Accelerating Silicon Valley's Third Revolution: A Regional Climate Prosperity Strategy

Concept Paper
Joint Venture: Silicon Valley Network

Purpose

This paper describes the opportunity to develop a climate prosperity strategy for Silicon Valley that addresses the critical challenges of global warming and energy security while creating new economic and employment opportunities for our region. This strategy will require a role for Joint Venture: Silicon Valley in connecting the many assets of the region and developing a more strategic approach, working with key stakeholders to promote a new economic advantage for Silicon Valley.

The Opportunity: Leadership by Leveraging Silicon Valley's Many Assets

After World War II, our region was a pioneer in creating the world's leading information technology cluster built on the strength of our semiconductor, computer, software and networking industries as well as the intellectual power of our universities. In the 1970s, our region helped launch a second revolution that combined our research strength in biology with venture capital to create a world-class biotechnology cluster. Today, we are the verge of leading a third revolution in clean energy.

Rising energy prices and a growing recognition of the need to reduce greenhouse gases have combined to create an opportunity to grow a clean energy cluster based on our strengths in information technology and biotechnology—areas such as solar, wind, batteries, and biofuels. These clean technologies are now being applied to existing industries including green buildings, transportation, electric power, and manufacturing.

Silicon Valley is rapidly becoming the epicenter of this green revolution. Venture capital investment clean energy in Silicon Valley increased 94% from 2006-2007 and now exceeds $1 billion. Our region received 23% of California green patents (solar, wind, batteries). Green jobs grew 41% from 2000 to 2006 in Silicon Valley compared to 17% for California.

Several exciting new venture backed firms have been created in Silicon Valley including Nanosolar and Miasole (which are developing thin film solar), Bloom Energy (which is developing fuel cells to allow homes to generate their own electricity) and Tesla Motors (which is developing an electric car). Existing firms such as Applied Materials, Cypress Semiconductor (which created a subsidiary called Sun Power) among others are moving into growing global solar markets.

Silicon Valley has many critical elements to create a clean energy cluster including leading firms, world class university research at Stanford and University of California, NASA Ames, as well as a growing business and government support infrastructure including financial, legal, marketing, and educational and infrastructure support services. All these elements are necessary for a strong "green innovation" habitat.

- The Mayor of San Jose has launched a Green Vision which includes creating 25,000 clean technology jobs, reducing per capita energy use by 50%, receiving 100% of electrical power from clean renewable sources, building or retrofitting 50 million square feet of green buildings, and ensuring that 100% of its public fleet runs of alternative fuels in 15 years.

- Solartech, a consortium of solar companies has developed a shared industry roadmap to accelerate the growth of the solar industry in our region. This industry group is working together to identify and resolve technical and adoption barriers to solar technology by addressing issues of performance, process, standards and workforce.

- NASA Research Park is a collaboration of UC-Santa Cruz, Carnegie Mellon, San Jose State University, and Foothill-DeAnza Community College District to create a public private partnership to develop an innovative research, development and demonstration center in the heart of Silicon Valley to delivery quality education, incubate and commercialize new clean energy technologies, and showcase innovations in sustainable development.

These assets and efforts are still in the early development phase—most did not exist just a few years ago. The opportunity now is to connect and leverage these promising efforts to accelerate Silicon Valley's transformation—to usher in the region's third revolution.

A Climate Prosperity Strategy: Green Savings, Green Opportunities, Green Talent

While Silicon Valley has had an impressive "start-up phase," will the region become one of the world's leading centers for clean technology innovation? How will clean technology innovations benefit the region? Will they affect how local industries operate, how products are made, how residents live and travel? Will they spawn new industries providing products and services to local residents as well as markets worldwide? Will Silicon Valley succeed in harnessing its many assets and become a wellspring of clean technology innovation—while also producing tangible economic and quality of life benefits for its communities? The answers to these questions are not yet clear.

While many regions are looking at ways to reduce greenhouse gas emissions, Silicon Valley has always understood that innovation can solve business and societal problems while also creating economic opportunity. In this new era, "climate prosperity" is an approach that "fits" how our region works. Silicon Valley can generate substantial economic and employment growth by

demonstrating that innovation, efficiency and conservation in the use of all resources is the best way to increase jobs, income, productivity and competitiveness.

The *California Green Innovation Index* prepared by the Next 10 illustrates the key principles of climate prosperity. Since the energy crisis of the 1970s, California adopted building and appliance standards and created energy efficiency incentives through our utility policies that have saved consumers $56 billion, eliminating the need for 24 major power plants. Today, California uses less energy per capita than in 1975, and has the second lowest per capita carbon emissions of any state in the nation (after Rhode Island). Energy efficiency saves money and reduces emissions.

Furthermore, the *Index* shows that since the adoption of AB 32 (the Global Warming Solutions Act), the state's million solar roofs incentive program, the Renewal Portfolio Standard (which requires the 20% of electricity generation be renewable by 2010) and rising energy prices, there has been growing private sector investment in alternative energy as witnessed by an dramatic increase in venture capital in clean technology across California, with a concentration in Silicon Valley. New green firms in solar, wind, battery technologies have been growing across the state and especially in our region. Climate change can create opportunities for climate prosperity.

Finally, with the growth of new green firms and the application of clean technologies in existing industries, including buildings, transportation and logistic and manufacturing, there has been the growth of green jobs. This change has resulted in a growing need for training for these middle wage jobs, especially from community colleges and universities. Climate prosperity creates new demands for talent.

While a climate prosperity strategy has significant benefits in terms of green savings, green opportunities, and green talent, these benefits might not materialize in our region if we do not strategically connect our many assets and pursue a collaborate approach for regional success. Why? Many regions (and countries) around the world see the same opportunity and are moving aggressively in terms of private investment and public policy. Silicon Valley must act if it wants "first mover" advantage in this third revolution—and all the benefits that would accompany that leadership position.

In particular, if our region does not take aggressive steps to connect our emerging leadership in clean technology *creation* with *applications* in our existing industries—and thereby create a robust regional market (and test bed) for these innovations—we risk not capturing the full opportunity for economic and employment development for our region.

Many of our world class firms are now serving growing global markets in Europe and Asia but not selling their innovative products to our businesses or applying them in our cities, communities and educational facilities. Public policies at both the local level (permits, incentives, land use decisions) and at the state level (utility regulations, tax incentives and implementation of AB32) will shape whether we realize the savings, opportunity and talent potential from our leadership in clean technologies.

Taking Action: Collaborative Approach, Regional Strategy, Tangible Results

Silicon Valley can connect its many assets and create a roadmap that involves all the stakeholders—a regional climate prosperity strategy that delivers tangible results.

Given its history and role in the region, Joint Venture: Silicon Valley is ideally suited to drive a collaborative approach to climate prosperity. The outreach and engagement process will need to be done in a non-partisan, multi-sector fashion—drawing on the strengths of existing organizations and involving the dozens of promising initiatives underway. Joint Venture can avoid unnecessary turf issues by acting a neutral form that helps create a regional framework, engage key partners to identify and commit to individual and shared actions in key strategic areas. Such an approach will help garner real commitment to action by enabling every group to see how and where they fit in, and why their participation is critical. At the same time, this approach will help identify strengths and weaknesses of current initiatives, and help refocus efforts where necessary.

The following steps could be taken over the next year:

1. Joint Venture could form a working group of key stakeholders to design a strategic framework and roadmap for a climate prosperity strategy

2. To inform the strategy, conduct research on technology, business and employment trends in the clean technology and green economy in Silicon Valley

3. To begin engaging the partners, document the industry, university and government assets and institutions and initiatives that could be included in a regional Climate Prosperity Strategy.

4. Prepare a "Greenprint"—a document that makes the case for action, identifies the region's key assets, defines strategic priorities, outlines roles and actions agreed to by different partners, and describes concrete measures of success that can be used to monitor progress and ensure accountability.

5. Host a Summit to communicate the "Greenprint," and invite others to join the regional effort.

6. Launch the strategy with sufficient public, private and foundation resources for effective implementation.

Silicon Valley can lead a third revolution. But, it is not a given. Others are moving aggressively. With a focus on climate prosperity, a regional approach that leverages local efforts, and committed partners in the private, public, and non-profit sectors, we can lead the world.