VETERANS IN SOLAR

★★★★

Securing America's Energy Future

"A robust solar industry benefits our national security. That is a fact our servicemen and women understand better than anyone else. In Afghanistan, tactical solar technologies proved valuable and militarily relevant. As a result, this new generation of veterans is leaving the service with greater appreciation and exposure to these technologies."

- SHARON BURKE, ASSISTANT SECRETARY OF DEFENSE FOR OPERATIONAL ENERGY

OPERATION ★ FREE

THE SOLAR FOUNDATION®

Research and Education to Advance Solar Energy

The *Veterans in Solar* initiative is a joint effort of The Solar Foundation® & Operation Free.

The Solar Foundation® and Operation Free would like to acknowledge and thank all the solar companies who participated in The Solar Foundation®'s *National Solar Jobs Census 2013* and the veterans who provided their personal stories. Additionally, we would like to thank Climate Nexus for their assistance in producing the report.

For more information about the *Veterans in Solar* initiative, please visit our website: www.VetsInSolar.org

Images sourced from DVIDS: Defense Video and Imagery Distribution System, National Renewable Energy Laboratory Image Gallery, and Navy.mil

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ABOUT THE SOLAR FOUNDATION

The Solar Foundation® is a national 501(c)(3) nonprofit organization whose mission is to increase understanding of solar energy through strategic research that educates the public and transforms markets. In 2010, The Solar Foundation® (TSF) released a seminal, award-winning report entitled the *National Solar Jobs Census 2010: A Review of the U.S. Solar Workforce. Census 2010* established the first credible national solar jobs baseline and provided policymakers with tangible proof that the solar industry is having a positive impact on the U.S. economy. Following the success of this original report, TSF conducted a *Census* in each of the following three years. Most recently, *Census 2013* found 142,698 solar workers, a figure derived from nearly 2,100 full survey completions. As part of the latest *Census* effort, The Solar Foundation® collected data on the veteran status of solar workers in order to develop the first and most complete understanding to date of veteran employment in the U.S. solar industry.

ABOUT OPERATION FREE

Operation Free is a clean energy campaign of the Truman National Security Project and Center for National Policy. Launched in 2009, Operation Free works to increase awareness among policy makers and the general public of the national security threats posed by dependence on oil and climate change. Operation Free recruits, trains, and engages veterans to provide values-based and personal arguments to underscore the connection between energy security, climate change, and keeping America safe. From enlisted advocates to top brass spokespeople, Operation Free veterans have been unparalleled messengers and advocates for securing America with clean energy and strong supporters of clean energy policies at the federal, state, and local level.

SPOTLIGHT ON SOLAR

The solar industry in the United States continues to play an important role in advancing our nation toward a robust clean energy economy. Since 2008, the amount of solar in the U.S. has grown by more than 500%, with an estimated 13,000 megawatts (MW) of solar currently installed in the U.S. This record growth in installations has sustained a growing solar workforce. The Solar Foundation®'s *National Solar Jobs Census 2013* found the U.S. solar industry employs nearly 143,000 solar workers, a figure that represents 20% employment growth over the previous year. Far outpacing other industries, employment in the solar industry has grown 53% since 2010, and employers expect double-digit growth in 2014.

The solar industry offers employment opportunities that certain groups of job seekers sorely need. Young veterans of the armed forces, for example, continue to face extraordinarily high unemployment. Figures from the Bureau of Labor Statistics for December 2013 show that 16% of veterans aged 18 to 24 were unemployed. At nearly two and a half times the overall nonveteran unemployment rate (6%) and four full percentage points higher than unemployment in the same nonveteran age group (11%), statistics show there exists a need to identify high-wage, high-skilled employment opportunities for America's veterans.

As awareness and adoption of solar energy grows among the general population, it also grows within the armed forces. The military – from top brass to the enlisted – recognizes the threat posed by our dependence on fossil fuels. When it comes to fueling combat operations, the burden of transporting oil and heavy batteries to power generators and electrified equipment is an operational, tactical, and strategic threat. Simply put, limited energy options make our military vulnerable.

"Our servicemen and women have made great sacrifices for our country and it is our responsibility to ensure that when they return home there are high-skill and well-paying jobs available. The solar industry offers our veterans the unique opportunity to use the knowledge they learned serving our country in a rapidly growing sector that is vital to both our national security and economic future."

- CONGRESSMAN SCOTT PETERS (CA-52)

Recognizing this threat, the military has started deploying distributed renewable energy technologies – such as solar photovoltaic systems – in combat zones to mitigate the risks associated with securing conventional fuel supplies.

The military has similarly embraced renewable energy here at home to strengthen energy security and improve operational capability - but also shaving operational costs. As of early 2013, military bases across the country had installed over 130 megawatts (MW) of solar photovoltaic capacity as part of a Department of Defense (DoD) mandate to supply 25% of total facility energy consumption with renewable power by 2025.

Given this high-level strategic shift in the way the military values and uses renewable energy, training centers and Service Academy classes all over the country are preparing our men and women in uniform to leverage these technologies to increase our military's capabilities. These trainees also benefit from the exposure, gaining a new set of technical skills and developing a new energy ethos.

Taken together, these trends – increased awareness and adoption of solar energy within the armed forces and among veterans, combined with high unemployment among young

NAT KREAMER

CEO, Clean Power Finance
Chief of Intelligence Operations, JSOC, U.S. Navy
Operation Enduring Freedom

After serving in Afghanistan in 2006, where I was awarded the Bronze Star Medal, I returned home with the idea to redefine the energy landscape - and secure America – with renewable energy. I turned that idea into the first residential solar purchase agreement, helping to kick-start a multi-billion-dollar residential solar industry.

I also knew veterans were in the best position to make America's energy goals a reality. Given their training, backgrounds and skill sets, veterans are great candidates for occupations in solar for three reasons:

First, solar is an industry that is growing rapidly. We need disciplined, motivated and skilled workers - and we need them to come ready. Veterans are used to being dropped into unpredictable situations and forced to pick up skills quickly; after all, the United States military is the best training institution in the world – and it's an institution that instills a level of discipline, work ethic, and adaptability.

Second, the solar industry is filled with people who are passionate about the job and who work together to help people, protect the environment, and safeguard our national security. Working in solar, like the military, is not just about the paycheck; it's also about working for something larger than oneself.

Third, in a dynamic industry, you need people who can take charge. One of the challenges in start-ups is building a team of people who know how to lead. We need the person who was doing the task yesterday to be the person teaching someone else to lead today.

veterans and growing employment opportunities in the solar industry – suggest that more veterans will be seeking work in the solar industry. It is on the basis of this conclusion that The Solar Foundation® and Operation Free have partnered to develop tools to encourage more veterans to enter the solar industry. This short report, based on data collected by The Solar Foundation®'s *National Solar Jobs Census 2013*, will introduce readers to the current state of veteran employment in the U.S. solar industry and will begin to identify opportunities and challenges for helping former service members transition into the fast-paced and growing solar workforce.

VETERAN EMPLOYMENT

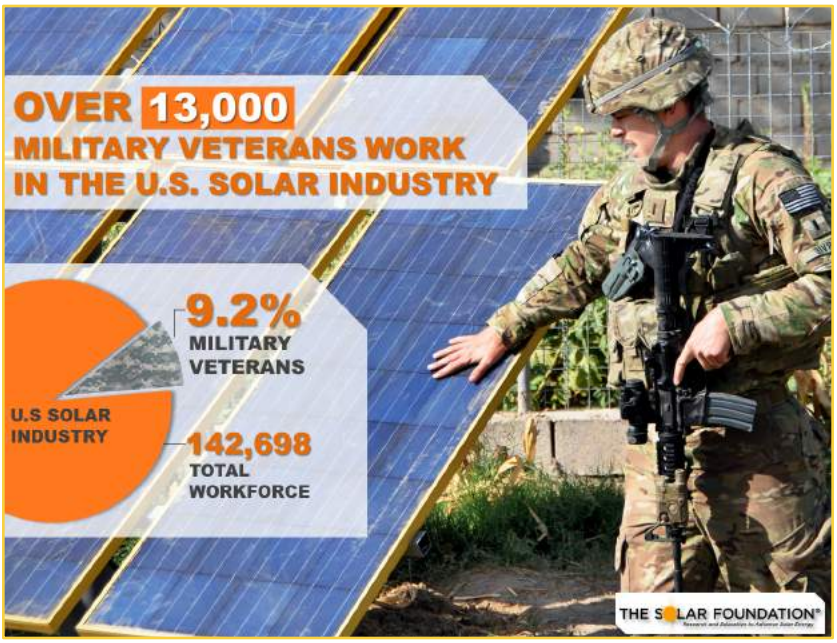
The Solar Foundation® found that - as of November 2013 - the U.S. solar industry employs 13,192 veterans of the armed forces, a figure which represents 9.2% of all solar workers in the nation. Compared with veteran employment in the overall economy (where, according to the Bureau of Labor Statistics, veterans constitute 7.6% of all workers), the solar industry can be seen as a strong employer of former service members.

Thirty-nine percent of veterans employed in the solar industry work in the installation sector. Common jobs at these companies include solar designers or engineers, solar installation managers or project foremen, site assessors, solar photovoltaic installers or technicians, and solar water heating installers or technicians. Over 27% of veterans in the solar workforce are

"We are still a nation at war and have asked a lot of our Soldiers who are returning home. Let us honor their service by helping them to find meaningful employment in a country of peace. This generation of veterans are well prepared to enter the civilian workforce – and opportunities like those that exist in the solar industry not only offer high-skilled jobs but also help strengthen our national security by securing America with clean energy."

- KATHERINE HAMMACK, ASSISTANT SECRETARY OF THE ARMY FOR INSTALLATIONS, ENERGY, AND ENVIRONMENT

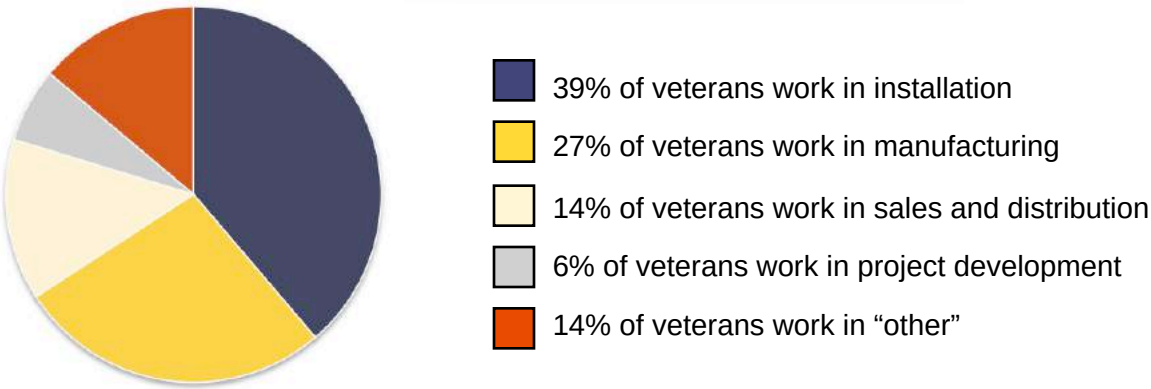
employed at manufacturing firms, such as production and operation workers, line supervisors or managers, various types of engineers, or sales, accounting, and marketing staff.



Other sectors employing veterans include sales and distribution (14%), project development (6%), and "other" firms – including companies focused on research and development, legal work, finance and accounting, government agencies nonprofit organizations, academic institutions, and those providing other ancillary services or support (14%). Interested readers can learn more about the jobs available in the solar industry by visiting the U.S. Department of Energy's Solar Career Map.*

The overwhelming majority of solar companies employing veterans work with photovoltaic solar energy systems or products (90%). Just over one-third of these companies report working with solar water heating systems (including pool heating) and one in ten deal in concentrating solar power. Over half of installation firms (57%) involved in photovoltaics indicate working primarily with residential systems. A significant proportion of these firms also report working with small commercial systems up to 50 kilowatts (14%) or medium to large commercial and industrial systems (also 14%). Fewer than one in ten of these PV-focused installation firms work on systems larger than 200 kilowatts (8%).

VETERANS IN SOLAR JOBS BY SECTOR



* http://www1.eere.energy.gov/solar/careermap/

Employers report that experience and education matter. Across all occupational categories listed above, three out of four solar firms employing veterans (77% compared to 50% nationally) indicated that the positions added over the previous 12 months required previous work experience related to the position. Nearly half of hiring firms with veterans on staff (44% compared to 27% nationally) stated a preference for new hires to have a bachelor's degree or beyond, with a third (32% compared to 13% nationally) revealing that positions added in the last year required an associate's degree or a certificate from an accredited college. Though employers have a very clear idea of the traditional qualifications desired in new solar workers and maintain higher standards than other solar companies, many still may not be aware of the value of the skills developed in the military.

The opportunities solar offers to veterans are not only numerous, but also of high quality. Installation firms who employ veterans pay an hourly wage of between $19.00 (median) and $21.44 (mean). Production and assembly workers at these firms earn slightly less than installers, at $15.00 (median) to $16.88 (mean) per hour.

Solar firms with veterans on staff are optimistic about growth. Nearly 62% of these companies (compared with 44% nationally) expect to add solar workers over the next 12 months, while only 2% expect to scale back on employment.

OUTBACK POWER

Headquartered in Arlington, Washington

Outback Power is a privately held company headquartered in Arlington, Washington, founded in 2001 by three engineers with experience in electronics design for renewable energy applications. Today, the company is a leading brand in the design and manufacturing of advanced power conversion electronics for renewable and other energy systems. The company is a member of The Alpha Group, an alliance of companies with the common goal of powering solutions for communications and renewable energy markets.

Outback Power currently employs veterans from across several branches of the military and employs a larger proportion of veterans than either the solar industry or the overall U.S economy on average. According to company executives, veterans bring invaluable skills acquired during their service to their work in the solar industry. Those assets include a strong technical background, an ethic of teamwork, and leadership skills that contribute to the greater success of the company.

CHALLENGES AND OPPORTUNITIES

The United States military is one of the premier training and leadership development institutions in the world. Our servicemen and women complete rigorous technical training and often assume leadership roles early in their careers. Veterans bring an invaluable set of skills into the workforce and are well suited for careers in business management and innovative tech industries. For this reason, veterans make ideal candidates for employment in the rapidly growing solar industry – which to continue expanding, will require access to a highly skilled workforce and recruitment of talented business leaders. However, there are currently few resources available to help these individuals successfully transition from the military into solar.

The Solar Foundation® and Operation Free intend to further this commitment to veteran employment in the solar industry through continued data collection and the development of resources and tools that target both employers and former service members. For example, the creation of a skills transfer tool designed to help employers easily match skills obtained by veterans with those that are sought by leading solar companies is planned.

KYLE HOCK

Student, Arizona State University
Civil Affairs Sgt. (frm), U.S. Army
Operation Iraqi Freedom

After serving as a Civil Affairs Sergeant in Iraq in 2009, I returned home looking for job opportunities well-suited to my background. Although I had acquired a highly desirable technical skill set during my service, I have been thus far unable to transfer my skills into meaningful work in solar energy, my field of choice.

During my time in the service, I gained a deep appreciation for solar power. In Iraq, I saw first hand how access to energy can either strengthen or cripple the security environment. Later, as a civil affairs instructor at Ft. Bragg, I recognized the value of solar energy as an easy solution to a multitude of security challenges faced by our military and civil society.

There is a need for solar energy – both at home and abroad – to reduce our dependence on insecure energy sources and to make a positive change in people's lives. I have the technical background and skills for a career in solar, and, perhaps more importantly, I have the personal desire to inspire change and advance this industry.

However, I - and other veterans like me - continue to face barriers to entry and a mismatch of certified skills between the military and civilian industries. Solutions to this problem, such as a streamlined skills-transfer process, could enable more veterans to make the transition into solar and other clean energy industries.

* Opinions posted are those of the individual, and the appearance of former military personnel in uniform does not denote the endorsement of the U.S. Department of Defense or military service branches.

"Our men and women in uniform understand that energy security is national security. They also understand that renewable energy makes our nation more energy independent and creates jobs. That's why our veterans — especially those coming home now to a recovering economy — are strong candidates for the high-skilled, good-paying jobs our solar energy industry has to offer."

- SENATOR MARK UDALL (CO)

Join us in this effort to better build a streamlined process for highly qualified, yet underutilized, veterans to more effectively respond to the significant solar industry demand-pull for a high-skilled, experienced workforce.

To learn more about how you or your organization can support this vital research and education effort, please contact Andrea Luecke at The Solar Foundation® (andrea.luecke@solarfound.org) or Jaclyn Houser at Operation Free (jhouser@trumancnp.org).

"In the Senate, I have fought for a streamlined certification process to make it easier for returning veterans to apply their military credentials to civilian careers. This report examines precisely the types of valuable skills our veterans can offer in industries that manufacture clean energy technology, bolster our energy security, and create well-paying sustainable jobs."

- SENATOR TIM KAINE (VA)

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