICATES INCLUDE:**

None currently offered. Solar classes available.

# EAST LOS ANGELES SKILLS CENTER

## **PHOTOVOLTAIC INSTALLER PROGRAM: CERTIFICATION PREPARATION PROGRAM**

[http://www.eastlaservicearea.org/general\\_info\\_all\\_sites.html](http://www.eastlaservicearea.org/general_info_all_sites.html)

### **JOB SKILLS TAUGHT:**

- NABCEP entry-level certificate exam preparation
- Solar electricity fundamentals
- PV safety
- Site analysis
- PV system sizing and design
- Related components and equipment

### **CREDIT HOURS:**

300

### **CREDENTIAL EARNED:**

California High School Academic Content Standards

# WEST VALLEY OCCUPATIONAL CENTER

## **PHOTOVOLTAICS (SOLAR PANEL TECHNOLOGY) CERTIFICATE PROGRAM**

[http://www.wvoc.net/cte\\_wvoc.html#photo](http://www.wvoc.net/cte_wvoc.html#photo)

This three course sequence designed for alternative and renewable energy technology provides students with project-based experience in photovoltaic (PV) solar panel installation. Areas of technical instruction include an emphasis on workplace safety, trade mathematics, resource management, site assessment, PV system hardware and component evaluation, PV system sizing/costing/selection, mechanical/electrical design criteria and adaptations, PV system/sub-system installation, and troubleshooting techniques for system malfunctions.

# ABRAM FRIEDMAN OCCUPATIONAL CENTER

## **INDUSTRIAL PROGRAM**

<http://www.abramfriedmanoc.org>

This competency-based course is in three sequences designed for alternative and renewable energy technology.

# NORTH VALLEY OCCUPATION CENTER

## **SOLAR SYSTEM INSTALLATION TECHNICIAN CERTIFICATE PROGRAM**

[http://www.nvoc.org/apps/pages/index.jsp?uREC\\_ID=410314&type=d&pREC\\_ID=895376](http://www.nvoc.org/apps/pages/index.jsp?uREC_ID=410314&type=d&pREC_ID=895376)

Three courses in photovoltaics (PV) systems. Includes PV system hardware & component evaluation, assessment of sites for PV systems, sizing, costing, selection of PV systems, and mechanical design criteria & adoptions.

### **CREDIT HOURS:**

300 +

# COAST CAREER INSTITUTE

## **SOLAR SYSTEM INSTALLATION TECHNICIAN CERTIFICATE PROGRAM**

<http://www.coastcareer.edu/solar-installation-training-los-angeles>

This program prepares students for an entry-level position as a solar installer. It covers core material for photovoltaic principles, system wiring, mounting, system installation, maintenance and troubleshooting.

### **PROGRAM LENGTH**

30 Weeks - 720 Clock Hours - 45.5 Quarter Credit Hours

**Day Classes:** Monday through Thursday 8:00am to 2:30pm

**Afternoon Classes:** Monday through Thursday 2:30pm to 9:00pm

# CENTER FOR EMPLOYMENT TRAINING, OXNARD

## **GREEN BUILDING CONSTRUCTION SKILLS PROGRAM**

<http://cetweb.org/for-students/programs/green-building-construction-skills-/>

This program will prepare students for entry level positions in the building maintenance and the solar energy systems fields, such as:

- Plumbing helper-installer
- Carpenter (construction) helper
- Electrician helper
- Plumber helper
- Solar energy systems installer

### **JOB SKILLS TAUGHT:**

- construction related math
- OSHA-based safety standards
- carpentry
- electrical skills
- plumbing
- exterior and interior finish
- basic photovoltaics (PV)

**DEGREES AND CERTIFICATES INCLUDE:**

Students will be prepared to take the NABCEP entry level exam, the certification exams in BPI's Energy Auditor and Envelope/Shell Pro ESCO's Green Awareness.

**Footnotes:**

1 - [http://www.nrel.gov/learning/re\\_photovoltaics.html](http://www.nrel.gov/learning/re_photovoltaics.html)

2 - <http://www.firstresearch.com/Industry-Research/Solar-Power-Generation.html>

3 - <http://www.firstresearch.com/Industry-Research/Solar-Power-Generation.html>

4 - <http://www.thesolarfoundation.org/research/national-solar-jobs-census>

5 - <http://www.bls.gov/ooh/construction-and-extraction/construction-laborers-and-helpers.htm>

6 - [http://www.academia.edu/7922904/Chapter\\_1\\_Marketing\\_Creating\\_Capturing\\_Customer\\_Value\\_Marketing](http://www.academia.edu/7922904/Chapter_1_Marketing_Creating_Capturing_Customer_Value_Marketing)

7 - *Redefining Management Practices & Marketing in Modern Age* by Dr.Dilip B. Patil, Dr.Dinesh D.Bhakkad Pg.15

# RESOURCES

- **GRID Alternatives**

<http://www.gridalternatives.org>

<http://www.gridalternatives.org/volunteer>

<http://www.gridalternatives.org/volunteer/team-leader-program/team-leader-resources>

- **Classes, Certificate Programs, and Professional Organizations**

<http://solpowerpeople.com/category/solarmoooc-lessons/>

<http://energy.gov/eere/education/education-and-professional-development>

<http://www.nabcep.org/>

- **Solar Energy International (SEI)**

<http://www.solarenergy.org/>

- **Solar Living Institute**

<http://solarliving.org>

- **Interstate Renewable Energy Council**

<http://www.irecusa.org/workforce-education/solar-career-map/>

- **Green Job Listings**

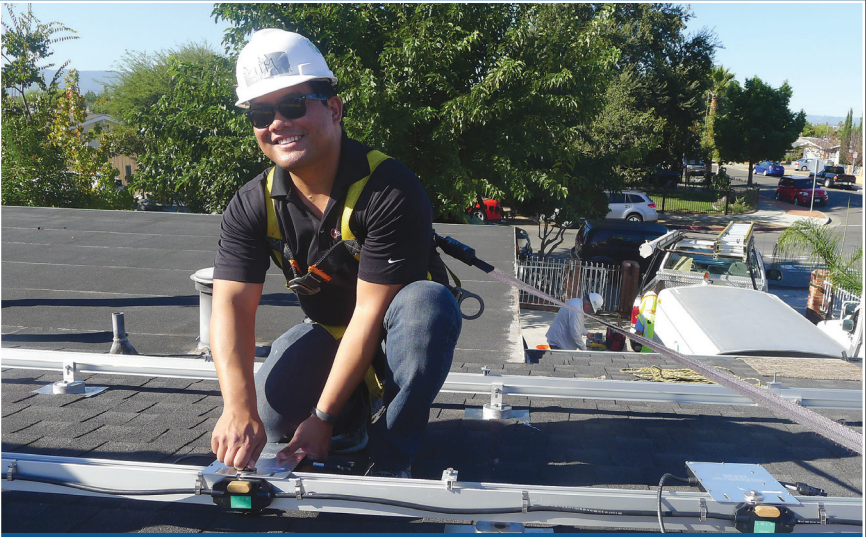
<http://www.greenjobs.net>

<http://www.seia.org/solar-jobs>

[http://www.greenprof.org/wp-content/uploads/2009/12/Green\\_Jobs\\_Guidebook.pdf](http://www.greenprof.org/wp-content/uploads/2009/12/Green_Jobs_Guidebook.pdf)







## How to **Jumpstart** Your Solar Career

1. Peruse this guidebook for job ideas
2. Delve into a specific track:
  - a. Construction
  - b. Design
  - c. Sales & Marketing
3. Join one of our installations to learn more about solar and gain vital hands-on experience
  - a. Consider becoming a Team Leader
  - b. Stay active with some of our training activities
4. Further your classroom training
5. Update your resume and cover letter or participate in one of our mock interview and resume feedback sessions
6. Join us for one of our job fairs
7. Connect to the GRID network



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