

2015

CLEAN ENERGY WORKS FOR US: Q3 2015 JOBS REPORT

PRESENTED BY



Environmental Entrepreneurs

In the third quarter of 2015, clean energy and clean transportation continued to create American jobs and drive economic growth. By tracking job announcements from companies; federal, state and local programs and initiatives; the media; and other sources, Environmental Entrepreneurs' (E2's) jobs reports show how and where clean energy and clean transportation work in the United States.

For more details, including state-by-state breakdowns and more clean energy jobs stories, visit www.cleanenergyworksforus.org or contact Jeff Benzak at jeff@e2.org.

**Good for the Economy.
Good for the Environment.**

THIRD QUARTER IN REVIEW

In the third quarter of 2015, 34 clean energy and clean transportation projects were announced across 22 states. Combined, these projects are expected to create just shy of 10,000 jobs, with solar once again the top sector.

Utah, California, and Colorado led the nation in job announcements, followed by Texas, Arizona, Georgia, Maine, Nebraska, Mississippi, and North Dakota.

Since E2 began tracking jobs in 2012, more than 250,000 clean energy and clean transportation jobs have been announced.

UTAH HIVE OF CLEAN ENERGY ACTIVITY

In Utah, solar and wind installation projects propelled the state to the top spot with nearly 3,000 announced jobs. This is the fourth consecutive quarter Utah has cracked the Top Ten.

Q2 TOP 10 STATES		
	STATE	JOBS ANNOUNCED
1	Utah	2,950
2	California	1,916
3	Colorado	850
4	Texas	785
5	Arizona	725
6	Georgia	500
7	Maine	400
8	Nebraska	365
9	Mississippi	250
10	North Dakota	210

Most Utah solar jobs were announced by SolarCity and Vivint, which both want to expand operations in the Beehive State. SolarCity announced plans to open a regional corporate headquarters in Utah, which over the next decade is expected to create thousands of jobs and generate nearly \$100 million in investment.

Vivint, which is headquartered in Utah, announced plans to expand operations and go on a hiring binge over the next 10 years. These new jobs are expected to have wages higher than the Utah County average, further boosting the economy and continuing the overall trend of high-paying clean energy jobs.

Additional Utah jobs are expected to be created from the Four Brothers solar project in Beaver County and the Three Cedars solar project in Iron County. Both are being developed by major solar developer SunEdison in a joint venture with power production and transport company Dominion. Cumulatively, the projects will generate enough electricity to power more than 126,000 homes; the Four Brothers project alone will inject \$66 million in direct property and income taxes over 20 years.

In Utah's San Juan County, a new wind farm is expected to add 100 jobs and 61 MW of clean, renewable electricity to the state's grid.

CALIFORNIA'S STRONG POLICIES MEAN MORE JOBS, LESS CARBON

Since E2 began tracking job announcements in 2012, California has consistently attracted the kinds of companies that have helped make it the top state in the nation for clean energy jobs — some 430,000 in all, according to BW Research Partners. The third quarter was no different. From July through September, there were five announcements for solar projects in California. Combined, these projects could create about 2,000 jobs.

With the passage in September of the Clean Energy and Pollution Reduction Act, or SB 350, the state sends another strong, clear market signal to the private sector. This market signal will continue to attract companies seeking to profit off expansion of California's clean energy economy. The new law requires that by 2030, all of California's electricity providers must source at least 50 percent of their electricity supply from

CASE STUDY

AT MICH. HOSPITAL, SUMMER INTERN LEAVES ENERGY-EFFICIENT LEGACY

PHOTO COURTESY OF METRO HEALTH



A college intern at Metro Health Hospital in Grand Rapids, Mich., instituted a successful sustainability program with a budget of exactly zero dollars.

The word “intern” may bring to mind coffee runs, cubicles, and spreadsheets — but sometimes interns buck the stereotype and substantially impact an organization.

That was the case with John Ebers, a former undergraduate intern who successfully launched Grand Rapids, Mich.-based Metro Health Hospital’s entire sustainability program with a budget of zero dollars.

During his 2004 internship, Ebers was tasked with developing and implementing plans to help the 208-bed hospital become more sustainable. Beginning with a recycling program and then moving on to more complex energy initiatives, Ebers laid the groundwork for the hospital’s present-day waste management and energy-efficient practices.

At the end of his internship, Ebers was offered a job as Metro Health’s sustainable business officer. Soon after, Metro Health became the first hospital in Michigan with LEED-certified facilities.

“[Our sustainability mission] really started with an intern, challenging him to ‘green’ Metro Health but not spend any money,” says Ellen Bristol, the hospital’s director of media relations. “He did a phenomenal job, being personable, getting people involved, and he made things really easy, pointing out successes and that it wasn’t going to cost anything.”

Thanks to its institutional commitment as well as rebates and incentives offered statewide and locally, Metro Health has since developed a comprehensive energy strategy. Recently,

the hospital used a grant from the Michigan Department of Environmental Sustainability to monitor rainwater and runoff, and state-level rebates have allowed the hospital to replace all parking lot lights with energy-efficient LED lightbulbs, tune up its boiler system annually, and hire independent engineers to analyze the hospital’s energy processes and systems.

Robert Van Rees is Metro Health’s director of facilities. He said energy audits or commissioning more energy efficient processes was expected to cost Metro Health \$13,000. But because of rebate programs, the hospital got \$12,000 back, he said.

“All I had to do was commit to \$5,000 worth of projects that they recommended, which we’ve already fulfilled,” Van Rees said.

Van Rees estimates that Metro Health saved \$150,000 over the next year thanks to the engineers’ audits.

Metro Health also participated in the 2015 Michigan Battle of the Buildings competition, which annually recognizes buildings that have reduced their energy consumption the most. After reducing consumption by 2 percent in 2014, Metro Health took first-place in the medical division.

“It was actually pretty difficult, when you look at our hospital being LEED-certified already,” says Van Rees. “So there wasn’t much low-hanging fruit for us.”

Van Rees estimates the energy reductions from the Battle of the Building Competition saved Metro Health upwards of \$60,000.

With a foundation laid by a former intern, and under Van Rees’ direction, sustainability and energy efficiency has transformed Metro Health.

“Sustainability is one of those things that started off as, ‘Hey, it could be cool, let’s give a guy an internship,’” said Bristol. But now it’s, ‘Hey, there’s a lot of good business practices here.’”

— *Environmental Entrepreneurs*

CASE STUDY

VIRGINIA HOSPITAL SEES BIG ENERGY SAVINGS IN O.R., ACROSS OPERATIONS

PHOTO COURTESY OF SENTARA MARTHA JEFFERSON HOSPITAL



Sentara Martha Jefferson Hospital in Charlottesville, Va., has found that energy efficiency has the dual benefits of saving money and improving patient care.

Sentara Martha Jefferson Hospital's sustainability efforts are on full display in its new building, which was completed in 2011.

One of Jefferson's most rewarding initiatives is the installation of LED surgical lights in many of its operating rooms.

These lights serve a dual purpose: eliminating shadows that can make surgeries more difficult, and reducing heat generation in operating rooms by 90 percent.

Operating rooms are the largest electricity users at Jefferson. Previously, they needed to be heavily cooled, so the new lights save the hospital money and power. Thanks in part to the operating room LED installations, the hospital's overall energy costs have dropped dramatically — from \$3.50 per square foot to \$2 per square foot.

As the hospital continues to implement additional energy efficiency projects, Mike Spatz, director of facilities, recognizes the progress made in recent years.

"Last year was one of our first full years when everything was working well, and we saved \$300,000 from the year before," he said.

The building's efficient construction rests on a foundation of earlier environmental initiatives, including a complex recycling program Sentara Martha Jefferson implemented more than 25 years ago.

"It's not like we started our sustainability program out of the blue," said Bill Weingold, director of environmental services. "Our program evolved and got more and more detailed and diverse as the years have gone on."

Nonetheless, Weingold maintains that the building presented an invaluable opportunity for their program to grow.

"When we found out we were in the midst of planning to build a new facility, I think intensity really grew in terms of what our opportunities were," he said.

"When you build something like this, you don't realize your savings on day two of your operation — it takes a couple of years," Spatz said. "We set out in the design process to meet requirements with the most affordable energy efficiency producing equipment we could find. We got what we could afford, and it's starting to really work."

The campus also includes a water-retention pond, which captures 95 percent of runoff from parking lots and provides all water for landscaping.

— *Environmental Entrepreneurs*

renewables like wind and solar. California is already on track to meet this goal.

SB 350 also directs state agencies to help double energy efficiency of buildings and businesses statewide. This measure, combined with the renewable energy goals, will cut emissions 40 percent below 2020 forecast levels.

COLORADO’S WIND,
SOLAR INDUSTRIES EXPAND

Wind turbine manufacturing and solar generation lifted Colorado to a Top 10 ranking for the fifth consecutive quarter.

Major wind manufacturing company Vestas Wind Systems announced the addition of 200 to 300 construction jobs at its plant in Windsor, and another 150 construction jobs at its facility in Brighton. In Pueblo, Renewable Energy Systems Americas could add another 400 jobs to its solar farm, which when completed next year will be Colorado’s largest.



Colorado’s recent wind announcements build on past successes. As outlined in E2’s June 2015 “Winds of Change” report, the Colorado wind industry has to date created between 6,000 to 7,000 jobs at 22 manufacturing plants and 29 operating wind farms.

Another recent Colorado-focused E2 report — “Plugged in to Energy Efficiency” — shows that investing in energy efficiency is the simplest, cheapest and fastest way for the state to meet the federal Clean Power Plan, which sets the first-ever limits on the amount of carbon pollution power plants are allowed to emit.

Colorado is already in a strong position to meet the standards, given the state’s long history of enacting commonsense policies like its Renewable Portfolio Standard, or RPS, which sets a baseline for the amount of renewable energy the state must generate to meet overall electricity demand.

ONCE AGAIN, SOLAR A BRIGHT SPOT

For the fourth consecutive quarter, solar was the top sector driving Q3 2015 job growth. At more than 20 solar projects

Q2 SECTOR BREAKDOWN		
SECTOR	NUMBER OF JOBS ANNOUNCED	NUMBER OF ANNOUNCEMENTS
Renewable Energy	8,739	29
Generation (Solar)	6,629	20
Generation (Wind)	2,110	9
Manufacturing	1,260	5
Solar	810	3
Wind	450	2
TOTAL	9,999	34

located across the country, about 7,300 jobs were announced either in the solar power generation or solar manufacturing industries. Declining materials costs and favorable policies have spurred recent growth; however, if Congress does not quickly move to extend the federal Investment Tax Credit before its 2016 sunset, the industry could face challenges with layoffs on a scale similar to what occurred in recent years when Congress allowed the wind Production Tax Credit to expire.

Nationwide, wind was the No. 2 sector with more than 2,500 jobs across nine projects in generation and two in manufacturing.

IN HOSPITALS, CLEAN ENERGY
LOWERS COSTS, CLEANS AIR,
IMPROVES PATIENT HEALTH

Hospitals have one primary mission: to provide high-quality care for patients. And increasingly across the country, investing in energy efficiency is helping hospitals achieve this goal.

Because of energy-intensive life-saving equipment, busy operating rooms, and a need for constant air circulation, hospitals are the second-largest industrial consumers of energy in the U.S. Combined, hospitals consume more than 8 percent of the nation’s total energy, at a cost of \$9 billion annually.

CASE STUDY

FEDERAL TAX CREDITS HELP VA. SOLAR COMPANY GROW

Paul Risberg, president of Charlottesville-based solar company Altenergy, is the first to point out that renewables have faced an uphill climb in Virginia. The state has traditionally had low fossil fuel-based energy costs and its government has offered few incentives for clean, renewable energy.

When Risberg started Altenergy in 2005, there were less than 2 megawatts of solar power capacity installed in the entire state; a decade later, there are only 14 megawatts — far underperforming the increase of solar in neighboring states like North Carolina, which has more than 1,000.



PHOTO COURTESY OF ALTENERGY

Altenergy's president thinks policies like the federal solar tax credit have been helpful in growing small businesses in Virginia.

Nevertheless, Altenergy has steadily grown over its decade in business, having completed 600 installations totaling to 2.9 megawatts combined. In 2015, Altenergy expects to install 1.5 megawatts of solar capacity in the commonwealth alone.

The company's 30 employees have helped it expand into nearby Maryland as well as Idaho and Georgia.

Initially, Altenergy's primary market was small residential systems between 5–7 kilowatts. While residential solar remains a substantial part of Altenergy's business, it has increasingly moved into commercial installations, from 50-kilowatt systems up to 500 kilowatts. Risberg estimates that commercial installations now constitute nearly 70 percent of his business.

Altenergy is involved in a variety of projects that utilize the federal Rural Energy For America Program (REAP), which awards grants to qualifying small businesses to cover 25 percent of the cost of a renewable energy system. The REAP grant, combined with the federal 30-percent tax credit, makes installing a solar system attractive financially: 55 percent of the cost covered with the promise of future reductions — if not elimination — of electricity bills.

Altenergy is currently working on a half-dozen such projects, including a carpentry workshop, a trucking company and a flower shop.

Risberg applauds the 30-percent federal investment tax credit, which unless Congress acts is set to expire at the end of 2016.

"Works like a charm," Risberg said. "Works like it's supposed to."

— *Environmental Entrepreneurs*

Energy-efficient lighting, building improvements, and employee education programs are several strategies hospitals are implementing to reduce energy consumption and save money on their electric bills.

For example, Sentara Martha Jefferson Hospital in Charlottesville, Va., cut \$300,000 off its operating expenses in 2014 by adding occupancy sensors, installing LED lighting in operating rooms and reducing the need for cooling.

For a profile of Jefferson hospital, please see Page 4. For a profile of the energy efficiency measures at another energy efficiency hospital — Metro Health in Michigan — please see Page 3.

NEW INTERNATIONAL MARKET OPPORTUNITIES FOR U.S. BUSINESSES

Countries from around the world will gather in Paris this December to negotiate a major international climate agreement. Already, nearly 150 countries responsible for about 90 percent of the world's climate pollution have announced concrete carbon emission-reduction commitments.

One of the most cost-effective ways for countries to curb emissions is to add renewable power generating capacity and invest in energy efficiency.

Because of this, U.S. clean energy business leaders have expressed optimism heading into the conference that the sector is poised to grow internationally, creating massive, multi-trillion-dollar new market opportunities for American companies. And as clean energy markets grow, future job growth in the sector can be expected.

CLEAN POWER PLAN, SB 350, PRIVATE SECTOR COMMITMENTS SECURE U.S. LEADERSHIP ROLE HEADING INTO PARIS

Heading into the conference, the U.S. is setting a strong example for how to cut carbon while creating clean energy jobs:

- Over the summer, the Environmental Protection Agency finalized the Clean Power Plan, which sets the first-ever carbon

pollution limits on domestic power plants. Across the U.S., the plan will help reduce power-sector carbon emissions 32 percent from 2005 levels by 2030, sending a strong, clear market signal to the private sector to increase job-creating investments in renewables and energy efficiency.

- States and cities are also showing how innovative, subnational policies like California's SB 350 (See Page 2) help expand clean energy employment opportunities while slashing carbon emissions.
- As highlighted in a mid-October event at the White House, scores of businesses — from blue-chip, name-brand companies to small- and mid-sized businesses run by E2 members in states like Missouri and Ohio — have pledged to cut carbon emissions from their operations by investing in more energy efficiency and renewables. The 80-plus companies that have signed the American Business Act on Climate Pledge employ a combined 9 million people and represent more than \$3 trillion in annual revenue.

CONCLUSION

To continue clean energy job growth, federal and state policymakers must provide businesses with the regulatory certainty and strong market signals they need to make new investments and expand operations.

Implementing the federal Clean Power Plan is one of the most important steps policymakers can take, right now, to ensure the industry achieves its potential.

The Clean Power Plan is also helping set the stage for a strong international climate agreement in Paris, which would accelerate the world's transition to a clean energy future — and in the process create vast new market opportunities for innovative U.S. companies currently developing cutting-edge clean energy technologies.

Additionally, long-term extension of the Production Tax Credit for wind and the Investment Tax Credit for solar would continue to expand the growth of clean, renewable energy businesses and create good, high-paying jobs for workers across the nation.

E2 JOB TRACKING METHODOLOGY

OVERVIEW: E2 primarily draws job announcement figures from articles that run in local and national news outlets. The media stories E2 tracks mention specific projects and specific job-hiring data in the renewable energy, energy efficiency, and public transportation sectors. Since E2 began tracking job announcements in 2011, this method of job announcement tracking has been used about 95 percent of the time. For the roughly 5 percent of occasions when an article mentions a project — but no other job numbers are found — E2 at our own discretion may use job estimates cited on developer Web sites or in publicly available permits.

JOB TYPE: Only direct jobs are counted; E2 does not count indirect or induced jobs. If an article includes indirect or induced job numbers, E2 determines direct job creation estimates.

ESTIMATES: Some announcements are rough estimates, as developers are inclined to make statements like “few hundred,” “couple hundred,” or “thousands.” In each of these instances we count the minimum — such as 200 or 2,000. If more specific numbers, either higher or lower, are released, E2 updates databases accordingly.

SECTORS INCLUDED: Wind, solar, advanced biofuels, geothermal, energy-efficient appliance manufacturing, building retrofits, rail systems, public transportation infrastructure, smart meters,

transmission improvements, combined heat and power, clean-tech education centers, recycling facilities, etc.

TIMEFRAME: Job numbers are assigned to quarters based on publication dates of news articles. Also pegged to publication dates is a four-year total timeframe that determines whether announced jobs can be counted. This timeframe includes jobs created one year prior to the announcement, and it also includes jobs expected to be created at any point within the three years immediately following the announcement.

STATUS: E2 qualifies jobs within three categories:

- **Announced:** Project received permits/approval, but construction not yet commenced.
- **Under Construction:** Project in physical development. Construction workers employed, permanent jobs not yet created.
- **Operational:** This category contains two types of announcements:
 - Project built, permanent jobs being created, construction workers no longer on site.
 - All jobs created. Project developer retroactively examining employment numbers.

For more details, including a state-by-state breakdown and stories that show what’s happening in the clean economy near you, check out

www.cleanenergyworksforus.org



Environmental Entrepreneurs (E2) is a national, nonpartisan group of business leaders, investors, and professionals from every sector of the economy who advocate for smart policies that are good for the economy and good for the environment. Our members have founded or funded more than 2,500 companies, created more than 600,000 jobs, and manage more than \$100 billion in venture and private equity capital. For more information, see www.e2.org or follow us on Twitter at @e2org.