

## Green Jobs for Today and Tomorrow



### Family & Education

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By now, most people have heard the term green jobs, but an abundance of examples in Indiana still are hard to find — perhaps because energy consumption and everyday lifestyles are just beginning to transition to green here.

Bona fide green jobs do exist in Indiana, and all of the signs point to more in the future. Many of the jobs are new positions created in organizations to facilitate using more renewable energy or to educate Hoosiers on how to conserve energy.

### Energy Savings

At Hoosier Energy REC, Inc., a Bloomington, energy cooperative, at least six positions would be considered “green collar,” or jobs that pertain to planning and educating on the subject of sustainability.

One such job belongs to Caleb Steiner, a graduate of the Indiana University School of Public Environmental Affairs.

As a renewable energy specialist, Steiner seeks to educate customers by searching for the most efficient and least expensive renewable energy methods to offer them.

Four or five other positions also involve working with cooperative members to help them make lifestyle changes to cleaner energy. That includes educating consumers on ways to reduce overall energy consumption, which is the cleanest energy of all, Steiner said.

“It’s what they call the negawatt,” he said. A negawatt “is not using energy,” which reduces or eliminates the need for solar panels or wind turbines. “You are just not using power, which ultimately curbs demand.”

### Recycled fuels

The City of Kokomo has used mostly current employees for its Kfuel program, which is gaining recognition around the state as an example of energy and cost efficiency, said Randy Morris, director of operations for the city. Kfuel takes used cooking oil, mostly from area restaurants, mixes it with diesel fuel and uses it in city vehicles. The result has been roughly \$1.47 in savings per gallon of diesel fuel for the city, he said.

One of the city’s green initiative positions was used to help start the program in February 2009, said Morris. “The program has been overwhelmingly successful. It gets the community involved in understanding biodiesel fuels through green initiatives, as well as being a savings to the city on diesel operating costs.”

### Wastewater plant generates energy

Approximately 100 construction jobs were necessary for the 2009 retrofitting of a West Lafayette wastewater utility to make biogas, which generates electricity to run the plant, said Doug Stout, manager on the renovation project for Bowen Engineering Corp., the general contractor.

One person or organization determined to help the rest of society make the transition to using cleaner energy can make a significant difference.

### Jobs in Agriculture

In September 2009, Purdue University announced a collaboration with Dow AgroSciences, Purdue Research Foundation and the state of Indiana to construct and operate a new research facility at Purdue Research Park in West Lafayette, and a 6,000-square-foot greenhouse near Ross Enterprise Center. The project is expected to create at least 30 new jobs with additional employment for contract workers as they explore technologies to create new crops.

Building up the local and regional food infrastructure with more uniform processing standards will enhance the marketplace for local food distribution, and ultimately produce more revenue and jobs, said Annie Schmelzer, program manager for Entrepreneurship and Diversified Agriculture at the Indiana State



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Schmelzer also expects more jobs in the area of cellulosic ethanol production, which means converting plant-based material to ethanol, she said. "It's kind of the next step in the evolution of biofuels, and so we are right on the cutting edge of new jobs being allocated for that development."

### Potential not yet realized

By far, the largest block of green jobs in Indiana is in its potential to develop them. A report conducted by the Renewable Energy Policy Project, a Washington, D.C.,-based organization, shows that Indiana is second only to Illinois in the number of manufacturing jobs to be created in clean energy among 11 states. The mammoth potential for renewable energy jobs in Indiana was echoed in a report, "A Clean Energy Economy for Indiana: Analysis of the Rural Economic Development Potential of Renewable Resources," released in October 2009 by the Natural Resources Defense Council, an international non-profit organization that advocates for the world's environment and public health.

Indiana is primed to become a hub and a center for renewable energy — perhaps the best potential in the country — given its resources and its proximity to eastern load centers, which distribute power, according to the study's author Martin R. Cohen, an independent energy analyst. In this respect, it is more competitive than other Midwestern states, including the Dakotas and Nebraska.

Cohen said, "Indiana has some of the richest land in the world," which is a perfect blend of agricultural areas and urban centers for manufacturing. The transformation could generate thousands of renewable energy jobs.

### New Technologies

Some of those jobs will likely come when Energy-Inc., opens a facility in Elkhart County. The company uses advanced thermal conversion, or high heat, to convert different kinds of waste into different kinds of energy. If all goes as planned, Energy-Inc. is expected to create about 500 permanent jobs at the facility, and 1,500 additional positions related to its operation. The Las Vegas-based company retrofitted a former manufactured housing plant, with initial operations that began last fall, said Kim Kirkendall, president and chief executive officer.

Advanced thermal conversion takes waste, such as plastics and rubber, and turns it into energy, specifically, a synthetic gas that can be turned into electricity or a liquid form of fuel. Although the technology uses high heat, there is no incineration involved, and it's clean technology that accelerates the decomposition of wastes, said Kirkendall.

The retrofitted facility will manufacture the equipment necessary to use the technology, and that equipment will be sold to organizations and institutions around the world. The equipment will be licensed by the U.S. Environmental Protection Agency and the state of Indiana, he said.

Energy-Inc. chose Indiana and Elkhart County because of its manufacturing workforce and its location. Elkhart was thrust into the spotlight when President Obama made it his first stop outside of Washington in early 2009 to promote the legislation that was to become the American Recovery and Reinvestment Act. The Elkhart and Goshen metro areas have the highest unemployment rate in the state, hovering around 16 percent, according to the Bureau of Labor Statistics. "It's simple," Kirkendall noted. "They have a tremendous need there, and it is centrally located between the major metropolitan areas of Chicago, Indianapolis, Detroit and Toledo, where we need to get our materials."

### Incentives Key

Although Energy-Inc. is a good beginning, reaching Indiana's potential to produce clean energy jobs will be difficult without better economic incentives to attract manufacturers to Indiana, said Jesse Kharbanda, executive director of the Hoosier Environmental Council.

"Around 40,000 clean energy manufacturing jobs could be drawn to the state due to our ability to retrofit various manufacturing sub-sectors, like automobile components to produce clean energy manufacturing components, such as gearboxes for wind turbines," Kharbanda said.

Energy analyst Cohen suggested those incentives may include tax, spending and regulatory policies to create a marketplace for renewable energy, and that marketplace would create jobs.

### Solar Options

Indiana's obvious potential to be a renewable energy hub was reinforced by another source, but this time in the area of solar energy. Mark Pinto, chief technology officer for Applied Materials, Inc., a California company specializing in nanomanufacturing, including solar photovoltaic cells and energy efficient glass, has lectured at Purdue University about Indiana's ability to be a manufacturing and consumer center for solar energy, such as Eastern Germany.

Economic incentives don't mean cheaper labor, but stronger corporate and governmental policies that make the best financial sense for manufacturers, Pinto said. With solar, several different kinds of manufacturing jobs will be necessary.

"One is at the factory itself, but then from the factory upstream, there are jobs to produce the glass and the materials that would go into the factory. There are jobs on the solar installation side, as well as jobs to produce other materials necessary including the electronics," Pinto said.

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### Wind Energy At High Speed

Indiana is generally known more for wind energy than solar, with commercial ventures such as the Benton County Wind Farm and the Fowler Ridge Wind Farm up and running. Individual homeowners and businesses are also erecting wind turbines.

More customers of Indianapolis Power & Light Co., will have electricity generated by wind as a result of the Hoosier Wind Project, which began construction in Benton County in April 2009, said Sandra Briner, marketing manager at EnXco, a California-based company. It will operate the wind farm and will sell the electricity generated to Indianapolis Power & Light Co., for use by its customers. EnXco operates wind farms in at least seven other states.

The company estimates that 200 jobs were created during the construction. The wind project also involves landowners and farmers, who will receive payment for the space allocated for wind turbines to be built on their property.

"The turbines use up less than a quarter of an acre on the properties. We do build access roads to each turbine for our maintenance group," said Briner.

Between 400- to 500 construction jobs were necessary to build phase one of the Meadow Lake Wind Farm, north of Lafayette, said Stout of Bowen Engineering, contractor for phase one of the project by Texas-based Horizon Wind Energy.


### Mass Transit

Funds from the American Recovery and Reinvestment Act included allocations to develop clean energy jobs, as well as \$8 billion nationwide to develop a high-speed rail line, said Bruce Childs, deputy commissioner for communications at the Indiana Department of Transportation. The high-speed rail line in the Midwest would link major cities such as Chicago, Detroit and Indianapolis with Chicago as the hub.

The high-speed rail, part of the ninestate Midwest Regional Rail Initiative, is just in the planning stages, but it will have a significant positive impact on the environment because it will reduce road congestion, Childs said. At the time of publication, it appeared that Indiana saw the Chicago-to-Fort Wayne-to-Cleveland rail service as a higher priority than a Chicago to Indianapolis to Cincinnati route.

### More Jobs Loom

More clean energy jobs will likely be one of the results of the federal American Clean Energy and Security Act passed by the U.S. House of Representatives, but still under consideration in the Senate. In good economic times or bad, the transition to renewable energy will take place, but it's the speed of the change that is in question, said Pinto of Applied Materials.

"How fast do we want to make this change? It will happen over time, no matter what, I think, because the costs will come down, but we can accelerate it by a number of years." The key is better incentives and examining the impact that traditional types of fuel have on our environment, he added. 

If you are interested a green-related job, here are some links:

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- [GreenBiz.com](#)

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