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## California's energy efficiency an economic boon

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If President Obama is serious about creating a green economy, he should look to California.

A new report shows that, since the 1970s when the state government first started requiring more energy-efficient buildings and appliances, California has grown more prosperous and added jobs even as its citizens cut the amount of energy they use and the greenhouse gases they produce. Despite the current economic crisis, which finds the state in a budget and job quandary, the findings should provide ammunition to those who want Obama to launch a green revolution, encouraging renewable power and energy efficiency as a way of generating jobs during the recession.

The 2009 California Green Innovation Index conducted by the public policy group Next 10 tracks how the state's economy has grown over the past three decades. Cutting energy bills let California consumers and companies spend their cash on other things, and helped create 1.5 million jobs, according to the report.

"If California had not moved as forcefully to decrease energy consumption over the last three decades, we would be in a much more precarious economic position right now," said F. Noel Perry, venture capitalist and founder of Next 10. "Imagine where the country could be if it were as efficient as California."

### Assessing green economy

The index also examines the current state of California's green economy, adding up the amount of venture capital flowing into clean-tech companies and the number of patents they have received. The researchers, from the Collaborative Economics consulting firm, also counted jobs at green companies throughout California and found that they employ about 105,000 people.

The index, the second in what Next 10 plans to be an annual series, has its limitations. For example, to get a thorough count of green jobs, researchers had to use data from January 2007. Their total doesn't include the rapid growth of green-tech companies for most of the last two years, nor does it reflect the layoffs of recent months.

In addition, the index illustrates just how difficult the fight against global warming will be.

California now produces 10 percent less greenhouse gas emissions per person than in 1990, according to the report. But the state's overall emissions continue to rise along with the size of the population. Total emissions rose 4 percent between 2003 and 2006.

"The fact that per capita emissions have gone down by 10 percent in California is a pretty remarkable achievement," said Cliff Chen, senior energy analyst with the Union of Concerned Scientists. "The flipside is that California has also been one of the fastest growing states since 1990, so it's not surprising that total emissions increased."

Chen, who did not work on the index, also noted that California's landmark law limiting greenhouse gas emissions won't take effect until 2012. "The real work of reducing emissions in California is just beginning," he said.

The Green Innovation Index includes a grab-bag of economic data, from how many hybrids Californians drive to the state's growing use of solar power. Among the details:

-- From 2005 to 2007, jobs at green companies grew by 10 percent, while the state economy's overall number of jobs grew 1 percent. Green companies include those developing renewable power, new fuels or ways to use existing resources more efficiently.

-- While Californians were cutting their individual energy use and greenhouse gas emissions, the state's economy grew. Gross domestic product, per capita, rose 28 percent from 1990 to 2006.

-- California leads the nation in registering patents for green technologies and materials. The state also rakes in the most venture capital for green startup companies, reaching a record \$3.3 billion in 2008.

-- California's economy uses energy far more efficiently than the rest of the country. The amount of gross domestic product California generates for every unit of energy used is 68 percent higher than in the rest of the nation. In part, that's a reflection of the state's high concentration of high-tech businesses and relative scarcity of factories.

The report's authors say California's experience shows the potential of a green economy - to a point.

Can't offset recession

They caution that the number of jobs generated by green companies is still small, on par with the biotech industry. It probably won't make up for the hundreds of thousands of jobs disappearing across the country as the recession deepens.

"We don't want to argue that green job growth is going to save us from this recession," Perry said. "The growth year over year will be substantial, but it's not going to save us."

Economists not connected with the index agree.

Stephen Levy with the Center for Continuing Study of the California Economy said improving energy efficiency will help the national economy in the long run. But many of the jobs created by the switch to a green economy could prove to be short-lived.

"There are all of these one-time things," he said. "You build out the electrical grid. You retrofit buildings. ... You may get some short-term benefit while you're pursuing a long-term benefit."

Others say that the green industry's growth could stall now that energy prices are low again. Americans worried about their personal finances might not be willing to shell out extra money for a fuel-sipping hybrid car or solar panels on their homes.

"When gas is \$2 a gallon, you can preach efficiency, but it's tough," said Stanford economist John Shoven. "If the Obama administration in particular doesn't really push green infrastructure projects, the momentum is going to slow."

Perry says, however, that the long-term benefits of energy efficiency and green jobs can be substantial. He points to the estimate that California's efficiency policies in the last 30 years helped create 1.5 million jobs, an estimate produced last year by UC Berkeley economist David Roland-Holst.

"There we're talking about a significant number of jobs that can really make a difference," Perry said.