CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

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California Green: Opportunities and Challenges

Prepared for Wal-Mart

For the

Wal-Mart California Green Jobs Council Kickoff Meeting

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California: A Green Leader Before Green Became Popular

In 1978 California established energy efficiency standards for appliances and residential and nonresidential buildings. The California Energy Commission estimates that these standards and subsequent updates saved residents and businesses $56 through 2003 and will save an additional $23 billion by 2013. In addition, California's use of electricity per capita and in relation to production has grown far less than in the rest of the nation.

More recently the threat of global climate change from greenhouse gas emissions has led to a national debate over how to respond to this challenge. Again California was a leader with the passage of AB 32 and SB 375 to limit greenhouse gas emissions at the state and regional level in California.

Saving money, saving the environment and saving the nation from dependence on foreign oil come together to create the opportunities and challenges of tomorrow's green economy in California.

California's Green Economy: A Brief Summary

A 2009 study *The Clean Energy Economy* by the Pew Charitable Trusts listed California as the nation's leading state in clean energy businesses (10,209), clean energy jobs (125,390) and clean energy venture capital funding ($6.5 billion for 2006-2008).

Pew summarizes the clean energy economy into five major sectors:

- **Clean Energy--**building sustainable energy for the future. Includes businesses that produce, transmit and store renewable power from solar, wind, low-impact hydro, fuel cells, marine and tidal, geothermal and small-scale biopower energy sources.

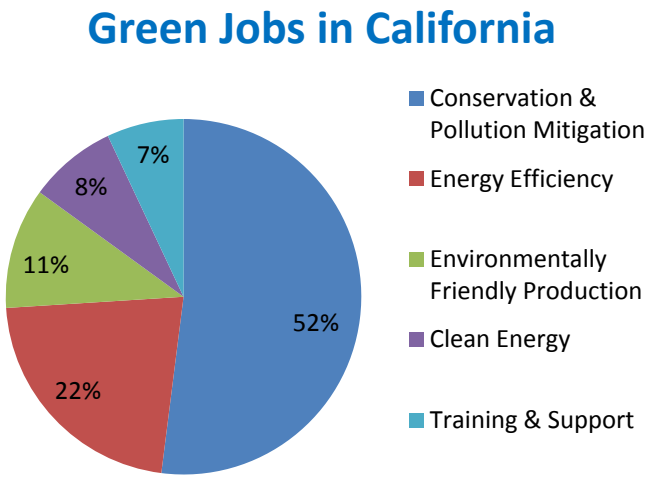
- **Energy Efficiency--**reducing the amount of energy we use in our homes, plants, offices and public facilities.

- **Environmentally Friendly Production—**Mitigating the environmental impact of existing products and supplying alternatives that require less energy and emit fewer greenhouse gases.

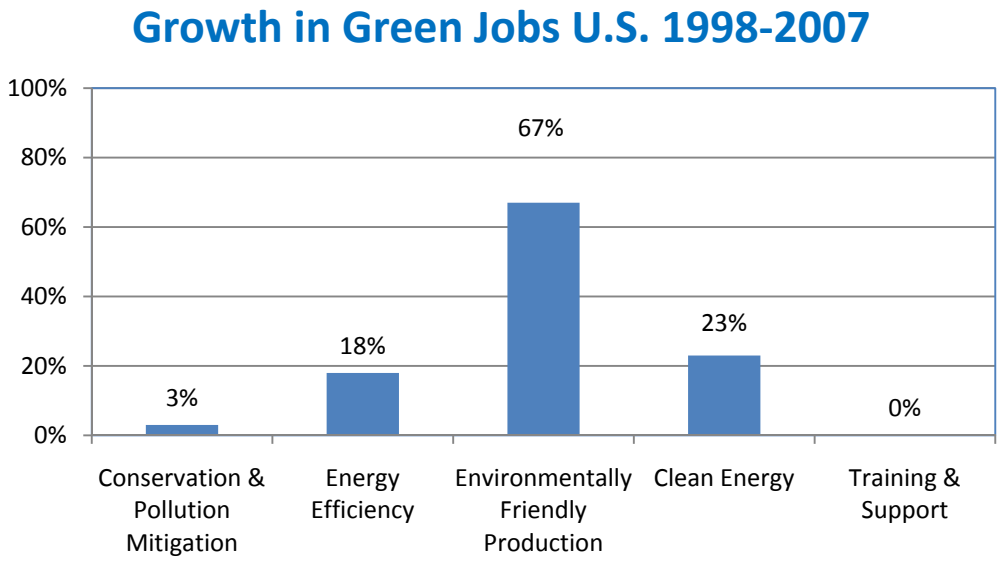
- **Conservation and Pollution Mitigation—**Activities, like recycling and reducing waste, that mitigate emissions of greenhouse gases and other pollutants from continued use of fossil fuels.

- **Training and Support—**Activities like training, research, and financial and legal services that support the clean economy activities listed above.

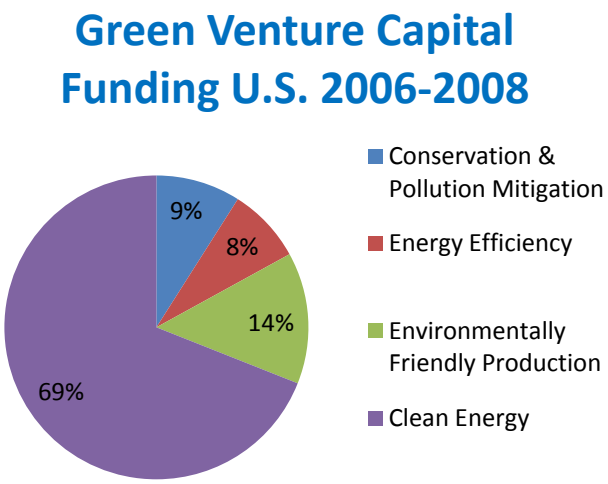
In 2007 most of California's clean energy economy activities and jobs were in conservation and pollution mitigation followed by energy efficiency.



However, the focus of clean energy investment by both the private and public sectors is changing. California's green economy opportunities and challenges will focus much more on changing production processes and clean energy activities and jobs. The change is shown in recent job trends.

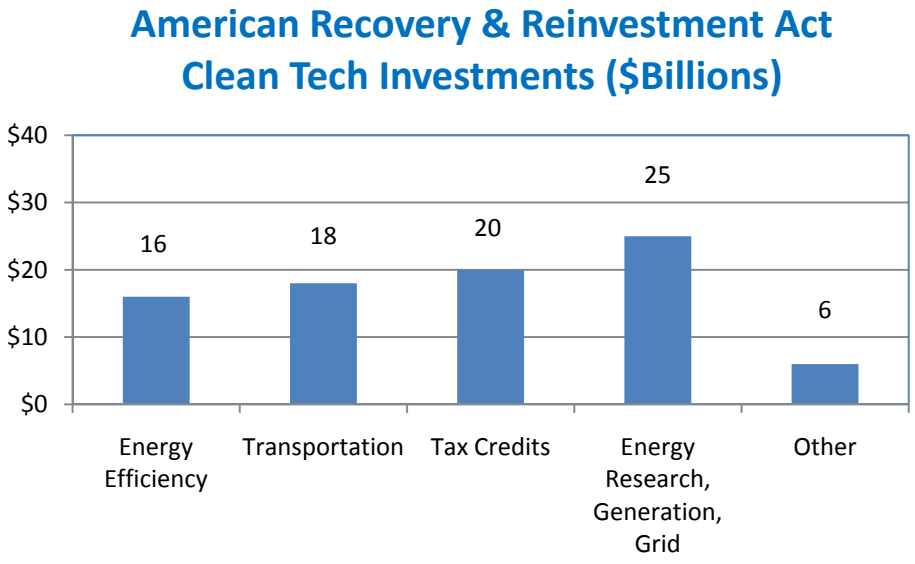


Venture capital funding in the United States and California is largely focused on clean energy technology from designing more efficient batteries to the expansion of wind and solar power and other applications of technology and innovation to reduce our use of carbon-based fuels and energy.



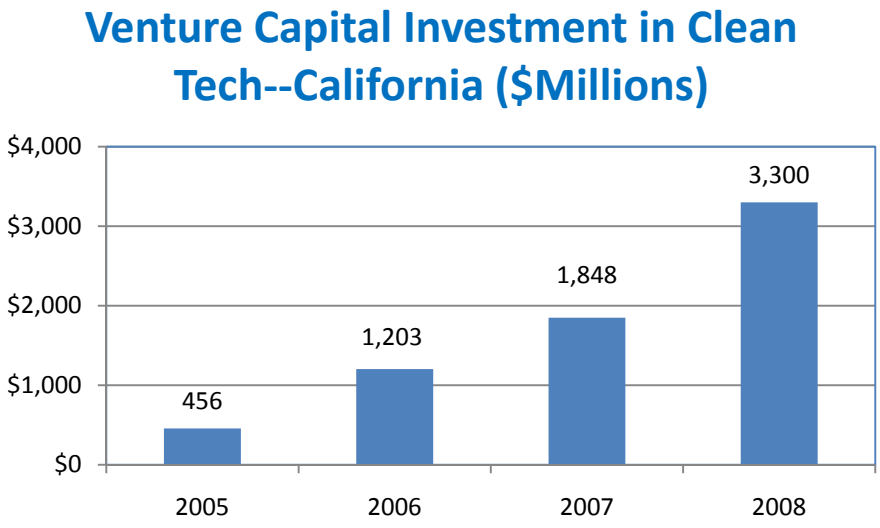
The American Recovery and Reinvestment Act: A First Step to Tomorrow's Greener World

The $787 billion federal stimulus package allocated $85 billion as a down payment on the nation's future green economy investments. This $85 billion will act both as seed capital for the nation but also as the target for private sector investment to take advantage of new business opportunities.



California starts as the nation's undisputed leader in attracting private capital to take advantage of the state's innovative entrepreneurs and skilled workforce.

According to the California *Green Innovation Index* published by Next Ten, California's $3.3 billion in 2008 clean tech venture capital funding accounted for 57% of the nation's total. Although venture capital funding has declined during the recession, the ARRA and the thrust of state and federal policies indicate that strong business opportunities will exist in coming years.



Challenges in Turning Opportunities into Success

California's green energy policies have two clear objectives: 1) to help residents and businesses save money through more efficient use of energy and 2) to combat environmental degradation through reducing greenhouse gas emissions. Federal policies add a third and fourth reasons for clean energy investments: 3) to reduce foreign oil dependence and increase national security and 4) to provide the seed capital to help American companies move toward a competitive advantage in producing products and services that have world market appeal.

Seed Capital, Public Subsidies and Financing Assistance

The path to saving energy and reducing energy costs will in some situations require up-front public subsidies or seed capital and in other situations may require assistance with financing energy efficiency improvements. This is true even when the energy cost savings strategies meet an economic test of a positive rate of return on investment.

Many long-term energy saving approaches require an up-front investment to gain the benefits of cost savings down the road. This is true for relatively simple approaches such as using more efficient light fixtures to retooling plants and weatherizing buildings. Some businesses and homeowners may benefit from assistance in financing these investments.

Major clean energy initiatives such as designing a more efficient battery or creating a large enough market to reduce costs for solar or wind power may require federal seed capital investments like the planned ARRA investments or subsidies like California's tax credits for installing solar panels.

Federal and state agencies must work hard to find the right balance in investing public funds to get initiatives started but then backing off to let the market decide whether investments to save energy costs make economic sense.

These decisions and the role of the public sector become much more complicated when the benefits are primarily non-monetary and when there are benefits that cannot be captured directly by the entity making the investments. If you buy a more efficient light bulb or install solar panels or make your production process more efficient, you get the benefits.

However, the benefits from reducing greenhouse gasses are 1) more difficult to translate into economic terms, 2) may occur a long time from now and 3) may help everyone regardless of who pays for these investments or who bears the costs of changes in behavior.

Other Public Policy Challenges

California has a nation-leading set of policies about greenhouse gas emission reduction through AB 32, SB 375, and continuing and new standards for buildings and appliance and vehicle standards. The challenges will come in finding ways to implement these policies. While businesses will continue to play a critical and helpful role in both energy savings and emission reductions, there are major public policy issues that may prove to be the more difficult barriers to successfully going green.

The passage of SB 375 recognizes that land use decisions and the relationship between land use and transportation in California's regional economies is critical to the success of greenhouse gas emission reduction strategies. Land use and transportation polices can reduce aggregate commute time by bringing jobs and housing closer together, by encouraging denser housing in walkable communities and by providing the market for more mass transit use over time.

Lengthy debates about decisions about site location for major new clean energy facilities can cause delays. Active public policy guidelines and rules will probably be required to make sure that sufficient sites are available to take advantage of market opportunities.

Access to Information and Building Trust

One potential barrier to green success is lack of easily accessible information. Residents and businesses can use help in identifying and comparing alternative

products and services to reduce energy costs in their homes, offices and factories. Utilities and public agencies have started the process of building websites that are a reliable and accessible source of information about energy-saving regulations and products.

Even though many energy savings strategies also save money for residents and businesses, these cost savings must be demonstrated in ways that are believable to customers.

Public mistrust is also a potential barrier to green success. In some cases residents and businesses will be asked to change behaviors when the direct monetary benefits are not clear or not large compared to the environmental benefits. After all, one of the major reasons for going green is to save the planet from destructive global climate change.

The substantial changes required in our behavior will require open and patient discussion to both build trust and the consensus needed for some of the more difficult changes, for example, in regional land use and housing.

Green Activities Create Green Jobs

The nation's long and deep recession has fueled great interest in the job-creating potential of "going green". The potential to create exciting job opportunities does exist but it is important to avoid shifting the focus from green activities to green jobs. Green activities will create green jobs only to the extent that the green activities make economic and environmental sense.

The success of green efforts will depend on the success of private businesses to create products and services that make economic sense to the firms and to customers. Jobs will come from the success of the green activities—saving energy, saving money, and saving the environment.

There are two important cautions about expecting green job growth to be a major cure for the nation's or state's economic challenges. First, many green activities and jobs replace other activities and jobs. Making a more efficient battery will replace making less efficient batteries. Building wind and solar energy will replace building carbon-based electricity sources. Building "smart grids" and "smart meters" will replace less efficient grids and meters and building more energy efficient buildings and appliances will replace less efficient products.

If more of these energy efficient products are made in America that will bring net job growth replacing imports or innovations that might have been developed abroad. And some green jobs will be completely new. But it is important to remember that not every green job represents job growth.

The second caution is that there are many skilled workers who are unemployed. California has 2.2 million unemployed workers, nearly 1 million more than a year ago. The state has seen a decline of 400,000 jobs in construction and manufacturing in the past two years. As a result, it is likely that the first beneficiaries of green job growth will be workers who are currently unemployed.

It will be a long time before green activities in the public and private sector increase enough to generate large numbers of new jobs for California's growing workforce. Since "going green" is a compelling economic and environmental strategy for the nation, it is important not to overpromise job growth and have disappointment over job growth undermine the momentum to go green.

California does need to develop a coordinated workforce strategy for green job training. There are dangers that an uncoordinated strategy will end up with too many workers trained for one activity and not enough for other activities. As another example California's community colleges will benefit from developing coordinated green workforce strategies within each region of the state—both to help regional businesses and to position community colleges to compete for the $billions of federal competitive community college workforce grants recently announced by President Obama.

Developing these workforce programs and strategies will need special attention in today's environment of reduced funding for universities and community colleges throughout California.

Sources and Resources

This review of California's green economy benefited from work supported by other organizations. Ideas and data were contributed by work supported by the Pew Charitable Trusts (http://www.pewtrusts.org/); Joint Venture Silicon Valley (http://www.jointventure.org/) and Next Ten (http://www.nextten.org/). Collaborative Economics (http://www.coecon.com/) provided research support for each of these organizations in their green economy and clean energy projects.

Other valuable resources include Cool California (http://www.coolcalifornia.org/) and the California EDGE Campaign (www.californiaedgecampaign.org) and their green jobs initiatives as well as the California Air Resources Board (www.arb.ca.gov): the California Energy Commission (http://www.energy.ca.gov/) and the California Public Utilities Commission (www.cpuc.ca.gov).

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