OVERVIEW

Employment growth in the national solar industry has been consistently positive over the last several years, a trend which is expected to continue in the near term. Between 2013 and 2014, the solar workforce grew by approximately 22% to total nearly 174,000 workers. During the same period, U.S. businesses added more than 2 million jobs, a growth rate of just over 1%, signifying employment in solar grew nearly 20 times faster than employment in the national workforce. Solar employment in North Carolina grew from 3,100 in 2013 to 5,600 in 2014, adding over 200 jobs per month between November 2013 and November 2014. At over 80 percent year-over-year growth, the North Carolina solar industry grew nearly 40 times faster than overall employment in the state. Since 2012, the number of solar workers in North Carolina grew by approximately 300 percent. All of this growth moves North Carolina into the “Top Ten” both in terms of state solar employment and solar employment as a share of overall employment in the state.
WHERE IS SOLAR BEING INSTALLED IN NC

Over the last several years, North Carolina has rapidly increased the amount of solar capacity installed within its border and has become the 3rd largest solar state in terms of cumulative installed solar capacity. This development – over one gigawatt of capacity installed between 2009 and early 2015 – is the result of a variety of factors, including the declining cost of solar, the state’s renewable energy portfolio standard, state and federal tax credits, and, notably, the state’s electric regulatory practices which allow energy generation projects under a certain size to receive long-term fixed power purchase contracts. As a result, a majority of this development has and continues to be ground-mounted projects on the multi-megawatt, utility-scale.

CATAWBA COLLEGE – In Spring 2015, Catawba College saw the beginning of an eight-building, one megawatt rooftop solar installation that is expected to save the college more than $11 million over the next 30 years. The project is being led by Raleigh-based solar consultant, Innovative Design, with project development supported by Sundance Power Systems of Weaverville.

CROCKETT SOLAR FARM – This 6.7 megawatt project was led by Chapel Hill–based solar developer Strata Solar. Planning began on the Lenoir County site in Spring 2014 and construction was completed by the end of the year with a crew of 80 local contractors. In May and June of 2015, Strata Solar hired 188 new solar workers from job fairs held in the Fayetteville area to help meet the demand from a new 87 megawatt solar project in neighboring Duplin County.
WHERE ARE SOLAR EMPLOYERS IN NC

There are 177 solar companies operating in North Carolina. Many of these employers are clustered around the metropolitan regions of Charlotte and Raleigh. Nevertheless, employers can be found around the state due to the solar industry’s wide variety of business activities. With much of the solar development straddling the edges of the Piedmont region, employers from the Western Foothills to the Southern Coastal Plain can quickly participate in the solar industry.

SOLAR COMPANIES

Contractor/Installer
Manufacturer/Supplier
Project Developer
Distributor
Other

*Shaded counties denote inclusion in a metropolitan statistical area.

WHAT ARE SOLAR JOBS

The solar industry relies on a variety of skills and occupations. Installers work both on the ground, constructing racking structures to support large fields of solar, or they may be on various types of rooftops. Distributors help manage costs for those on the installation-side. Manufacturing is not limited to making photovoltaic modules. Metal racking, wiring, and other electronic components are necessary in any solar project. Entities such as research and development firms, nonprofits, government agencies, and academic research centers play a small but important role in the solar industry.

SOLAR JOB SECTORS – In North Carolina, the majority of solar employment is in the installation sector. Approximately two-thirds of the state’s 5,600 solar workers participate in the installation process. The next third is comprised of Manufacturing, Project Development, and Sales and Distribution with 12.5 percent, 11.6 percent, and 7.1 percent, respectively. Rounding out the state’s remaining solar workers, approximately 2.6 percent fall within the catchall “Other” sector.

TWO MARKETS – Looking further at the installation sector, there are two segments that divide solar installers. Approximately 2,150 installers focus on large, utility-scale solar development, whereas 1,550 focus on distributed generation on commercial and residential rooftops.
WHERE DO SOLAR WORKERS COME FROM

Since The Solar Foundation began tracking solar employment in 2010, the industry has added nearly 80,000 domestic living-wage jobs. By November 2015, solar companies across the U.S. expect to add over 36,000 solar jobs, bringing the total solar workforce to just over 210,000 and making this the third consecutive year in which employment has grown by approximately 20% or more year over year.

The short-term outlook for solar employment in North Carolina remains equally positive. Leading industry projections suggest that 2015 will be a record year for the state. By the end of the year, 800 megawatts of new solar capacity are expected to come online – only slightly less than all the solar capacity installed in the last three years combined. Given the strong relationship between installed capacity and employment, it is reasonable to expect that this year will also see a large increase in solar employment for the state. However, policy changes facing the industry in the next couple of years stand to significantly scale back the rate at which the state adds new solar capacity beyond 2016, with fewer than 200 MW of annual solar capacity expected from 2016-2020.

Despite expressing an optimistic outlook on growth nationally, solar employers continue to experience difficulty in finding new, qualified employees. Chief among those difficulties was finding electricians with solar expertise. Given the rapid pace of employment growth, both nationally and within North Carolina, solar training programs may become an increasingly important means of addressing the solar skills gap.

Nationally, the majority of solar jobs provide competitive, family-supporting wages. The mean national wage for solar installers (which represent 66 percent of all solar workers in North Carolina) was $22/hour in 2014, a rate which, if paid to North Carolina installers, would allow a worker to support one non-working adult and one child. The 2014 national median wage for solar workers in manufacturing was $18/hour. Looking at the solar employment in North Carolina and corresponding national wages for those roles (with a 92% regional wage derate), the state’s 5,600 workers receive approximately $275 million per year in annual wages.
ABOUT THE DATA
The Solar Jobs Census series is a product of The Solar Foundation (TSF). In 2012, TSF began estimating solar employment in each of the 50 states, and introduced stand-alone Census reports for select states in subsequent years. Solar Jobs numbers in North Carolina were generated as part of The Solar Foundation’s State Solar Jobs Census 2014 using thousands of data points from a combination of high-quality data sources, including Census 2014 and the Solar Energy Industries Association’s National Solar Database. The methodology described below has been used to develop these numbers since 2013, and the results of the Census have consistently been in line with other state-level solar industry labor estimates. The Solar Foundation is the only organization that produces state-level solar industry employment data for all 50 states and continues to be the most respected voice among government and solar industry stakeholders in solar labor market research.

While a complete North Carolina-specific Census would provide more accurate and granular data, these state jobs numbers were produced using a carefully developed dual methodology – one for installation and construction jobs and another for non-installation jobs (covering industry sectors such as manufacturing, sales and distribution, project development, and “other” occupations that support the solar industry). The first method uses labor intensity multipliers developed internally and cross-checked with leading studies on the subject. The second method is based on both a direct count of solar workers and the average number of jobs per solar establishment and total number of establishments in each state. The state totals are the rounded average of the high and low estimates. When a survey of solar companies in North Carolina was administered in Fall 2014, 32 of the 177 known solar companies in North Carolina responded with verifiable information on the number of solar employees at their establishments. For the purposes of this research, a “solar worker” is defined as anyone who spends 50% or more of their time on solar-specific activities. Nationally, the Census has found that more than 90 percent of workers spend 100 percent of their time working on solar.

ABOUT THE SOLAR FOUNDATION
The Solar Foundation® (TSF) is an independent 501(c)(3) nonprofit organization whose mission is to increase understanding of solar energy through strategic research and education that transforms markets. TSF is considered the premier research organization on the solar labor workforce, employer trends, and the economic impacts of solar. It has provided expert advice to leading organizations such as the National Academies, the Inter-American Development Bank, the U.S. Department of Energy, and others during a time of dynamic industry growth and policy and economic uncertainty. While TSF recognizes that solar energy is a key part of our energy future, it is committed to excellence in its aim to help people fairly and objectively gauge the value and importance of these technologies.

Sources