

Clean Energy Creates Jobs, Improves Economic Growth

By Sarah Terry-Cobo

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OAKLAND, Calif. -- For at least the last year and a half, "Green Collar Jobs" has been the buzz term among those in business and policy circles as the answer to rising unemployment and reducing greenhouse gas emissions.

Two recently released reports show that the nation and states such as California can improve economic growth by employing clean energy strategies. In addition, one report states that "business-as-usual" could make California's economy worse in the long run.

The Pew Charitable Trust released a report on June 10, noting that jobs in the clean energy sector have generated significantly more jobs than the overall economy. And in an unrelated report, released June 9, "Energy Pathways for the California Economy," (PDF) compiled by the Department of Agricultural and Resource Economics at the University of California, Berkeley presents similar findings. The report by the ARE department was funded by the nonpartisan nonprofit organization, Next 10.

"The clean energy economy is poised for explosive growth," Lori Grange, who is interim deputy director of the Pew Center on the States, said in a news release. "These jobs are driving economic growth and environmental sustainability at a time when America needs both."

To come up with these calculations, the Pew Center combined information about venture capital investment in the clean technology sector with a database that tracks products and services produced by and supplied to the clean energy sector, and then cross-checked individual data on all 50 states to ensure accuracy.

While some critics may say there is a dichotomous choice between the economy and the environment, the Pew report (PDF) "The Clean Energy Economy" found that between 1997 and 2008, the number of clean energy jobs grew two and a half times faster than overall jobs. In fact, nearly \$6 billion was invested in this sector last year, which is a 48 percent increase from investment in 2007, the report states.

GreenBiz.com Senior Writer Marc Gunther provides an indepth look at the facts in his blog post today.

Globally, clean energy investments are 15 percent of all venture capital. Every state in the nation can take part in this emerging economy -- from manufacturing and installation of solar panels and wind

turbines, to recycling and waste management, to purchasing hybrid fleets for businesses and government agencies.

As defined by the Pew report, the clean energy economy represents five sectors:

- Clean energy
- Energy efficiency
- Environmentally friendly production
- Conservation and pollution mitigation
- Training and support

Tracey Grose, vice president of research and strategic development at Collaborative Economics, has worked with Next 10 to develop the California Green Innovation Index (PDF), which she said was the impetus of the Pew's Center's national report.

"The most important message is the green economy is diverse," she said in a telephone interview. "It spans almost the entire economy. There are green activities in nearly every sector," as well as in every state.

The Pew study found that by far the sector with the largest amount of jobs is conservation and pollution mitigation, which includes recycling, water conservation and preventing pollution and reducing greenhouse gas emissions such as CO₂. However, the fastest growing sectors are energy efficiency, clean energy and environmentally friendly production.

Simply by improving energy efficiency alone, Grose said, "will almost immediately turn on investment that will serve as a buffer from the recession and from volatile energy prices."

In particular, California has been one state that leads the nation in renewable energy generation, clean air standards and venture capital investments in clean energy and clean technologies. These advanced energy policies are due in part, to high population growth and to high demand in urban areas. But, per capita energy demand has remained flat in the Golden State, compared to a 60 percent increase in the rest of the nation, the "Energy Pathways" report found.

However, faced with a \$24 billion budget deficit, projected rising energy demands and increased reliance on imported petroleum products (from out of state and internationally), transition to a clean energy economy may be the most viable option for Californians.

"The short -- and long -- term implications of this state fiscal situation are daunting -- some predict a dramatic exodus of businesses, loss of jobs and erosion of academic prowess," the Energy Pathways report states in its executive summary.

"The message is fairly simple," said Professor David Roland-Holst, author of the report. "Our findings suggest energy efficiency will stimulate economic growth," noting it has in the past. He continued, saying that when households -- or businesses -- can save money on energy costs, they spend the money elsewhere, generally in the service sector, which in turn stimulates job growth.

In order to come up with these scenarios, the researchers used the latest data on renewables, combined with the integrated economic models the ARE department created and then applied this data to the State's AB32 law, the Global Warming Solutions Act, which sets emission reduction targets for the year 2020. The researchers found that the more aggressive the state is on achieving the 50 percent GHG reduction target, the more dividends for growth are created, Roland-Holst said.

"The reason is, is that renewable energy represents a different paradigm for energy supply," he continued. "Renewable resources exceed any imaginable need; the only constraint is technology."

Roland-Holst said renewable energy will soon experience a version of Moore's Law -- in which efficiency doubles every two years -- similar to how technology has advanced.

Even though the price of oil in the first week of June 2009 is about half of what it was in June 2008, Roland-Holst warns that cheap energy has not returned. "The last 41 days the price of gas has risen, which has taken \$500 million out of drivers' pockets. It is a handicap to recovery."

Overcoming the obstacles to implementing renewable resources can be achieved in the same way the U.S. won the Space Race and achieved the exponential growth of the internet, the professor said. When the government provides the right incentives, then the private sector will jump on the opportunity.

Mandating that utilities generate electricity from renewable sources, such as California's AB32 law does, "will help establish global standards for renewable technology and help the state capture that global market share," he said.

Not everyone is as optimistic as the professor, and many critics claim that such mandates are unfair to working-class people who can't afford to install solar panels or buy hybrid cars. Not to mention that many states do not have the funds to subsidize low-income families or small businesses. But Roland-Holst has an answer for this conundrum too: develop a green micro-credit system, similar to the city of Berkeley's Solar initiative, which is financed by municipal bonds.

The local legislation, again devised by UC Berkeley minds, but in the Energy and Resources Group, allows homeowners to finance solar panels by rolling the up-front capital cost into their mortgage. So if the person sold the house, the next buyer would continue to pay for the solar panels as part of the mortgage. "We know that (these schemes) are effective in the long-run," Roland-Holst said, noting that lack of affordable options is what economists call a "market failure."

But there are businesses that are seeking to change this. Reg Adams, CEO of Earthtronics and Windtronics said his company was founded in 2007 as a way to address the energy crisis, and to bring commercially viable solutions to the market. In a world with more than 6 billion people, nearly 2 billion don't have electricity, which provides an opportunity to expand their business, Adams said.

His Muskegon, Mich.-based company began with energy efficient products and services such as compact fluorescent light bulbs and individual energy audits, but Adams has expanded his company to manufacture Honeywell brand gearless wind turbines for homes and small businesses. He said he plans to open six plants to manufacture the turbines, three of which will be in the United States and each will eventually employ 200 people. The factories are only the beginning of the job creation.

In addition, Windtronics will begin training 500 turbine installers per week starting in July. "Our target market," Adams said, "[begins with the] 40 million rural homes in America; even if we only get 10 percent of those homes, that is a large number of jobs," Adams said.

The turbines will retail at about \$4,500 and will be sold in Ace hardware stores starting in October, Adams said. And customers will be eligible for a 30 percent rebate from the federal government, in addition to various state incentives. And due to the Renewable Portfolio Standard (RPS), customers will also have access to incentive or credit programs from their utilities.

In many cases, Adams said, the turbine will pay for itself after 12 months; in some cases, depending on the state's RPS, it may take three years and for those states that have not introduced their RPS program yet, it may take 10 years to pay back.

Even though this market will need subsidies to begin with, Adams knows they won't last forever. "I'm not interested in being green for sake of being green. I want to bring commercially viable, sustainable solutions to the consumer." He said his employees are passionate about it too.

"They come to work early and they stay late," he said. "It is more than a job, it has become a passion and part of their life. They care. They want to make a difference."

Outside of the clean energy sector, traditional businesses are squeezed by volatile fuel costs as well, said Grose. "Many of them see the writing on the wall and they are anticipating policy changes." But businesses need to know that clean energy policies have longevity, and often policy makers who do not serve long terms can sometimes inhibit the long-term planning that is necessary, she said.