



What Clean Energy Jobs? *These Clean Energy Jobs!*

Across America, new sources of clean energy—from solar panels to energy-efficient lighting products to more fuel-efficient, clean vehicles—are creating jobs and rebuilding our communities. Since September 2011, Environmental Entrepreneurs (E2), whose members represent a broad cross-section of business leaders, has been documenting our nation's impressive growth in this sector with our weekly newsletter *What Clean Energy Jobs? These Clean Energy Jobs!*¹ Since our first newsletter, E2 has compiled nearly 300 separate job announcements from companies, cities and organizations that show America is a leader in energy innovation and capturing the jobs that come with deploying our ingenuity and know-how. You can find each newsletter at www.e2.org/cleanjobs.

Since our last quarterly report, we have seen examples in every state of how clean energy is becoming an important part of our nation's energy supply, creating new opportunities for workers in our manufacturing sector, and building a cleaner, healthier, and more secure energy future. Announcements from this last quarter show that from new solar technology developers and manufacturers in Tennessee to advanced battery manufacturers in Michigan, clean energy is breathing new life into American manufacturing.

More than 126 companies, cities and organizations are creating these critical clean energy jobs, according to the 137 announcements that E2 identified in the past quarter. They include manufacturing plants, power generation projects, energy efficiency retrofits and other projects in 42 states and 101 congressional districts. If all these announcements from the last three months come to fruition, as many as 46,000 jobs could be created.² Read on for more details, and for profiles of clean energy companies that are making a difference today—and tomorrow.



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ENVIRONMENTAL ENTREPRENEURS®

The Independent Business Voice for the Environment

In the first quarter of 2012, we have observed:

JOBS ARE BEING CREATED ACROSS THE ENTIRE COUNTRY

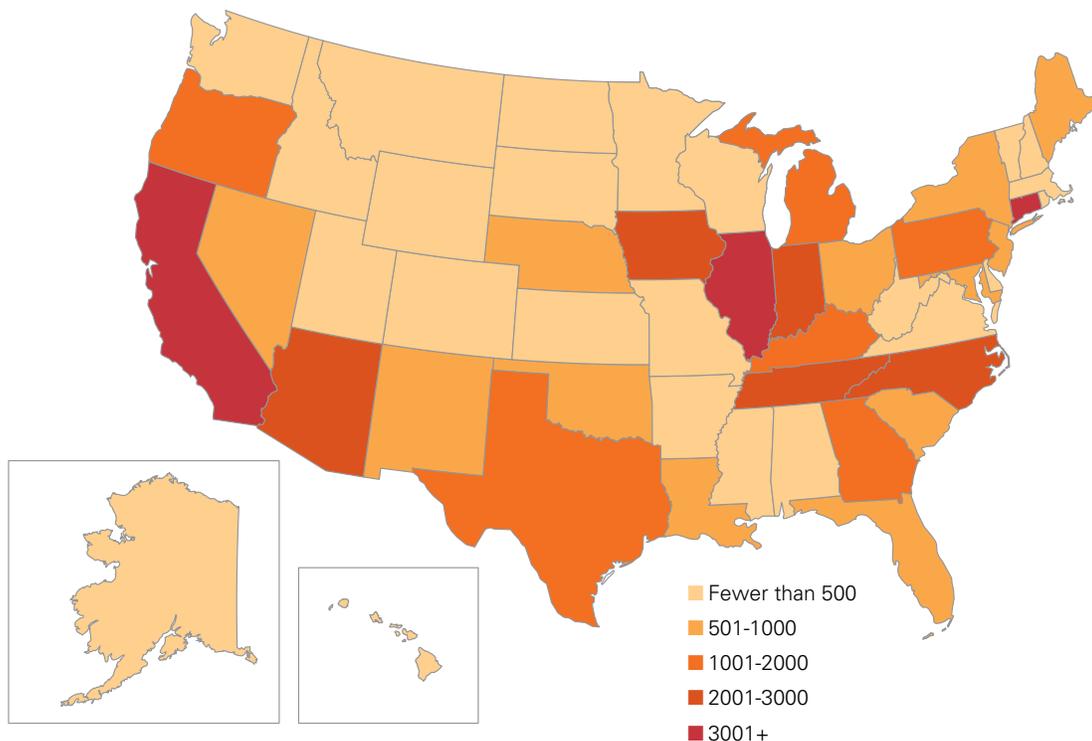
Job announcements came from 42 states; more than half had more than two clean energy announcements. About two-thirds of the jobs announcements came from 10 states, including many—like Indiana and Tennessee—that have been especially hard hit by the recession.

RANK*	STATE	PROJECTS ANNOUNCED	JOBS ANNOUNCED IN Q1 2012			
			PROJECTS IN OPERATION**	PROJECTS IN PROGRESS**	PROJECTS ANNOUNCED**	TOTAL
1	Connecticut	2	-	-	4,500	4,500
2	Illinois	6	200	216	4,060	4,476
3	California	13	283	1,650	1,862	3,795
4	Indiana	4	-	2,300	525	2,825
5	Tennessee	8	-	-	2,543	2,543
6	Iowa	4	-	-	2,398	2,398
7	Arizona	6	-	1,600	776	2,376
8	North Carolina	8	170	1,756	371	2,297
9	Oregon	6	-	40	1,935	1,975
10	Texas	6	295	286	1,100	1,681

* States have been ranked by the number of jobs announced in media reports over the past 3 months.

** "In Operation" denotes that an energy project has gone live or a manufacturing facility is on line; "In Progress" is used for any project in construction or any program that has been initiated; and "Announced" captures those projects in earlier stages of development.

Total Jobs Announced by State in Q1 2012



TENNESSEE IS EMERGING AS A CLEAN ENERGY MANUFACTURING HUB

Since January, E2 has tracked announcements for 8 projects in Tennessee, cumulatively creating up to 2,543 jobs. This is the fifth-highest number of jobs announced in any state in the past three months. Several solar manufacturing companies have announced new solar panel plants or plans to hire more workers in already operating plants. Hemlock Semiconductor is completing a solar manufacturing plant by late 2012, which will employ 500 workers. Electric vehicles are adding additional charge to Tennessee's economy; Nissan plans to build a \$1.7 billion facility for its Leaf and lithium ion battery packs. What's more, at least five other car companies have announced plans to bring their manufacturing operations—and thousands of jobs—to Tennessee.

Not only are these jobs creating new economic opportunities in Tennessee, but also better paying ones. A Brookings Institution study found that the median wage for a job in Tennessee's clean economy—\$37,347—is nearly \$5,000 higher than the median wage for all jobs in Tennessee.³ Brookings found similar numbers for the rest of the United States.

Liquid Environmental Solutions



© Liquid Environmental Solutions

Polluted water and land increases our health care costs, hurts industries like tourism and agriculture, and raises our taxes to pay for clean up and enforcement. Liquid Environmental Solutions (LES) was founded on the principle that protecting our environment

isn't just good for people, animals, and plants – it's also good for business. Founded in 2002, LES provides a best-in-class compliance solution to Clean Water Act standards through the collection, treatment, and disposal of non-hazardous liquid waste, and is now the largest provider of grease trap collection services in the nation.

Based in Dallas, TX and San Diego, CA, LES directly employs 361 employees and has 14 facilities and collection operations in 29 states, including Arizona, Nebraska, Illinois, and several Mid-Atlantic, Midwest, Northeast, Southern and West Coast states. For more information about Liquid Environmental Solutions, please visit www.liquidenviro.com. LES is a portfolio company of Craton Equity Partners, where E2 member Tom Soto is a managing partner.

Solazyme, Inc.



When the U.S. Navy went looking for biofuels, it turned to Solazyme, Inc. The company is one of several suppliers selected by the Department of Defense's Defense Logistics Agency to provide more than 450,000 gallons of biofuel to

the Navy to use in its Green Strike Group demonstration. It is the largest biofuels purchase in government history. The biofuel from Solazyme and others will be mixed with aviation gas or marine diesel fuel for use in Navy ships and aircraft. It is a drop-in fuel, which means that no modifications to the engines are required to burn the fuel.

"This historic contract is a major step forward for America's energy security and the advanced biofuel industry in our country," Solazyme CEO Jonathan Wolfson said announcing the defense agreement.

Solazyme turns low-cost, plant-based sugars found in microalgae into high-value oils that mirror or enhance the chemical composition of oils derived from petroleum, plants and animal fats. Solazyme currently employs 160 employees in California and Illinois, and recently began producing fuel in Riverside, Pennsylvania. Jerry Fiddler, chairman of Solazyme, is an E2 member. For more information on Solazyme, please visit www.solazyme.com.

SPOTLIGHT ON MANUFACTURING

America's economy is built on manufacturing, and clean energy companies are building on that tradition. Companies made at least 35 announcements involving clean energy manufacturing projects in the past quarter. These announcements mirror findings recently released by the Bureau of Labor Statistics, which determined that the manufacturing sector leads in the creation of "green goods and services" jobs that now employ a total of 3.1 million Americans.⁴ Jobs in manufacturing add more value on an export-basis to the U.S. economy than jobs in the economy as a whole. This further reinforces the finding from Brookings Institution that a job in the clean economy has a median export value twice that of a job in the economy as a whole.⁵

THESE JOB ANNOUNCEMENTS SHOW CLEAN ENERGY SHOULD BE A BIPARTISAN ISSUE

These announcements for new, better-paying jobs span 101 congressional districts, Democratic and Republican alike. A total of 54 clean energy projects were announced in Democratic districts and 70 in Republican districts. 13 projects spanned more than one congressional district, overlapping districts represented by Democratic and Republican lawmakers.

JOBS ARE BEING CREATED ACROSS A WIDE RANGE OF CLEAN ENERGY SECTORS

In addition to geographic diversity, there is tremendous diversity in project type. No single sector is responsible for these jobs announcements. New power generation projects—including solar, wind, and biomass power—and clean technology manufacturing led the projects and jobs this cycle.

SECTOR	PROJECTS ANNOUNCED	JOBS ANNOUNCED IN Q1 2012			
		PROJECTS IN OPERATION	PROJECTS IN PROGRESS	PROJECTS ANNOUNCED	TOTAL
Power Generation	68	5,428	5,746	6,968	18,142
Wind Power	31	4,521	1,770	2,828	9,119
Solar Power	29	652	1,670	3,415	5,737
Biomass Power	4	-	6	725	731
Geothermal Power	2	255	2,300	-	2,555
Other	2	-	100	95	386
Manufacturing	35	907	2,055	7,144	10,106
Electric Vehicles	12	-	1,739	2,458	4,197
Solar	10	83	316	3,450	3,849
Wind	8	806	-	526	1,332
Other	5	18	-	710	728
Energy Efficiency	17	319	100	5,700	6,119
Public Transportation	5	-	2,999	6,335	9,334
Biofuels	5	-	-	608	608
Other	7	-	-	4,346	4,346

COMPANIES AND PROGRAMS LARGE AND SMALL, START-UP AND ESTABLISHED, ARE CREATING JOBS

The jobs announcements over the three months feature a wide range of companies: major multinational corporations like GE, Nissan, and General Motors, as well as small, entrepreneurial start-ups. Innovative companies are also retooling their operations to take advantage of the growth in clean energy. Michigan-based Energetx, formerly a luxury yacht manufacturer, used its expertise in lightweight materials to transition into wind turbine manufacturing.⁶ The growth in clean energy is also creating promising new companies like energy storage investment company Townsend Energy Solutions, solar company National Solar Power, wind turbine blade manufacturer Blade Dynamics, and many others.

FEDERAL AND STATE SUPPORT MOVES MANY JOB-CREATING PROJECTS FORWARD

Project announcements such as many of the ones below illustrate the critical role that federal, state and local governments play in creating clean energy jobs. Government-backed projects are creating thousands of good-paying clean energy jobs all across America. These are jobs that wouldn't exist otherwise, providing a lifeline for workers in areas that were hard-hit by the recession.

STATE AND LOCAL GOVERNMENT	
City of Atlanta Atlanta, GA	In February, Atlanta broke ground on its new streetcar which will increase mobility between downtown and the greater Atlanta region. With both federal and local financing, the project is expected to create 939 construction jobs and 460 full-time jobs.
City of Chicago Chicago, IL	The City of Chicago announced plans to spend as much as \$225 million to make all city buildings more energy efficient; Retrofit Chicago will target more than 1,000 city buildings, saving up to \$20 million annually in energy costs, and be an employment opportunity for 2000 construction workers.
Wisconsin: Focus on Energy State of Wisconsin	Wisconsin's Focus on Energy initiative has created 41 jobs statewide through its residential energy efficiency programs; the project works with Wisconsin residents and businesses to manage rising energy costs, promote in-state economic development and protect the environment.
COMPANIES	
Wacker Polysilicon Charleston, TN	Wacker Polysilicon is currently building a new \$1.8 billion solar manufacturing plant near Charleston; the project will pump an estimated \$65 million into the community through salaries and wages for its projected 600-person staff. Helping expedite the project is a one-time \$1 million property tax abatement.
E.ON Climate & Renewables Madison County, IN	E.ON Climate & Renewables has started construction on its \$150 million-200 million Wildcat Wind Farm in Madison County, IN. The 200MW wind farm will generate enough electricity for 40,000 to 60,000 homes. The Madison County Council gave the project a tax abatement to get it off the ground, and between 300 and 400 workers will be needed to complete construction.
Blade Dynamics New Orleans, LA	Using state tax credits, UK-based Blade Dynamics set up shop 15 months ago at the Michoud Assembly Facility in New Orleans East, and plans to hire 600 workers through 2015. The factory's first American-made wind turbine blade is being tested for certification.
Siemens Woodward, OK	Siemens announced the opening of a new 64,000 sq. ft. wind turbine distribution center in Woodward, OK; more than half of the 14 employees already hired are veterans, and up to 50 fulltime jobs are expected over the next 5 years.
Townsend Energy Solutions Wixom, MI	Townsend Energy Solutions announced plans to transform a Ford assembly plant into a renewable energy park for efficient vehicles and smart grid technologies; the Michigan Economic Growth Authority approved several tax credits for the \$237-million project, which will add 36 jobs in the first year and 875 over the next 5 years.
GE Louisville, KY	GE announced that it is launching production of its GeoSpring energy-efficient water heater at the Appliance Park complex, its first new product line onsite since 1957. The company is investing \$800 million in the new production line and has received \$24.8 million in tax credits to assist the expansion, which will require 1000 fulltime workers by 2014.
National Solar Power Liberty County, FL	National Solar Power recently announced an agreement with Liberty County, Florida to build a 100MW solar farm; the project consists of five 20MW projects and will employ up to 100 workers during construction.

For a full listing of job announcements from past weeks and to see new reports in the weeks ahead, please visit www.e2.org/cleanjobs.

SunPower Corp.



Workers at the California Valley Solar Ranch in San Luis Obispo, Calif. © SunPower Corp.

SunPower Corp. designs, manufactures, and delivers the highest-efficiency solar cells, solar panels and solar systems commercially available today. Based on world record solar cells with a minimum efficiency of 22 percent, SunPower solar panels produce up to 50

percent more power than conventional solar systems. The company helps residential, business, government, and utility customers protect against rising energy costs and increase savings on utility bills.

Headquartered in San Jose, Calif., SunPower employs approximately 5,200 people at locations around the world. In the U.S., SunPower employs approximately 1,100 people, while more than 6,000 people are employed at 400+ independent dealer partners in 300 cities across 42 states.

Julie Blunden, executive vice president, public policy and corporate communications; Renée Robin, director of permitting, UPP Americas; and Kari Smith, director of regulatory affairs are E2 members. For more information about SunPower (NASDAQ: SPWR), please visit www.sunpowercorp.com.

Classic Metal Roofing



Company President Todd Miller, left, describes the Classic Metal Roofing manufacturing process in their Ohio factory. Credit: Lauren Kubiak

Classic Metal Roofing, based outside of Dayton in Piqua, Ohio, manufactures durable roofs that cut down on air conditioning costs while also minimizing raw resource consumption. With a heat reflective coating, air gap in middle to act as an insulating thermal buffer, and mostly recycled metal content, the durable roofs provide a much

more environmentally sound alternative to asphalt roofs—the metal roofs' paint alone has an integrity warranty almost triple the lifespan of asphalt shingles (40 years vs. 17).

The family company was founded in 1980 by current president Todd Miller's father. Making their roofs from recycled materials since early on, their steel roofs currently contain 35 percent recycled content, while their aluminum roofs are almost entirely comprised of recycled metal. The company currently employs 45 people in Piqua, with more workers in other U.S.-based factories.

For more information on Classic Metal Roofing, please visit www.classicmetalroofingsystems.com.

Endnotes

- 1 This data only covers job announcements of media reports and is not an exhaustive tally of job creation in the clean economy.
- 2 These job announcements are from projects and programs in various stages of development. We have broken the projects and programs out into three categories—in operation, in progress, and announced—to accurately reflect their current stage of development. Note that not all of these announced projects and programs may be put into operation, and so the exact number of jobs from these past 3 months of coverage could vary.
- 3 Brookings Institution Metropolitan Policy Program. Sizing the Clean Economy in Tennessee, via http://www.brookings.edu/~media/Files/Programs/Metro/clean_economy/clean_economy_profiles/states/47.pdf
- 4 Bureau of Labor Statistics, U.S. Department of Labor. Employment in Green Goods and Services – 2010, via <http://www.bls.gov/news.release/pdf/ggqcew.pdf>
- 5 Brookings Institution & Battelle's Technology Partnership, Sizing the Clean Economy: A National and Regional Green Jobs Assessment, July 2011, via http://www.brookings.edu/~media/Files/Programs/Metro/clean_economy/0713_clean_economy.pdf, p. 4.
- 6 <http://www.michiganadvantage.org/Stories/Energetx-Composites-LLC-plans-to-invest-37-million-in-Holland/>



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Environmental Entrepreneurs (E2) is a national community of business leaders who promote sound environmental policy that builds economic prosperity. E2 is the independent business voice for the environment. We provide a non-partisan resource for understanding the business perspective on environmental issues. Working with our public and private partners, E2 shapes state and national policy that's good for the economy and good the environment. www.E2.org.