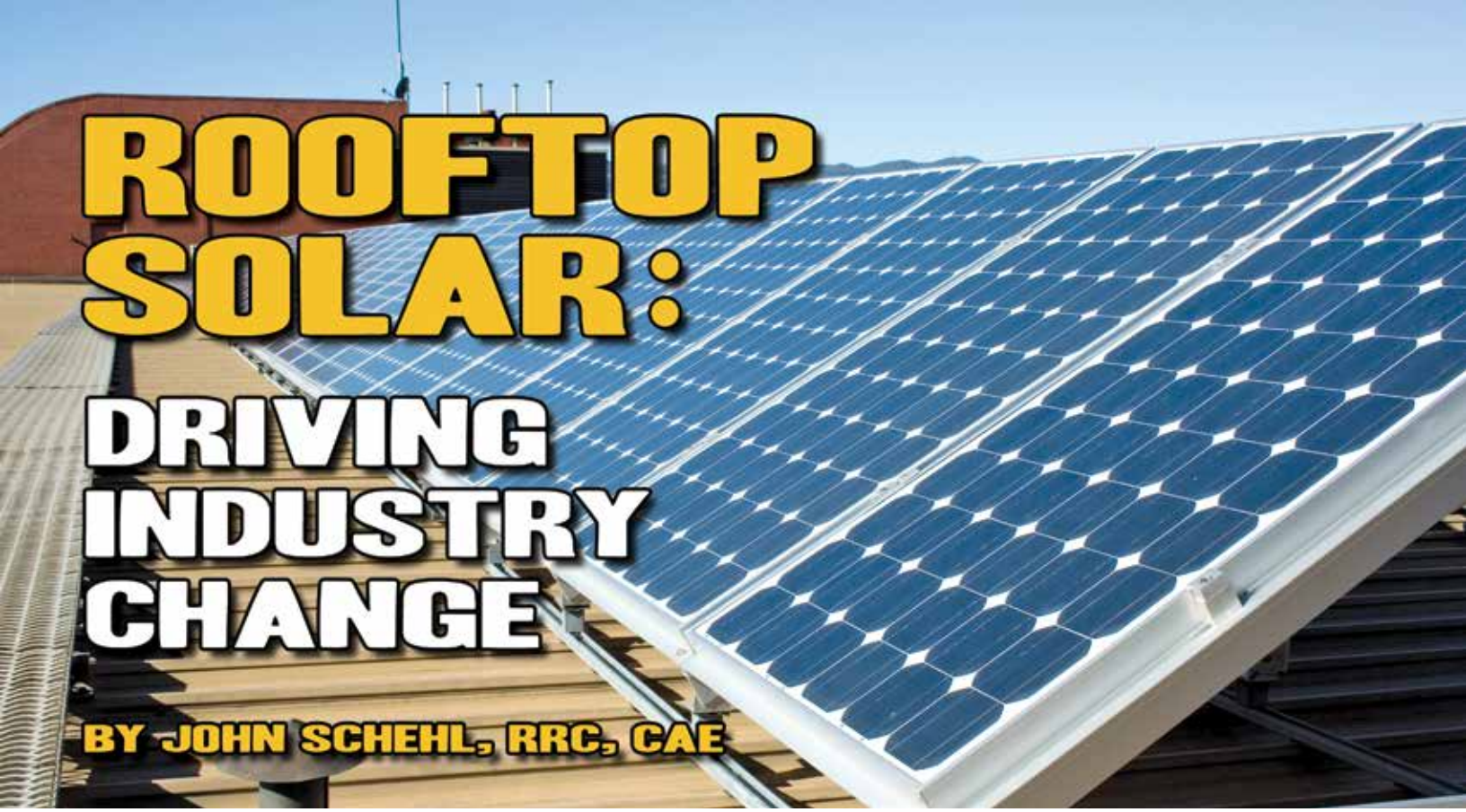

# ROOFTOP SOLAR: DRIVING INDUSTRY CHANGE

BY JOHN SCHEHL, RRC, CAE

The U.S. solar photovoltaic (PV) marketplace is often called the "wild, wild west of PV." While this statement may be hyperbole, it helps explain why many roof consultants and roofing contractors hesitate stepping into this frontier. Making business decisions about whether—or how—a roofing professional should engage rooftop PV systems can be intimidating and difficult. This article presents data and other information intended to help roofing professionals make informed business decisions.

## THE SOLAR MARKETPLACE

Before investing in the PV industry, you may ask whether the demand for solar is sustainable or just another industry fad, especially during a slow economy. Does rooftop solar offer realistic business opportunities, and is it here to stay? Am I realistically qualified to pursue these opportunities? The answers to these questions may be found by looking at data and trends and then forming reasonably informed assumptions.

## PV DEMAND IN THE U.S.

Green Tech Media (GTM) conducts market research on behalf of the Solar Energy Industries Association (SEIA). According to a recent GTM report, the U.S. solar industry grew in terms of total installed megawatts (MWdc) by 109% in 2011 compared to 2010 (887 MWdc were installed in 2010, and 1,855 MWdc were installed in 2011).

How did PV installations track for 2012? The most recent GTM data, published in September, show PV system installations in the U.S. grew 37% for residential and 24% for commercial properties during the first two quarters of 2012 compared with the same period in 2011. GTM forecasts 3.2 GW of PV will be installed in the U.S. in 2012, up 72% from 2011 (see *Figure 1*). A favorable trend is emerging.

April Saylor, digital outreach strategist at the U.S. Department of Energy's (DOE) Office of Public Affairs, says, "Developers are likely to install about 3,300 megawatts of solar panels in 2012—almost twice the amount installed last year" (http://energy.gov/articles/solar-demand). This supports the data presented by GTM.

The U.S. solar market has nearly doubled in MWdc installations every year since 2005, and it is forecast to install 8,200 MWdc in 2017 (see *Figure 2*).

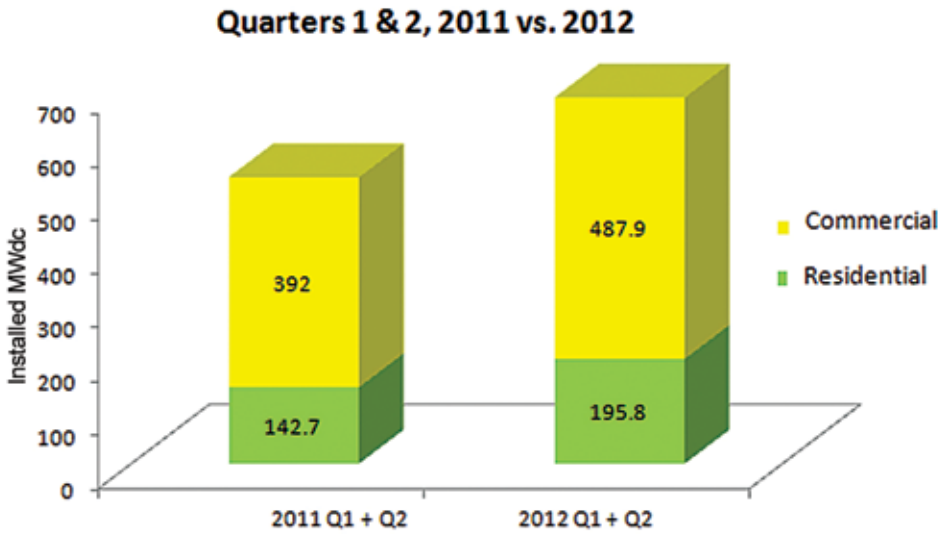


*Figure 1 – PV system installations are increasing in spite of the slow economy.*

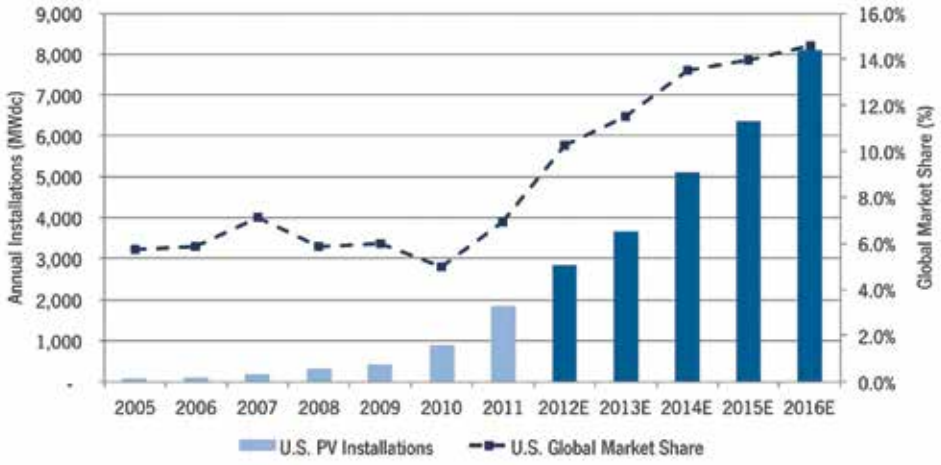


*Figure 2 – Projected U.S. solar market growth, 2012 through 2017.*

It should be noted that no data exist specifically segregating or aggregating roof-mounted PV system installations. But GTM's data at least segregates utility-scale solar installations, and the remaining residential and commercial installation data tell a compelling story of continued and sustainable growth. It is reasonable to assume, after seven years of data supporting consistent U.S. solar market growth despite a poor economy, that roof-mounted PV business opportunities will also continue to grow.

## PV INSTALLATION JOB GROWTH

The 2012 National Solar Jobs Census, released on November 16, 2012, by the Solar Foundation, an independent research organization, tracks steady growth of the U.S. solar job market during the past 12 months. Now in its third iteration, the census finds the solar industry is one of the fastest-growing job markets in the country—employing more than 119,000 skilled solar workers and growing at an annual rate of 13.2% (http://thesolarfoundation.org/research/national-solar-jobs-census-2012).

Reacting to this report, Minh Le, U.S. DOE's acting solar program manager, states, "[That] U.S. solar industry jobs continue to expand at a double-digit annual growth rate shows that efforts to grow the solar market and make solar energy more accessible to all Americans are working. The solar industry continues to be an engine of job growth—creating jobs six times faster than the overall job market." DOE anticipates this robust growth to continue. Projections from its SunShot Vision Study, an in-depth assessment of the potential for solar technologies to meet a significant share of electricity demand in the U.S. during the next several decades, estimate that by 2030, more than a quarter million highly skilled solar workers will contribute to the U.S. economy (http://www1.eere.energy.gov/solar/pdfs/47927_executive_summary.pdf). To help meet the need for a growing number of solar professionals, DOE is expanding its Solar Instructor Training Network program to connect returning veterans to this high-growth sector of our economy.

These solar job figures reflect a stronger demand for clean-energy generation, a steady decline in solar-hardware costs, and strategic investments made by the DOE in solar research and development over many years. Independent analysis has shown investments made by DOE's Office of Energy Efficiency and Renewable Energy have accelerated the growth of the U.S. solar industry by an estimated 12 years. Matthew Loveless, data integration specialist from the DOE's Office of Public Affairs, says, "A growing solar industry presents a tremendous economic opportunity for the United States, and that is why the Energy Department's SunShot Initiative supports America's best solar energy entrepreneurs and innovators."

The data overwhelmingly indicate work opportunities in the U.S. solar market will continue to grow for many years to come, and it is reasonable to assume the rooftop solar workforce will also increase. So, what are the business opportunities for roof consultants and roofing contractors who choose to enter the solar market?

## ROOFING PROFESSIONALS AND PV

For most roofing professionals, there are four roles one may choose to play in the wild, wild west of PV. These include:

1. Be a subcontractor who provides roof system repairs or installation in conjunction with a roof-mounted PV system installation under a solar-PV integrator.
2. Be a subcontractor who performs all aspects of roof and solar-PV system repairs or installation under a general contractor.
3. Be a prime contractor who performs all aspects of roof and PV system installation or repairs.
4. Supervise the installation of roof-mounted PV systems being performed by others to help ensure roof system integrity is maintained.

The author has found that most roof consultants and roofing contractors are not qualified to design rooftop PV systems, to install any PV system components for which they are not licensed, or to integrate a PV system into any other building system (e.g., electrical system) other than a roof, though they may employ qualified staff or subcontract with others to perform these functions. Examples of other qualified individuals include professional electrical engineers performing PV system designs and licensed electricians integrating a PV system with a building's electrical system. PV system integrators typically do not understand the issues of integrating PV and roof systems, nor are they generally familiar with the best practices for protecting and maintaining the integrity of an existing roof system during rooftop PV system installations.

Roof consultants and roofing contractors may be the most efficient and effective providers of roof-mounted PV system installation services. Why? Simply put, rooftops are their domain of professional practice. Roofing professionals have the unique qualifications and experience in the critical phases of a roof system's life cycle, including design, installation, administration, and maintenance. They may offer the highest value proposition for building owners as a prime vendor for roof-mounted PV system installation projects. Advantages roofing professionals offer to building owners versus other solar contractors or integrators may include:

- Experience and technical knowledge to more accurately assess rooftop conditions and project existing equivalent system life (matching roof and PV system life)
- Familiarity with roofing-related building codes and standards

- Working efficiently and safely in the rooftop environment, including project management skills, materials loading and handling, and roofing-specific safety compliance
- Maximizing roof system energy efficiency, an important factor when designing PV systems
- Having adequate and appropriate insurance coverage for rooftop work
- Most qualified to issue and maintain roof system warranties

Jason Loyet, founder of Clean Power Design, St. Louis, MO, agrees: "[Roofers and roof consultants] have greater advantages over electrical contractors and other solar installers to install rooftop PV. Doing solar is a less steep learning curve for them. And they typically are better at marketing and building trusting relationships with owners. They already have these great relationships and are a natural choice for doing solar." Loyet adds, "I'm surprised more roofers are not doing solar. They are the natural PV installers of the future."

In fact, the number of roofing professionals engaged in PV work is increasing. In June of 2010, the National Roofing Contractors Association (NRCA) started tracking a member category of work for PV, and 77 (2.1%) members initially reported they install roof-mounted PV systems. This number increased to 216 (6%) by August of 2011, and the current number is 273 (7.2%).

The bottom line for a building owner is that a roof system must perform its primary function—keeping a building weatherproof—regardless of other building systems or components that may be installed.

## ROOFING INDUSTRY PROFESSIONALISM

The depth and breadth of expertise required to design, install, and maintain successful roof systems has grown significantly over the last four decades. A good expression of this truth is the growth of the technical *Roofing Manual* published by the NRCA. The first edition of the manual, published in 1970, was 112 pages and covered a single roof system. Today, the same manual is nearly 1,600 pages, comprising four volumes covering 14 major roof system types and includes technical recommendations on roof decks; air barriers and vapor retarders; thermal insulation; and specialty topics, including vegetative and solar-PV systems, roof system accessories, architectural metal flashings, and condensation control. The guidelines and recommendations contained in the *NRCA Manual* represent the most comprehensive collection of industry consensus best practices on which roofing professionals, building owners, and the public rely.

Further, a number of steep-slope shingles and tiles and low-slope membranes with fully integrated energy-producing PV components have entered the market in recent months. These products are engineered to function as weatherproofing roof systems, to produce energy, and are designed for installation by roofing professionals.

Considering the parallel growth of applicable building codes and standards, it is fair to say professionalism is the operative word for anyone performing construction of any kind that involves a roof system.

## ROOF-MOUNTED PV PROFESSIONALISM

What is "professionalism," and how does a building owner know if a roofing professional is qualified to install a roof-mounted PV system?

Work in all industries has become more complex; and the demand for professional, specialized credentials has increased. The word "professional" is defined as someone "engaged in one of the learned professions" (http://dictionary.reference.com/browse/professional). The key word here is "learned." Then, how does a building owner know if someone claiming to be professional has adequately learned the highly specialized work of roof-mounted PV systems?

The roofing industry has created an industry-specific certification for professionals interested in pursuing roof-mounted PV work. The Certified Solar Roofing Professional (CSRP) credential is a nationally recognized personnel certification built to conform to the rigorous consensus-based and process-driven standards set forth by the International Standards Organization (ISO) document ANSI/ISO/IEC 17024, titled "Conformity Assessment – General Requirements for Bodies Operating Certification of Persons." The CSRP program is independently administrated by Roof Integrated Solar Energy (RISE), an organization incorporated in 2010 and founded by the Center for Environmental Innovation in Roofing and the NRCA to establish the standards of knowledge, skills, and personal abilities (KSAs) for individuals who install roof-mounted PV systems. Earning the CSRP credential is confirmation that an individual indeed possesses the KSAs to work with roof-mounted PV systems. CSRPs do not design PV systems, nor do they try to perform the work of professional electricians. Rather, they possess the unique KSAs specific to the installation of PV systems on roofs. CSRPs use the credential's mark to differentiate them in the PV marketplace and position themselves as experts on roof-mounted PV installations.

Prospective CSRP candidates realize there is much to learn about roof-mounted PV systems. The topics someone needs to know to succeed at earning the CSRP are presented in the RISE document, "Job Task Analysis (JTA)," which can be found on the RISE website at www.riseprofessional.org/roofing-certification.shtml. The most common question we receive from RISE candidates is, "Where do I get the training?" There are professional development opportunities for consultants and contractors who want to grow their KSAs in rooftop solar. RISE provides a self-study guide, developed in partnership with Penn State University; this document is also available on the RISE website. NRCA has developed two additional study resources: an online self-paced study course, titled "Photovoltaic Roof System Installations"; and a one-day live workshop, "Photovoltaic Roof Systems: Energizing Your Business." Both courses address the unique KSAs specific to the installation of rooftop PV and are available through NRCA at www.nrca.net/rp/education/nrca/.

Professional credentials are an effective tool to increase professionalism and drive change in the roofing industry. Like many early trailblazers of the Western frontier, some embraced the challenges and moved forward to create historic change, while others chose to settle back in their comfort zones, only to be left in the dust. As the roof-mounted PV market continues to grow, so will the business opportunities for roofing professionals.

John Schehl, RRC, CAE

John Schehl is the executive director of Roof Integrated Solar Energy (RISE) Inc. He has been active in the roofing industry since 1972, including serving 14 years as education staff for the NRCA and 25 years as a residential and commercial roofing contractor in the Chicago marketplace. John holds a master's degree in human resource development and is a Certified Association Executive and a Registered Roof Consultant.

## NLBMDA Announces "Dealers Helping Heroes" Program

The National Lumber and Building Material Dealers Association (NLBMDA) has made public its "Dealers Helping Heroes" program to help injured military veterans renovate their houses or build new ones.

As the most severely wounded veterans leave the hospital and transition to civilian life, they are often in desperate need of assistance in remodeling, renovating, or building a home that will work for their particular disabilities. However, each receives only $7,000 for a remodel and $64,960 for building a new home from the federal government.

"This industry wants to support our country's military veterans, and one way we'll help is with the Dealers Helping Heroes program. The Yellow Ribbon Fund and the Helping a Hero Organization have some great ideas on how construction supply businesses can make an impact in the lives of military families, and we look forward to working with them," said NLBMDA Chairman Chuck Bankston.

When a veteran is ready to transition home, his or her name is added to a master list maintained by Helping a Hero (www.helpingahero.org). Participating state/regional building material associations will receive a biweekly list of veterans looking to transition home and where they are transitioning to. The state/regional association will identify a local dealer willing to "adopt" the veteran and provide whatever assistance they can to help them with the building project. Helping a Hero will contact the dealer to further discuss the needs of the local veteran, answer any questions, and define the parameters of the project. Once the dealer is fully on-board, Helping a Hero will pair the veteran with the dealer and work with them to complete the home project.

"These American heroes have given so much to our country. The Dealers Helping Heroes program is a small way for the building material industry to thank them for their service and sacrifice on behalf of all Americans," said NLBMDA President Michael O'Brien.

**– NLBMDA**