

# HARNESSING SAN FRANCISCO'S CLEAN-TECH FUTURE

A Plan for Attracting  
Businesses and Creating Jobs

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THE CLEAN-TECH MARKET AUTHORITY

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## EXECUTIVE SUMMARY

San Francisco is uniquely positioned to capture an emerging market segment – clean technology – that already has risen to become the sixth-largest venture investment category in the U.S. and Canada, behind information technology, software, biotechnology, health care, and telecommunication.

*In short, California leads the country in clean technology, and San Francisco has the potential to lead California.*

“Clean technology” is an emerging sector that comprises a diverse range of products, services, and processes that harnesses renewable materials and energy sources, dramatically reduces the use of natural resources, and cuts or eliminates pollution and toxic wastes. These include such innovative and expanding technologies as solar photovoltaics (PV), wind power, hybrid electric vehicles, fuel cells, biobased materials, and advanced water filtration.

Much as it has over the past half century, California is once again at the forefront of a new wave of innovation. A recent survey of the top U.S. venture firms found that more than \$339 million was invested in California clean-tech companies in 2003, more than any other state, representing 29% of all North American clean-technology investments. And momentum continues to build.

According to a new report by the Natural Resources Defense Council and Environmental Entrepreneurs, venture capital investments in California’s clean-tech industry through 2010 could seed 52,000 to 114,000 new jobs statewide. Another recent study, by Calstart, concluded that California has key competitive advantages in clean-vehicle technologies, such as its leadership in advanced technologies, electronics and software, and engineering and design.

In short, California leads the country in clean technology, and San Francisco has the potential to lead California.

The ascension of clean technology comes amid a host of local, national, and global concerns, including record-setting oil prices, national and global security issues, a shaky electricity infrastructure, growing concern over global warming, and finite supplies of fossil fuels. Governments, industry, and citizens are now turning to clean technology to provide innovative solutions to and relief from these and other global problems.

This report, prepared by Clean Edge, Inc., and funded by the San Francisco Department of the Environment and the Mayor’s Office of Economic and Workforce Development, examines two clean-tech segments – energy and transportation – and the potential each has for San Francisco’s economic growth and future. Specifically, it looks at how these technologies can attract new jobs and businesses to the City, and describes the opportunities and challenges that face San Francisco as it looks to become a clean-tech magnet.

For San Francisco, clean tech holds great promise as a significant new source of innovation, business opportunity, and jobs, much like other technologies that have been incubated in the City over the past quarter century and experienced explosive growth. Along the way, San Francisco stands to benefit in a variety of ways from one of the fastest-growing technology sectors of recent years.

### How the Competition is Pursuing Clean Technology

San Francisco is by no means alone in pursuing this clean and green Gold Rush. Recognizing the market opportunity, a number of cities and states are moving aggressively with dynamic public policy initiatives, actively promoting their story, and energetically courting today's, and tomorrow's, leading companies. Several cities – including Austin, Chicago, Los Angeles, Portland, Ore., Sacramento, and Seattle – have made considerable headway, increasing the urgency for San Francisco to act quickly if it is to capitalize on this growing market opportunity. Reviewing the initiatives of other cities and states provides insight to the range of initiatives, and a roadmap for San Francisco's political and business community.

Like many of these cities, San Francisco brings to the clean-tech marketplace a formidable list of core attributes, including progressive local leaders, a supportive business community, and a reputation for technological innovation. The City also has more than a few barriers and weaknesses that could stand in the way of it becoming a leader in clean technology. Leveraging the assets and addressing the liabilities will be critical for the City to gain world-class status in the clean-tech arena.

### San Francisco's Competitive Position

San Francisco boasts international brand equity as an environmentally progressive and technology-focused city, from the solar roof installation atop the Moscone Center to the City's fleet of more than 700 clean-fuel vehicles to the nation-leading residential recycling rate. That leadership and identity has led the United Nations to select San Francisco as host city for World Environment Day 2005, the first time that the conference will be hosted in North America since the event was established in 1972.

*Among San Francisco's strongest strategic assets is a dynamic business community and public that embrace investments in the clean-tech industry.*

San Francisco's innovative and progressive political leadership, led by its Mayor and Board of Supervisors, is another critical asset that can boost the City's standing in clean technology. Mayor Newsom, a committed environmentalist and successful businessman, is a particularly valuable resource in promoting San Francisco's clean-tech potential. The City's government has led a long-term initiative in clean transportation and has been rewarded with national recognition for the more than 700 clean-fuel vehicles in its municipal fleet, one of the largest in the nation.

The City also boasts abundant natural capital that uniquely positions San Francisco to establish a leadership position in clean energy and transportation. For example, strong tides, high winds, constant waves, and abundant sunshine provide a ready supply of renewable energy resources to be tapped by clean-energy technologies. The

City's tidal power potential alone is enormous, with more than 400 million gallons of water moving through the Golden Gate each day.

Complementing all that natural capital is a diverse and talented pool of human capital. The region's highly educated workforce and access to academic research and resources at leading universities comprise a valuable asset for technology companies seeking to locate or expand here. The Bay Area accounts for 36% of all the venture capital invested in the U.S., and is home to one of the premier funds focusing on renewable and distributed energy companies. And the City's voters demonstrated its support for clean-tech investments in 2002 when it overwhelmingly approved the first solar bond initiative in the country.

San Francisco also has weaknesses that must be addressed if it is to become a clean-tech capital. Not the least of these is the difficulty that many businesses have in navigating and overcoming the City's bureaucracy and red tape. According to our survey of leading business, investment, and community leaders, the City's government can be a complex and forbidding obstacle to companies seeking to establish a presence, or initiate a project, within the City's borders. Excessive delays and approvals, combined with burdensome contracting requirements, further frustrate the City's current or would-be business partners.

## Strategy and Recommendations

These weaknesses can be overcome – and the strengths leveraged – through ten recommended initiatives:

**1. Establish, communicate, and coordinate the vision.** It is imperative to have the Mayor, Board of Supervisors, the chambers of commerce, and various City departments promoting and supporting clean-tech businesses in a unified, coordinated approach.

**2. Remove regulatory barriers.** To better serve business in all sectors, the City should consider hiring one or more legislative analysts to identify specific obstacles to deploying clean-energy and other clean-tech projects in the City, and recommend solutions that would make the city more clean-tech-friendly.

**3. Appoint a clean-tech manager for the City.** The role of the manager, residing within the Office of Economic and Workforce Development, is to market and execute the city's clean-tech business attraction strategy. This position will also lead San Francisco's efforts in establishing public-private partnerships, and shepherd companies and projects through the red tape of municipal and public agencies.

**4. Align the City's procurement goals.** Committing the City government to purchase clean-energy and clean-transportation products and services – and leveraging San Francisco's strong commitment to environmental purchasing as expressed by the

*Committing the City government to purchase clean-energy and clean-transportation products and services can send a strong signal of the City's commitment to clean technology.*

Precautionary Principle enacted in 2002 – can send a strong signal of the City’s commitment to clean technology, and can draw companies to locate here.

**5. Create a magnet clean-tech institution.** The City should consider developing a center dedicated to the advancement of clean energy and transportation, which could serve as an incubator for early-stage companies, a showcase for the technologies themselves, and a learning and training facility that would help provide workforce development for future clean technology workers.

**6. Create a high-profile project.** San Francisco could help to establish itself as a clean-tech hub by announcing and implementing a project of major importance and magnitude.

**7. Leverage San Francisco’s financial strengths.** The City should consider leveraging its strong investment community base, by promoting San Francisco as a center for clean-tech finance. The City also could more actively participate by creating its own version of the state’s Green Wave environmental technology initiative.

**8. Launch a clean-energy incentives fund.** San Francisco should consider implementing a grants program to support architects, designers, and businesses, and others that offer unique and cutting-edge clean-energy or clean-transportation ideas for their businesses or homes to fully cover or help offset their project’s costs.

**9. Attract the flagship conferences.** San Francisco already has made headway in attracting leading conferences on clean technology and sustainable business, being the host city for several conferences focusing on clean energy and other clean technologies. The City also could support the tourism industry by leveraging the City’s commitment to clean technology as a means of drawing environmentally minded conferences and events.

**10. Partner with other regional players.** Berkeley, Oakland, and the Silicon Valley area all have visions and programs to lure companies and institutions – and each has its own strengths and weaknesses. A coordinated effort could be synergistic – and San Francisco could benefit by being the crown jewel among the area’s cities.

## METHODOLOGY

Clean Edge, Inc. was engaged by the San Francisco Department of the Environment and the Mayor's Office of Economic and Workforce Development to help the City understand and assess the following:

- **Why the clean-energy and clean-transportation sectors represent a market opportunity** for San Francisco based on projected growth rates, potential market size, job creation opportunities, and other key trends;
- **What criteria clean-energy and clean-transportation companies identify** as most important in selecting a location in order for their businesses to succeed as well as referencing best practices from other cities; and
- **How San Francisco can become a magnet** for clean-energy and clean-transportation businesses, including key strategies for reaching out to this target audience.

This report is based on in-depth interviews and e-mail surveys conducted by Clean Edge with more than 30 clean-energy and -transportation organizations. Included in the interviews and surveys were CEOs and senior executives of leading clean-tech companies, investment organizations, nonprofits, consultancies, and trade groups, as well as regional government leaders in the field of clean technology. These were complemented with additional research on and knowledge of the clean-tech industry.

All surveys and interviews were provided on a confidential basis to promote free discussion and a fair and frank assessment of San Francisco's assets and challenges.

The interviews and surveys addressed in detail a number of questions, modified as appropriate to reflect the diversity of interviewees' affiliations. Discussion topics included:

- perceived plusses and minuses of doing business in San Francisco;
- assessment and ranking of the City's current assets in retaining and attracting clean-tech businesses;
- a review and assessment of the types of programs and incentives that could attract companies and organizations to San Francisco to help make the City a clean-tech leader;
- the major obstacles to implementing such programs; and
- best practices of other cities and regions.

In addition to this research, Clean Edge inventoried clean-tech companies, organizations, nonprofits, investment groups, service providers, and events already in the Bay Area. While not comprehensive, this list offers a glimpse of this dynamic and rapidly expanding industry.

## THE PROMISE OF CLEAN TECHNOLOGY

A new “new economy” has emerged, with great promise for jobs, economic development, and a better world. The world of clean technology – including renewable and distributed energy, advanced transportation, new materials, and green buildings – offers significant potential for building new businesses, industries, and prosperity for San Francisco and beyond.

*Clean technology has emerged as the sixth-largest venture investment category in the U.S. and Canada, behind information technology, software, biotechnology, health care, and telecommunications.*

Clean tech is an emerging sector encompassing economically compelling and environmentally friendly technologies, products, and services.

The ascension of clean technology comes amid a host of local, national, and global concerns that has elevated these technologies’ importance and urgency. These include record-setting oil prices, instability in the Middle East, a shaky electricity infrastructure, growing concern over global warming, and finite supplies of fossil fuels. Governments, industry, and citizens are now turning to clean technology to provide innovative solutions to these and other global problems.

“Clean technology” is a broad term that comprises a diverse range of products, services, and processes that harnesses renewable materials and energy sources, dramatically reduces the use of natural resources, and cuts or eliminates pollution and toxic wastes. As a rule, clean technologies are competitive with, if not superior to, their conventional counterparts. Many also offer significant additional benefits, including

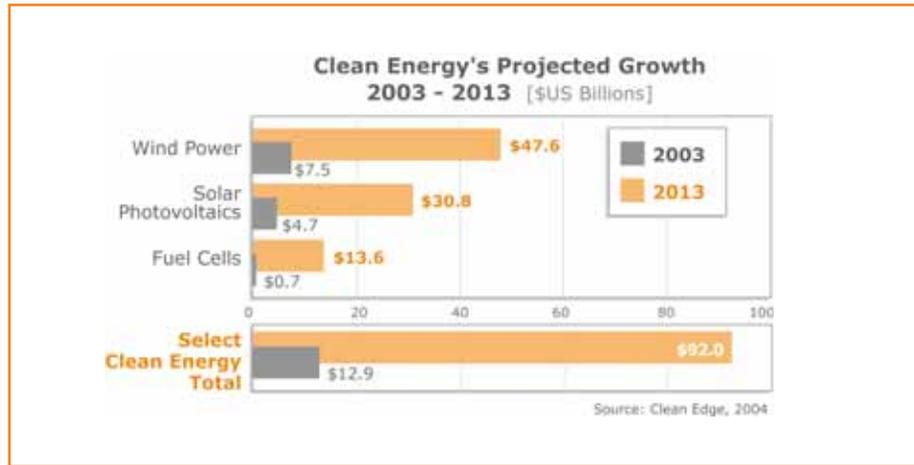
contributing to energy and national security and improving the lives of those in both developed and developing countries.

The private sector has embraced clean tech for the vast potential business opportunities they offer. Companies in the energy, telecommunications, information technology, nanotechnology, and biotechnology sectors are among those that view clean energy, advanced materials, waste minimization, and water purification as ripe with the potential for new products and services. And many other companies in sectors ranging from retail to health-care to construction are coming to understand the business benefits from utilizing such technologies as solar

### Clean Tech’s Categories

Below are the four principal categories of clean technologies, with examples of sub-technologies within each.

<p><b>ENERGY</b></p> <ul style="list-style-type: none"> <li>Biofuels</li> <li>Energy efficiency</li> <li>Fuel cells</li> <li>Microturbines</li> <li>Small-scale hydro</li> <li>Solar photovoltaics</li> <li>Wave/tidal power</li> <li>Wind power</li> </ul>	<p><b>TRANSPORTATION</b></p> <ul style="list-style-type: none"> <li>Advanced battery storage</li> <li>Alternative-fueled vehicles</li> <li>Electro propulsion</li> <li>Hybrid-electric vehicles</li> <li>Hydrogen refueling stations</li> </ul>
<p><b>MATERIALS</b></p> <ul style="list-style-type: none"> <li>Biobased materials</li> <li>Biomimetics</li> <li>Green chemistry</li> <li>Green buildings</li> <li>Phytoremediation</li> <li>Recycled materials</li> </ul>	<p><b>WATER</b></p> <ul style="list-style-type: none"> <li>Biological water filtration</li> <li>Decentralized filtration systems</li> <li>Small-scale desalination</li> <li>Ultraviolet purification</li> <li>Wetlands restoration</li> </ul>



photovoltaics to generate electricity, biobased materials for packaging or construction, or biofiltration to facilitate water efficiency and reuse.

This report examines two clean-tech segments – energy and transportation – and the potential each has for San Francisco’s economic growth and future. Specifically, it looks at how these technologies can attract new jobs and businesses to the City, and describes the opportunities and challenges that face San Francisco as it looks to become a clean-tech magnet.

*In the Bay Area, clean energy and transportation have become major growth opportunities.*

For San Francisco, clean energy and transportation hold great promise as significant new sources of innovation, business opportunity, and jobs, much like other technologies that have been incubated in the City over the past quarter century and experienced explosive growth. Along the way, San Francisco stands to benefit in a variety of ways from one of the fastest-growing technology sectors of recent years.

A few key data points help tell the tale:

- According to a new report by Environmental Entrepreneurs and the Natural Resources Defense Council, venture capital investments in California’s clean-tech industry through 2010 could seed 52,000 to 114,000 new jobs statewide.
- California received 29% of total venture capital investment in clean tech in 2003, some \$339 million.
- Another recent study, by Calstart, identifies 101 companies with headquarters and/or major operations in California that have the skills and technologies to be involved in or contribute to the reduction in automotive greenhouse gas emissions. Many of these companies are already active in this arena, while others have the capabilities to be active, should business opportunities arise.
- Total clean-tech investments reached a record 6.2% of total venture capital in 2003, for a total of more than \$1.2 billion.

### 2003 North American Clean-Tech Venture Capital Investments

REGION	CLEAN-TECH INVESTMENT (US\$ MILLIONS)
California	\$339
Northeast	\$296
Southwest	\$95
Midwest	\$87
Southeast	\$84
E. Canada	\$50
W. Canada	\$28
All Others	\$140

Source: Cleantech Venture Network, 2004

- Venture capital investments in clean-energy technologies alone last year represented 2.4% of total venture investing in the U.S., a three-fold increase from a mere 0.8% in 1999.
  - The three fastest-growing clean-energy technologies – wind, solar, and fuel cells – are projected to expand from \$12.9 billion in revenue in 2003 to more than \$90 billion by 2013.
  - Solar and wind power generation capacity each have grown by an average of more than 30% annually over the past five years, rates more commonly seen in the world of PCs and the Internet than the more staid energy sector. California has led the way domestically, representing more than half of all new U.S. solar installations.
- Clean transportation – including clean vehicles, along with the fueling infrastructure that goes with them - represents another large and fast-growing market. From hybrid-electric cars and buses, to natural-gas-powered taxis and delivery trucks, to hydrogen powered vehicles of all types, the market is expanding rapidly. According to J.D. Power & Associates, for example, global hybrid electric vehicle sales will reach 500,000 annually by 2008.
  - Clean-energy technologies can offer San Francisco businesses and residents a hedge against price-volatile and polluting fossil-fuel-based energy sources, locking in long-term prices. These technologies are declining in cost annually as the capital investments to install turbines and PV modules decrease. In many regions, wind is now cost competitive with traditional sources of energy and solar power is competitive for peak energy applications.
  - In the Bay Area, clean energy and transportation have become major growth opportunities. Our research shows that the number of companies, events, nonprofits, and service organizations working in the clean-energy and -transportation sector have expanded considerably. Of the nearly 100 organizations listed in our market scan survey, more than 35 were formed, or entered the clean-tech arena, since 2000.

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## HOW THE COMPETITION IS PURSUING CLEAN TECH

Recognizing the market opportunity, several cities and states are moving aggressively ahead with dynamic public-policy initiatives, actively promoting their story, and energetically courting today's, and tomorrow's, leading companies.

Several of these jurisdictions have made considerable headway, increasing the urgency for San Francisco to act quickly if it is to capitalize on this growing sector. Reviewing the initiatives of other cities and states provides insight into the range of initiatives, and a roadmap for San Francisco's political and business community.

*Our research found that clean-tech clusters meet four critical needs that collectively become the cornerstones of their success.*

At the state level, for example, Connecticut has invested in making that state a center for fuel cell and other clean-energy companies by administering a clean-energy investment fund that plans to distribute approximately \$100 million over five years. New York has attracted clean-tech companies by offering tax and other incentives (a Grass Valley, Calif.-based company recently moved to Upstate New York because of such subsidies). And California, traditionally a leader in environmental policy and technology development, has a number of key programs, including:

- **A statewide goal of achieving 20% renewable energy statewide by 2017.**
- **The Green Wave environmental technology initiative**, a four-pronged initiative adopted by CalPERS and CalSTRS that commits \$1.5 billion to clean technologies and environmental stewardship through investments in companies, projects, and clean-technology private equity funds.
- **The most aggressive solar subsidy in the nation**, which has helped the state achieve a majority of all new U.S.-based solar photovoltaic installations.
- **Emission standards on new vehicles** that exceed those of the federal government and other states.

Equally important, cities are attracting clean-tech ventures through smart policies and coordinated efforts designed to improve their competitive edge. According to our research, and confirmed through our interviews, no city has yet to capture the mantle of clean-tech or clean-energy leader, but a number of cities are making a valiant effort. These include Austin, Chicago, Los Angeles, Portland, Ore., and Seattle.

The competition is equally fierce outside the United States. For example, Denmark and Germany have established themselves as leaders in wind energy – a technology incubated in the U.S. – while Vancouver, B.C., and Mississauga, Ont., have helped Canada establish itself as a leading global player in hydrogen fuel cell technology.

In our own backyard, Berkeley and Oakland have pursued clean-tech leadership positions. Oakland is calling for the city to obtain 100% of its electricity from renewable sources by 2030 and to become a “zero-waste” city by 2020. And Berkeley, with a

long history of environmental stewardship and policies, enacted an “environmental economy strategy” in 1994 and is home to a number of clean-energy businesses, including PowerLight Corp., the leading U.S. solar PV systems integrator.

## A TALE OF THREE CITIES

Our research found that clean-tech clusters meet four critical needs that collectively become the cornerstones of their success:

1. an abundance of technology innovation, often from nearby government or university labs;
2. a good supply of management talent;
3. ready access to capital from both public- and private-sector investors; and
4. supportive government policies and programs.

A look at how three U.S. cities have harnessed such resources provides insight into the successful role that local governments can play in developing clean-tech clusters and suggests potential roles for San Francisco to follow.

A common driver among these successful cities is the recognition of the powerful role public policy can play in establishing markets, and the formation of creative public-private partnerships to stimulate early market adoption of emerging technologies.

### Chicago, Illinois

*In 1999, Chicago committed \$100 million to a variety of environmental projects, with a focus on energy efficiency and converting an abandoned and polluted industrial site into the Chicago Center for Green Technology.*

Chicago, America’s third-largest city with more than 2 million people, has set its sights on becoming a clean-tech leader. Chicago Mayor Richard M. Daley has prioritized clean technology as part of that city’s program to become a global leader in renewable energy production and manufacturing, repositioning his city away from being “the nation’s hog butcher.” His hands-on efforts include solar power on public buildings (including six of the city’s nine museums), a “green roof” program intended to reduce global warming, and restoration of polluted industrial sites into tax-generating properties.

In 1999, Chicago committed \$100 million to a variety of environmental projects, with a focus on energy efficiency and converting an abandoned and polluted industrial site into the Chicago Center for Green Technology. The Center is a “green building” that is home to government environmental agencies as well as Greencorps Chicago, the city’s community landscaping and jobs training program, and WRD Environmental, an urban landscape and design firm.

The center also houses Spire Solar Chicago, a business unit of Spire Corp., the world’s leading supplier of the equipment and technology needed to manufacture solar photovoltaic modules. Through collaboration with the city’s Department of Environment and Commonwealth Edison, the local energy utility, Spire Solar Chicago has garnered local commitments of about \$8 million in solar photovoltaic systems. Spire also helps

solar customers with grant application services, as well as utility interconnect service, to take advantage of this progressive subsidy program. In addition, the Illinois Department of Commerce and Community Affairs has a generous renewable energy subsidy program that funds up to 60% of an installed PV system's cost.

### Austin, Texas

*Last year, Austin's municipal utility, working closely with city leaders, announced ambitious plans to deploy 100 MW of solar installations by 2020 — more than any other U.S. city*

Austin, a state capital of nearly 700,000, belies its Big Oil address. The city has instituted policies that make it one of the nation's clean-energy leaders. The city, for example, is home to the Austin Clean Energy Incubator, a program of the Austin Technology Incubator and the IC2 Institute at the University of Texas at Austin, an economic development think tank. The incubator, established in 2001 to support the growth of emerging clean-energy companies in Texas, is currently working with a wind turbine manufacturer, a geothermal power innovator, an emissions tracking software company, and others. The city has done a commendable job attracting a range of DOE and state funding for these business incubation services.

Last year, the city's municipal utility, Austin Energy, working closely with city leaders, announced ambitious plans to deploy 100 MW of solar installations by 2020 — more than any other U.S. city. Austin Energy also operates the most successful green-power pricing program in the nation, according to the U.S. Energy Department's National Renewable Energy Laboratory. The cooperative nature of Austin's utility is a major contributor to the city's clean-tech-friendly environment and has been a major contributing factor for clean-energy companies selecting to locate in Austin.

City officials say Austin is working to attract clean-energy firms by streamlining processes and creating economic-development guidelines to attract and incentivize clean-energy businesses that create jobs while reducing pollution and energy consumption. Austin's history as a high-tech innovator — much like the Bay Area — may ensure the city's position as one of clean-tech's emerging hotspots.

### Portland, Oregon

Portland, with a population of just over 500,000, is considered to be one of the nation's most sustainability-minded cities. The city has been a leader in "smart growth" policies, aiming to protect an urban growth boundary that includes 25 million acres of forest and farmland, an extensive mass transit system (including free rides in the downtown corridor), and strict controls on new development. The city, similar to San Francisco, recycles nearly 60% of its waste. And while Portland currently obtains about 10% of its energy from renewable sources, it has established a goal of obtaining 100% by 2010 at no net cost to the city or its taxpayers.

One of the highlights of Portland's environmental leadership has been the city's commitment to reduce greenhouse gas emissions. The city became the first in the U.S. to commit to reducing its carbon dioxide emissions in 1993 and in 2001 Portland's City Council and the Multnomah County Board of Commissioners adopted a joint local

### SELECT STATE CLEAN-ENERGY INITIATIVES

The table below shows the goals and commitments of several leadership cities and states. It highlights public-sector green power purchase commitments, where government agencies purchase a percentage of electricity produced using renewable technologies on their own buildings and facilities. And renewable portfolio standards (RPS), a commitment that a percentage of all electricity produced by private utilities in a state come from renewable sources.

STATE	PUBLIC SECTOR RENEWABLE PURCHASE COMMITMENT	RENEWABLE PORTFOLIO STANDARD (RPS) GOAL
California	<ul style="list-style-type: none"> <li>■ 14% in Los Angeles,</li> <li>■ 100% in Santa Monica,</li> <li>■ 100% in Chula Vista,</li> <li>■ 90% in Santa Barbara</li> </ul>	20% by 2017
Connecticut	<ul style="list-style-type: none"> <li>■ 20% by 2010, 50% by 2020,</li> <li>■ 100% by 2050</li> </ul>	13% by 2010
Hawaii	<ul style="list-style-type: none"> <li>■ N/A</li> </ul>	9% by 2010
Illinois	<ul style="list-style-type: none"> <li>■ State: 5% by 2010, 15% by 2020</li> <li>■ Chicago: 20% by 2005</li> </ul>	15% by 2020
Nevada	<ul style="list-style-type: none"> <li>■ N/A</li> </ul>	15% by 2013
New Jersey	<ul style="list-style-type: none"> <li>■ 24 MW of wind power over 3 yrs.</li> </ul>	6.5% by 2012
New York	<ul style="list-style-type: none"> <li>■ 10% by 2005, 20% by 2010</li> </ul>	25% by 2010 (proposed)
Wisconsin	<ul style="list-style-type: none"> <li>■ 25% in Madison</li> </ul>	2.2% by 2011

*Source: Clean Edge, Inc.*

action plan on global warming, with a goal of reducing carbon dioxide emissions to 10% below 1990 levels by 2010 (slightly exceeding goals set forth in the Kyoto Protocol). As part of these efforts, the city has installed solar-powered parking meters, energy-efficient traffic lights, and a water-treatment facility that uses stationary fuel cells and microturbines to convert methane into electricity.

These and other policies are clearly paying off. Portland now boasts more buildings certified by the U.S. Green Building Council's LEED (Leadership in Energy and Environment Design) than any U.S. city. It is home to EcoTrust's Natural Capitalism Institute, an innovative multiuse center that houses the city's Office of Sustainable Development; nonprofits and foundations; a restaurant; natural health clinic; and a Patagonia retail outlet. In 2002, Portland's environmental leadership helped it attract the North American headquarters of the world's largest wind turbine manufacturer, Vestas Wind Systems. (Vestas had also planned a new manufacturing center in Portland that would have created 1,000 jobs, but plans were put on hold indefinitely, the victim of a U.S. wind industry slowdown due to the expiration of federal tax credits.)

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## SAN FRANCISCO'S COMPETITIVE POSITION

Like Chicago, Austin, and Portland, San Francisco brings to the clean-tech marketplace a formidable list of assets and strengths, including progressive local leaders, a supportive business community, and a reputation for technological innovation and entrepreneurialism. The City also has more than a few barriers and weaknesses that could stand in the way of it becoming a leader in clean technology. Leveraging the City's core attributes and addressing its key weaknesses will be critical for San Francisco to gain world-class status in the clean-energy and clean-transportation arenas.

### Strengths and Competencies

According to interviews and survey respondents, San Francisco is well positioned to take a leadership role in the clean-tech market. Many noted that the City has a long and colorful history as an icon for progressive urban practices that address the "triple bottom line" of economic, environmental, and social returns. In the case of clean technology, San Francisco's history is leveraged with four key categories of assets: international brand equity, political leadership, abundant natural resources, and diverse human capital.

### Brand Identity — Built On A Record Of Success

San Francisco has earned an international reputation for its stewardship of the environment. San Francisco — its civic leadership and citizenry — is both committed and engaged. This commitment, led by the City with innovative policies, has resulted in public and private success stories:

*According to interviews and survey respondents, San Francisco is well positioned to take a leadership role in the clean-tech market.*

- **The \$100 million solar bond ballot initiative** was a political milestone on the part of the City and its voters. The success of the 675-kilowatt Moscone Center solar roof installation has helped San Francisco establish itself as a solar energy leader among U.S. cities and has spurred the San Francisco Public Utility Commission to move forward with its own plans to install roughly one megawatt of solar annually across several City locations.
- **The City government** led a long-term initiative in clean transportation and has been rewarded with national recognition for the more than 700 clean-fuel vehicles in its municipal fleet, one of the largest in the nation. Largely as a result, 330 of Muni's 820 transit buses are zero-emission vehicles (ZEV), and Muni has a 100% zero-emissions target by 2020. Muni proudly notes that its ZEV fleet is greater than all other ZEV bus fleets combined nationally.
- **San Francisco's taxi fleet** logs more than a million miles monthly utilizing compressed natural gas on San Francisco's streets. The City's commitment to clean transportation programs and a history of stepping in to create

markets for other clean technologies has attracted notice from companies. For example, Honda recognized San Francisco's dedication to clean transportation when it selected the City to lease two of its million-dollar fuel cell vehicles for testing by the SF Department of Environment.

- **The nation's highest municipal recycling rate.** Today, more than 63% of the San Francisco residents recycle their garbage, more than any major city in the nation.
- **Green purchasing power.** San Franciscans are ready to pledge their personal dollars behind their convictions. For instance, more hybrid cars are bought in the local San Francisco Toyota dealership than in any other Toyota dealership in the country.
- **San Francisco's reputation,** built on a record of success, has made it an attractive destination for national and international clean technology events. There has been an increase in such events, including several annual conferences that have made San Francisco their home. For example, Cleantech Venture Network has hosted its showcase event in San Francisco for the past two years, bringing together emerging companies with more than 300 private equity and venture capital attendees that are investing (or are interested in investing) in clean-tech ventures. The United Nations selected San Francisco as host city for World Environment Day 2005, the first time that the conference will be hosted in North America since the event was established in 1972. The theme for World Environment Day 2005 is "Green Cities: Where the Future Lives," providing a prime opportunity for the City to showcase its clean-technology commitment.

*San Francisco has been selected by the United Nations as host city for World Environment Day 2005, the first time that the conference will be hosted in North America since the event was established in 1972.*

### **Innovative and Progressive Political Leadership**

With its longstanding leadership in both technology and the environment, and a strong constituency of engaged citizens, the City has promoted proactive policies that have created legislation specifically supporting clean energy and transportation.

- **The Mayor,** in his capacity as San Francisco's spokesperson, is an invaluable resource in promoting San Francisco's clean-tech potential. Mayor Newsom is a committed environmentalist and successful businessman. He knows that a sound economy and a healthy environment are inextricably linked, and he can be an effective communicator of San Francisco's clean technology vision to the business community.
- **The Board of Supervisors** has played an active role in promoting clean-tech policies. The recently enacted precautionary principle is a progressive process of review that takes into account environmental impact with respect

to all proposed legislation. The Healthy Air and Smog Prevention ordinance, passed in 1999, is another example of policy helping to create markets.

### Abundant Natural Capital

San Francisco boasts a wealth of natural capital that uniquely positions the City to establish a leadership position in clean energy and transportation:

*Strong tides, high winds, constant waves, and abundant sunshine provide a ready supply of renewable energy resources to be tapped by clean-energy technologies.*

- **The City's compact size** – just seven miles square – makes it suitable for alternative fuel vehicles, which often have limited range. Success by these vehicles in navigating San Francisco's steep hills provides ready testimonials for alternative vehicle marketers, who are eager to claim, "If you can drive it here, you can drive it anywhere."
- **Strong tides, high winds, constant waves, and abundant sunshine** provide a ready supply of renewable energy resources to be tapped by clean-energy technologies. San Francisco already gets 31% of its electricity from renewable energy sources, making it among the highest users of renewables of any city in the United States. Biomass, wind, and solar account for 12% supplied from the grid through PG&E; statewide hydroelectric sources provide another 4%; and Hetch Hetchy provides 15%.
- **Tidal power potential** is enormous, with more than 400 million gallons of water moving through the Golden Gate each day. Indeed, tidal power could be San Francisco's next Hetch Hetchy, with one estimate projecting as much as 2000 MW potential electricity supply. That exceeds San Francisco's (residential, commercial, and municipal) peak demand of 893 MW (2003) and exceeds the projected peak demand of 1,145 MW in 2012. Excess power could be sold back to the grid, providing a new revenue source for the City. Europe is pushing ahead with large tidal projects in France and the UK, and New York City is launching a \$4.5 million project to plunge six turbines into the East River to produce enough electricity to power about 200 homes. If everything goes according to plan, the developers hope to grow the field to 300 turbines stretched along the river. In San Francisco, a demonstration tidal project is planned for spring 2005 by a British company.
- **The Hetch Hetchy hydropower facility**, which generates 400 MW of peak load power, provides San Francisco with approximately 120 MW, or 15% of its total electricity supply, which is used almost entirely by the City's municipal agencies. Muni and the Water Agency buy electricity at the subsidized "General Fund" rate of 3.75¢, while the Airport purchases power at the near-market "enterprise rate" of 12¢.

## Diverse Human Capital

The region's highly educated workforce and access to academic research and resources at leading universities comprise a valuable asset for technology companies seeking to locate or expand here.

*The City has yet to clearly define and articulate its vision for a clean-tech future and speak with a unified voice from the Mayor's office, the Board of Supervisors, and key agencies and business groups.*

In addition to such academic research icons as Berkeley and Stanford, U.C. Davis is one of the recognized research leaders in transportation studies, San Francisco State University boasts the Romberg Center for Environmental Science, and the San Francisco Community College at Evans Campus in the Bayview has a strong vocational training program in advanced automotive technology.

Among San Francisco's strongest strategic assets is a dynamic business community conducive to embracing the clean-tech industry. Within the City's limits is a rich lode of business and entrepreneurial talent – experienced CEOs, CFOs, and CTOs, among others – as well as firms offering the full complement of services – CPAs, intellectual property lawyers, merger and acquisition experts, public relations and advertising firms, executive search firms, etc. – that helped build previous technological sectors.

Clean technology has enormous potential for export markets. China represents over 25% of one company's sales in clean tech. With a strong Asian community, San Francisco can ably serve these expanding export markets.

The Bay Area accounts for 36% of all the venture capital invested in the U.S., including one of the premier funds, Nth Power, focusing on renewable and distributed energy companies.

## Weaknesses and Challenges

Our survey – of leaders of clean-energy and -transportation companies, nonprofits, investors, and others currently based in San Francisco; of organizations that potentially could be based here; and of regional government officials – found several strong perceptions about the challenges of doing business in the City. Some are systemic and often cited by critics, while others are clearly addressable. These include:

- **Lack of a clear vision.** The City has yet to clearly define and articulate its vision for a clean-tech future and speak with a unified voice from the Mayor's office, the Board of Supervisors, the Chamber of Commerce, the Bay Area Alliance, and other key agencies and business groups. In contrast, the mayors of Sacramento, San Diego, and Los Angeles are among those that have taken vocal leadership roles on clean-tech issues, speak at clean-tech events, and are aggressively attempting to lure clean-tech companies. As a result, San Francisco's strategic strengths, successes, and achievements are not reaching the marketplace effectively. There is neither an integrated communications strategy nor systematic procedures to attract clean-tech companies seeking a San Francisco presence.

*Ironically, it is the very assets the City boasts — its progressive, ecological, and social attitudes, and its commitment to sustainability — that can be a double-edged sword.*

- **Inadequate utility cooperation.** Utility cooperation is critical for clean energy to proliferate and succeed. For example, net metering — the ability for solar and wind energy users to sell excess power back into the grid to offset costs — is vital to the stimulation of the clean energy market. While Pacific Gas & Electric Co., the City’s principal investor-owned utility, boasts more grid-connected solar energy than any other U.S. utility, others contend that the utility has made net metering far more restrictive and complicated than necessary, thereby retarding renewable energy’s growth in San Francisco. (Some of the regulatory changes needed to be made also involve the California Energy Commission and the state’s Public Utilities Commission, though the state’s major utilities, including PG&E, weigh in heavily on the commission’s decisions.) As a result, say these critics, there is diminished incentive for retail, commercial, and municipal facilities to embark on aggressive clean-energy projects. The City’s persuasive voice on this issue could help break through such barriers.
- **High cost of doing business.** Fully half of those surveyed cited the perception that the cost of doing business — namely, office rents, business taxes, and government bureaucracy — creates a prohibitively high-cost obstacle for companies considering a San Francisco address. And while high office rents have mitigated and there is now a surplus of quality office space available at competitive rates, the overall challenge of business costs will remain a vexing problem for the City. In addition, the tax structure is not business-friendly, say respondents. Wage and revenue taxes put the city at a competitive disadvantage relative to most other California jurisdictions.
- **Complex bureaucracy.** As stated previously, another key concern is the challenge of navigating San Francisco’s government. Within the City government, there is no one to shepherd companies through the often arcane, balkanized, bureaucracy. Companies complain that minimal support exists for those not politically connected. A common sentiment among respondents was that only a handful of large, politically connected “insider” companies held sway with local officials.
- **Extensive delays associated with project approvals.** Such delays raise the overall cost of doing business in the City. Both outsiders and insiders note the additional levels of compliance with seemingly irrelevant legal and social requirements they must address to obtain project approval. Ironically, it is the very assets the City boasts — its progressive, ecological, and social attitudes, and its commitment to sustainability — that can be a double-edged sword. San Francisco’s regulatory environment can be strict and environmental activist groups can make business as difficult for renewable-energy development as for any other kind of business activity.

- **Burdensome contracting requirements.** The City's "excessive concern with social considerations," as one frustrated survey respondent put it, can levy indirect costs on small companies and yield less than optimal outcomes. For example, minority contracting requirements can preclude many companies from participating in city Requests for Proposals.

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## STRATEGY AND RECOMMENDATIONS: A 10-POINT PLAN

How can San Francisco leverage its assets and overcome its weaknesses to become a world-class center for clean energy and transportation? Following are ten key strategies, the result of our research and interviews with experts in the field:

### The Ten-Point Plan

1. Communicate and coordinate the vision
2. Remove regulatory barriers
3. Appoint a clean-tech manager for the City
4. Align the City's procurement goals
5. Create a magnet clean-tech institution
6. Create a high-profile project
7. Leverage San Francisco's financial strengths
8. Launch a clean-energy incentives fund
9. Attract the flagship conferences
10. Partner with other regional players

### 1. Establish, communicate, and coordinate the vision.

Like other cities and states vying for leadership in this area, San Francisco must establish its clean-technology vision, and present it in a unified, coordinated approach. Everyone – including the Mayor, the Board of Supervisors, the Public Utilities Commission, the Chamber of Commerce, and various City departments – has a role to play.

The commitment will need to begin with Mayor Newsom, a dedicated environmentalist and successful entrepreneur, to endorse and champion San Francisco's clean-technology vision, and then steward the process. His "can do" reputation as a

progressive, risk-taking political leader will be a strong voice to the clean-tech business community.

In doing so, he will follow the lead of other political leaders – including, notably, California's governor – that have used their political visibility to communicate a vision, inspire involvement by a wide range of players, remove obstacles, and personally invite and encourage businesses to relocate to their jurisdiction. These leaders often begin with a bold vision – for example, California's Hydrogen Highway initiative to create the first statewide network of hydrogen fuel stations – that become a spawning ground for new initiatives and businesses.

To demonstrate his commitment, and to provide a platform from which to turn that commitment into action, the Mayor might form a Council on Clean Technology, a multistakeholder body that could facilitate relationships with local businesses and business leaders in finance, development, real estate, technology, security, energy, and infrastructure, so that they are aware of, and aligned with, the goals and investments the City is making.

The Board of Supervisors also can play a key role in communicating the City's commitment. Already, it has shown strong vision and leadership around clean technology. This spring, for example, it voted unanimously for legislation to use the state's "Community Choice" law to switch San Francisco residents and businesses to a new power

supplier for electricity service and to finance a network of renewable energy and energy conservation projects. If such a plan were actually implemented, it could result in 360 MW of new solar photovoltaic installations, hydrogen-powered fuel cells, wind turbines, energy efficiency measures, and conservation technologies as standard components of the City's electricity service.

The City will need to enlist the support of the full range of area business organizations, among them the Chamber of Commerce, the Bay Area Council, and the Bay Area Regional Technology Alliance. Influential public policy organizations and public agencies such as the Bay Area Air Quality Management District, SFPUC, CPUC, and the CEC will need to be actively engaged as well. Each will play a key role in communicating the City's vision, engaging constituencies, and building support.

The city also will need to launch an aggressive public relations and outreach strategy in order to broadly and strategically communicate its vision, goals, and successes, both within the Bay Area as well as to the larger global audience. The "ONLY IN S.F." campaign being conducted by the City and the Visitor's Bureau serves as one good model of a unified and well-orchestrated outreach effort.

*To better serve business in all sectors, the City should consider hiring one or more legislative analysts to identify specific obstacles to deploying clean energy and other clean-tech projects in the City.*

## **2. Remove regulatory barriers.**

To better serve business in all sectors, the City should consider hiring, on a time-limited contract, one or more legislative analysts to identify specific obstacles to deploying clean-energy and other clean-tech projects in the City, and recommend solutions that would make the city more clean-tech-friendly. Examples of current regulatory hurdles include:

- **Permitting barriers that cause delays** in getting new solar PV systems installed. The City might offer exemptions or fast-track permitting to encourage and expedite solar installations.
- **Net metering and interconnect issues**, which make it complicated and time-consuming for companies that install solar energy systems to sell back excess energy to the local grid, or limit the amount of energy a solar customer can sell. While these issues are the domain of the state PUC and local utilities, the City could be a persuasive force in engendering needed changes.
- **Barriers to implementing the Solar H Bond**, passed by the City's voters in 2002, and finding possible public-private financing solutions to make this bonding measure feasible.
- **Provisions of the state's buy-down program** for solar photovoltaic systems that limit the cumulative size of projects eligible for rebates to 1 MW per year per city or business entity. Such restrictions limit all parties' ability to accelerate the installation of solar in San Francisco.

- **Review of state's "Community Choice" law** and evaluate what it would take for S.F. to actually implement such a program.

### **3. Appoint a clean-tech manager for the City.**

The manager, housed within the Office of Economic and Workforce Development, would market and execute the city's clean-tech business attraction strategy. This position will also lead San Francisco's efforts in establishing public-private partnerships, and shepherd companies and/or projects through all municipal and public agencies.

*Committing the City government to purchase clean-energy and clean-transportation products and services can send a strong signal of a city's commitment to clean technology.*

Among other things, this clean-tech manager would help with siting (for example, finding affordable office, warehouse, and manufacturing space; accessing attractive rents, permitting); human resources (identifying and utilizing workforce development incentives, tapping local labor markets); market development (selling to the City, participating in trade missions and other market-development initiatives), as well as tapping into funding opportunities.

When appropriate, this office could itself create an integrated package of tailored incentives on a case-by-case basis, helping address individual clean-tech companies' specific needs. These may include some of the same incentives currently being made available to biotechnology firms seeking to locate in San Francisco.

### **4. Align the City's procurement goals.**

Governments at the federal, state, and local levels have demonstrated their ability to help propagate environmental products and technologies through their considerable individual and cumulative buying power. Committing the City government to purchase clean-energy and clean-transportation products and services can send a strong signal of a city's commitment to clean technology, and can help incentivize companies to locate here.

San Francisco already has one of the strongest environmentally minded procurement in the nation, due to the Precautionary Principle adopted by the Board of Supervisors in 2002. Among other things, it establishes an obligation by the City "to examine a full range of alternatives and select the alternative with the least potential impact on human health and the ecological system, including the alternative of doing nothing," and that "When evaluating alternatives, there is a duty to consider the full range of costs of the products, services, or plans." Such provisions, put into practice, encourage, if not require, San Francisco to integrate clean-tech into its procurement decisions.

The City should set targets of clean-energy development annually in the form of city procurements of solar, wind, or tidal power, for example. It may also leverage bulk procurement opportunities by aggregating smaller energy or transportation needs of various offices, agencies, and institutions within its jurisdiction – or even partnering

with other local jurisdictions to further aggregate demand and obtain more favorable pricing.

The City also may consider setting an ambitious procurement target for clean energy and transportation. For example, it could introduce legislation to raise the percentage of natural gas taxis operating on City streets, phased in over several years. Oakland currently has a similar 50% requirement for taxis using its airport, and Seattle already has achieved this for 100% of its taxi fleet.

In the energy arena, the City could establish a program for solar PV systems, in which where the City would purchase PV modules and related components in bulk at attractive prices and sell them at cost to city residences and businesses, enabling individual purchasers to obtain systems at bulk-purchase prices.

*The City's clean-tech center could help bring credibility to the City, attract other clean-tech companies, and become the hub for a workforce-development initiative aimed at growing the base of skilled workers in clean technology.*

## **5. Create a magnet clean-tech institution.**

The City should consider developing a center dedicated to the advancement of clean energy and transportation, similar to EcoTrust's Natural Capital Institute in Portland, or the Chicago Center for Green Technology. The institution could serve as an incubator for early-stage companies, a showcase for the technologies themselves, and a learning and training facility that would help provide workforce development for future clean-technology workers. Much as Chicago and Portland did, San Francisco could help line up flagship, anchor tenants in advance, and co-locate private-sector enterprises with nonprofits and City offices to ensure the center is fully utilized from the onset.

Creating a clean-tech institution could help achieve another desirable goal: luring a large company to San Francisco. The City's clean-tech center could serve as the firm's offices, providing high visibility (and, possibly, low real estate costs). Such a company would help bring credibility to the City, attract other clean-tech companies, and stimulate job growth.

Still another idea worthy of consideration is to create a Clean-Tech Enterprise Zone — perhaps in the shipyard or the Bayview/Hunter's Point area, on Treasure Island, or at Mission Bay. The idea would be to attract light manufacturing such as solar module manufacturers, who would be attracted by the incentives typically found in an enterprise zone, such as a hiring tax credit, sales or use tax credits, and net operating loss carryovers.

The City might also consider establishing an eco-industrial park, a group or network of businesses working together to cooperatively manage their key resources and byproducts, including energy, water, and raw materials. Typically, a park's participants work towards a common goal of optimizing economic, employment, and environmental objectives. (The park also could house the aforementioned clean-technology center.) Alameda County's Waste Management Authority and Recycling

Board currently is examining the feasibility of an eco-industrial park within its boundaries, and is actively seeking anchor tenants.

Finally, such a center or institute could become the hub for a workforce-development initiative aimed at growing the base of skilled workers in clean energy and transportation, perhaps in partnership with S.F. City College or another educational institution. City College's Evans Campus already has one of the only alternative transportation, education, training, and vocational programs in the nation, a program that has yet to gain City recognition or support. Providing help with promoting and funding of the program could help the program develop its full potential.

## **6. Create a high-profile project.**

San Francisco could help to establish itself as a clean-tech hub by announcing and implementing a project of major importance and magnitude. For example, the City could develop one of the state's first retail and commercial hydrogen fueling stations – say, at SFO or another City facility – as part of Governor Schwarzenegger's Hydrogen Highways initiative. Another such project would be to expand current solar development under way by the City or to accelerate the development and deployment of a major tidal or wave project in the Bay. These projects should be vetted by a Mayor's Council on Clean Technology, or some other third party, to promote transparency and to guarantee the adoption of the best technologies.

*The City could more actively participate in the clean-tech financial arena by creating its own version of the State's Green Wave environmental technology initiative.*

## **7. Leverage San Francisco's financial strengths.**

The City should leverage its strong investment community base by promoting San Francisco as a center for finance. Several leading clean-tech venture firms already call San Francisco home, and a growing number of the leading VCs on the Peninsula are making investments or setting up funds in this space.

The City also could actively participate in the clean-tech financial arena by creating its own version of the State's Green Wave technology initiative. After more than a year of research and consulting with more than 200 industry experts, the Investment Committee of the state's \$280 billion retirement fund authorized an initial \$500 million to be invested with firms that will in turn invest directly in emerging clean-tech companies.

San Francisco currently manages an \$11 billion pension fund portfolio for its City and County employees. The fund has four principal areas of investment, each with its own Senior Investment Advisor: Real Estate, Private/Public Equity Markets, Fixed Income, and the Alternative Investment Program, or AIP. The AIP segment is authorized to invest up to 12% (\$1.3 billion) of the fund into existing private equity and venture capital funds.

The AIP fund is an ideal and appropriate vehicle for clean-tech investments. Matching the state's Green Wave commitment of just under 0.2% of managed assets, the City's

pension fund could deploy about \$20 million in private equity to clean technology, creating a major opportunity for the city to demonstrate its commitment to this sector.

Alternatively, proceeds from the Mayor's Energy Conservation Account fund could fund a model similar to that of the Massachusetts Technology Collaborative, which provides funding for a basket of projects. One example is the Mass Green Energy Fund, a venture capital fund chartered to invest in Massachusetts companies. Funds also could target small-scale project financing in and around San Francisco, match venture funding with City funds or create other public-private investment partnerships, leverage federal and state investment dollars, and make other targeted investments that directly benefit San Francisco's workforce and taxpayers.

### **8. Launch a clean-energy incentives fund.**

*San Francisco already has made some headway in attracting leading conferences on clean technology and sustainable business, being the host city for several conferences focusing on these issues.*

Portland offered a Green Incentives Fund to promote green building initiatives, providing annual awards to green-building efforts by businesses and residences. San Francisco should consider a similar program focused on clean-energy. This fund, supported by PG&E or other local companies or organizations and administered by the City, would award up to \$500,000 annually to, say, 20 clean-energy or clean-transportation projects – with a maximum award of \$50,000 per project. Awards would go to architects, designers, businesses, residences, and others that offer unique and cutting-edge clean-energy or clean-transportation ideas for their businesses or homes to fully cover or help offset their project's costs.

MECA receives funds from a percentage of Hetch Hetchy revenues, amounting to anywhere from \$5 million to \$15 million annually. The money has provided bridge-funding for S.F. PUC projects, and could be a source of funding for the clean-energy incentives fund. These funds could be directed more effectively by the Mayor to establish initiatives similar to the Massachusetts Technology Collaborative.

### **9. Attract the flagship conferences.**

San Francisco already has made some headway in attracting leading conferences on clean technology and sustainable business, being the host city for several conferences focusing on these issues. By supporting the efforts of conference organizers and coordinating with appropriate agencies, the City could become host to the "Macworlds" of the clean-energy sector. The aforementioned World Environment Day event, hosted in 2005 by San Francisco and focusing on green cities, will be a prime opportunity to position the City in this regard, and the Mayor and other officials would be wise to maximize the potential of this event. (See [www.wed2005.org](http://www.wed2005.org) for more information.)

The City also could leverage its commitment to clean technology as a means of marketing to meeting planners and conference organizers. A growing number of companies, associations, and other organizations are giving preference to venues that boast environmental practices, such as using renewable energy, high levels of recycling and

waste reduction, and the use of nonpolluting transportation. Positioning the City as a clean-tech-friendly locale could help San Francisco's main conference venue – the solar-bedecked Moscone Center – be the clean conference venue of choice.

#### **10. Partner with other regional players.**

San Francisco isn't the only city in the Bay Area looking to become a clean-tech magnet. Berkeley, Oakland, and the Silicon Valley area all have visions and programs to lure companies and institutions – and each has its own strengths and weaknesses. There is strength in numbers. A coordinated effort could be synergistic – and San Francisco could benefit by being the crown jewel among the area's cities. It would also avoid duplication of efforts, with neighboring cities using similar resources to make similar pitches. It may be desirable to position the entire region as a clean-tech hub, thereby allowing all players to leverage one another's prime assets.

## ABOUT THE AUTHORS

**Ron Pernick**, co-founder and principal of Clean Edge, is an accomplished marketing, communications, and business development entrepreneur with nearly two decades of high-tech experience. Prior to founding Clean Edge, he ran his own environmental web consulting practice and earlier helped build the brands of such Internet pioneers as Internet In A Box, Preview Travel, The WELL, and Yahoo! During his career, he has worked in both the US and Japan, serving a range of emerging and established companies. He is co-author of numerous clean-energy and clean-tech reports and has been an instructor and adjunct faculty at UC Berkeley Extension and New College's Green MBA program.

**Joel Makower**, co-founder and principal of Clean Edge, is a well-respected business writer and analyst, and a leading voice on business, technology, and the environment. Prior to Clean Edge, he founded *The Green Business Letter*, a monthly newsletter on corporate environmental strategy; and Green Business Network, producer of GreenBiz.com, an acclaimed web portal on business and the environment. He is best-selling author or co-author of more than a dozen books, including *The E-Factor: The Bottom-Line Approach to Environmentally Responsible Business*, and is a frequent lecturer to companies, associations, and business schools on clean technology and sustainable business strategy.

**Arthur de Cordova** has more than 20 years of international business and management experience in both the private and nonprofit sector. He lived in Russia for six years working for AstraZeneca, the \$16 billion Anglo/Swedish pharmaceutical company, in the capacity of country manager. Following a six-year career on Wall Street, where he worked for Bear Stearns and PaineWebber, he joined AmeriCares, the international disaster relief agency, leading missions worldwide. In San Francisco, he has led environmental initiatives in clean transportation and education, working closely with municipal policy leaders and clean-tech companies. Arthur graduated from Georgetown University with a degree in finance and business administration, as well as studying at the Netherlands School of Business, Stichting Nijenrode, and the International Institute for Management Development in Lausanne, Switzerland.

**Jay Brandeis** and **Avra Goldman** provided research assistance for this report.

## CLEAN EDGE

**Clean Edge, Inc.** ([www.cleandge.com](http://www.cleandge.com)), based in the San Francisco Bay Area, is a leading research and strategy firm that helps companies, investors, policymakers, and nonprofits understand and profit from clean technologies. Through its research and reports, strategic marketing services, online publications, and co-sponsored conferences and events, Clean Edge tracks and analyzes clean-tech markets, trends, and opportunities. Founded in 2000 by environmental and high-tech business pioneers Ron Pernick and Joel Makower, Clean Edge and its network of partners and affiliates offer unparalleled insight and intelligence for a range of clean-tech stakeholders.

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## APPENDIX: BAY AREA CLEAN-ENERGY AND CLEAN-TRANSPORTATION DIRECTORY

Clean energy and clean transportation represent dynamic sectors experiencing rapid growth rates in the Bay Area. Since 2000, for example, the number of solar photovoltaic companies in the Bay Area has grown from one or two major players to nearly a dozen firms, including Miasole, Nanosolar, Nanosys, PowerLight, Prevalent Power, Solaria, and Solaicx.

The region also has seen rapid expansion in the number of venture capital firms investing in and focusing on clean energy and transportation. For example, while San Francisco has been home since 1995 to the leader of clean-energy investing, Nth Power, there had been minimal activity among other, traditional venture capital firms until recently. Today, traditional firms such as Draper Fisher Jurvetson, Kleiner Perkins, and VantagePoint Venture Partners are all investing in this space, and are poised to invest tens of millions of dollars more.

Equally noteworthy, while San Francisco was home to no major clean-tech events in 2000, in 2004 the city hosted nearly ten major conferences and events.

This directory, while not exhaustive, is representative of the many emerging clean-energy and clean-transportation players in the following categories:

- **Clean Energy and Transportation Companies**
- **Financial Resources** (angel investor groups, venture firms, incubators)
- **Events, Workshops, and Conferences**
- **Nongovernmental Organizations** (advocacy groups, foundations, think tanks)
- **Service Providers** (consultants, public relations and advertising firms, accountants, law firms)

The descriptions in this directory were adapted from information provided by the organizations themselves.

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## CLEAN ENERGY AND TRANSPORTATION COMPANIES

### **AFS Trinity Power Corporation**

PO Box 449  
Medina, Washington, 98039  
425-454-1818  
headquarters@afstrinity.com  
www.afstrinity.com

AFS Trinity is a private company specializing in flywheel technologies. The company is developing advanced flywheel systems for power quality, distributed generation, light rail power management, alternative energy systems, hybrid electric vehicles and spacecraft. According to the company, the launch of AFS Trinity's first commercial product, the M3, is planned for early 2005.

**Employees:** N/A  
**Established:** 2000

### **Anuvu Inc.**

3980 Research Dr.  
Sacramento, CA 95838  
916-921-7040  
info@anuvu.com  
www.anuvu.com

Anuvu Incorporated is a fuel cell company that designs and manufactures fuel cell stacks, fuel cell engines and systems, and provides custom solutions for a variety of clients. Recent projects include the design and development of fuel cell/battery hybrid engines for a variety of vehicles and boats, as well as a robust system designed specifically for education and research at the university level. Additional areas of expertise include off grid power applications.

**Employees:** 30  
**Established:** 1994

### **Atlantis Energy Systems, Inc.**

9275 Beatty Dr. Ste. B  
Sacramento, CA 95820  
916-438-2930  
jomo13@atlantisenergy.com  
www.atlantisenergy.org

Atlantis Energy Systems is a manufacturer of Building Integrated Photovoltaic (BIPV) products. The company's two product lines are Sunslates(r) PV roofing slates and custom PV glass laminates. Atlantis Energy services include: system design, project coordination, system integration and training.

**Employees:** 35  
**Established:** N/A

### **Eastwood Energy Corporation**

100 Larkspur Landing, Circle Ste. 114  
Larkspur, CA 94939  
415-925-9650  
info@eastwoodenergy.com  
www.eastwoodenergy.com

Eastwood Energy Corporation (EEC) specializes in the design, development and installation of multi-energy power systems with emphasis upon distributed renewable resources. EEC has developed a flexible, cost effective, proprietary, modular mounting system (MMS) for Solar Electric Systems. In addition to EEC's expertise within solar, they have access to significant knowledge in wind resource assessment, project finance and project management.

**Employees:** 6  
**Established:** 1986

#### **EcoEnergies, Inc.**

171 Commercial St.  
Sunnyvale, CA 94086  
866-765-9463  
watts@ecoenergies.com  
www.ecoenergies.com

EcoEnergies is a designer and installer of residential and commercial photovoltaic and wind systems in the San Francisco Bay Area. The company has over 200 systems installed and over a megawatt of clean renewable energy capacity in place. EcoEnergies, together with its sister companies, has either installed or owns over 130 MW of renewable and waste-fuelled power plants. The company is privately held and wholly owned by American Consumer Industries.

**Employees:** 30  
**Established:** 1987

#### **Fat Spaniel Technologies**

648 S. 12th St.  
San Jose, CA 95112  
408-279-5262  
info@fatspaniel.com  
www.fatspaniel.com

Fat Spaniel Technologies specializes in the monitoring and visualization of grid-tied photovoltaic (solar electric) systems, committed to clean, renewable energy technology. Fat Spaniel's tools transform raw energy data into easy-to-understand presentations, accessible from any Internet-enabled device. Data logs that are created via Fat Spaniel technology offer an instant, accurate view of how a PV system is performing at any given time of the year.

**Employees:** 10  
**Established:** 2002

#### **FST Energy Inc.**

601 Van Ness Ave.  
Ste. E3613  
415-978-2301  
contact@fstenergy.com  
www.fstenergy.com

FST Energy is a hydrogen storage and distribution company. The company's flagship product is a proprietary technology called Hydrogen-Direct™. Hydrogen-Direct™ is designed to fuel cars, a broad range of industrial generators, remote and back-up power systems for ISP's, homes, paramedics and other energy consumers. FST has built additional technology in the areas of: business method IP, chemistry, material science, storage compounds, manufacturing processes, new forms of rapid-hydrolysis, software, hardware and nano-processing systems.

**Employees:** 12  
**Established:** 2002

### Green Mountain Engineering, LLC

350 Brannan St. 3rd Fl.  
San Francisco, CA 94107  
415-979-9794  
contact@greenmtneng.com  
www.greenmtneng.com

GME uses Pro/Engineer and SolidWorks software and multiple analysis tools to provide top-quality designs, drawings and assembled electromechanical hardware for the Renewable Energy, Life Sciences, Semiconductor and Aerospace industries. A typical project with GME would entail the following services: project management, analysis, design, fabrication, manufacturing and testing.

**Employees:** 4  
**Established:** 2003

### H2Onsite

199 California Dr., Ste 120  
Millbrae, CA 94030  
650-697-6468  
info@H2onsite.com  
www.h2onsite.com

H2onsite is a technology company founded to commercialize high efficiency systems for generating hydrogen at point-of-use. H2onsite technology economically utilizes natural gas as the primary source of energy to separate hydrogen from water.

**Employees:** 7  
**Established:** 2003

### Hydroventuri

22 Battery St. Ste. 401  
San Francisco, CA 94114  
408-772-8807  
info@hydroventuri.com  
www.hydroventuri.com

HydroVenturi is a privately held company established to exploit an innovative means of extracting energy from moving water. The company's technology works by converting low grade energy found in moving water into high grade energy that can drive a turbine. This system reduces cost by removing complexity from the devices deployed in water.

**Employees:** N/A  
**Established:** N/A

### Miasolé

871 Fox Ln.  
San Jose, CA 95131  
408-456-5700  
info@miasole.com  
www.miasole.com

Miasolé is focused on a continuous high throughput, vacuum deposition process for the production of thin-film copper-indium-gallium-diselenide (CIGS) solar cells. Manufactured on highly flexible substrates, Miasole's cells will support a broad range of solar applications. The company recently received a new round of venture funding and is expected to begin commercial production next year.

**Employees:** 8  
**Established:** 2001

#### **Nanosolar Inc.**

2440 Embarcadero Way  
Palo Alto, CA 94303-3313  
650-565-8891  
info@nanosolar.com  
www.nanosolar.com

Nanosolar is focused on making solar electricity plentiful through a new generation of nano-based solar cells. The company is working to develop solar cells that are flexible, light-weight, and unprecedented in their cost effectiveness. Based on recent advances in nano-structured semiconductors using wet chemistry, Nanosolar's proprietary technology could make it possible to design and optimize solar cells at the very length scale demanded by regular quantum physics.

**Employees:** N/A  
**Established:** 2001

#### **Nanosys**

2625 Hanover St.  
Palo Alto, CA 94304  
650-331-2100  
info@nanosysinc.com  
www.nanosysinc.com

Nanosys is a nano-technology company developing nano-enabled systems based on a platform technology. The company's technology incorporates patent-protected, high performance and highly integrated inorganic semiconductor nanostructures. These systems are being applied in major industries that include energy, defense, electronics, healthcare and information technology. Nanosys is currently making impressive inroads in the area of solar cell technology.

**Employees:** 50  
**Established:** 1999

#### **Nanostellar, Inc.**

3603 Haven Ave., Ste. A  
Menlo Park, CA 94025  
650-368-1010  
info@nanostellar.com  
www.nanostellar.com

Nanostellar is a nano-composite material company that develops highly efficient platinum nano-composite catalyst solutions. Nanostellar is designing and developing new types of precious metal alloy composite nano-particles for catalyst application areas in 1) emission control for gasoline-powered automobile vehicles 2) lean-burn diesel engines 3) fuel cells and 4) catalysts for the chemical industry. Nanostellar secured their first round of funding, \$3MM, in late June of 2004.

**Employees:** 15  
**Established:** 2003

### Next Energy Corp.

2415 3rd St. , Ste. 271  
San Francisco, CA 94107  
415-362 4498  
info@nextenergycorp.com  
www.nextenergycorp.com

Next Energy is a division of Accurate Heating & Cooling Company. Next Energy provides turnkey solar, wind, and cogeneration energy solutions to residential and business customers. Next Energy offers design, installation, financing, monitoring and maintenance.

**Employees:** 8  
**Established:** 1952

### Northern Power Systems

33 New Montgomery St.  
San Francisco, CA 94105  
415-543-6110  
info@northernpower.com  
www.northernpower.com

Northern Power Systems designs, builds, and installs ultra-reliable electric power systems for industrial, commercial, government, and military customers. Northern Power has long been a leader in wind turbine development, specializing in highly reliable, direct drive generator technology. The company also specializes in the development of hybrid fossil/renewable systems that allow multiple generation sources to be combined seamlessly, delivering a cost-effective supply of high quality, reliable and cleaner electric power.

**Employees:** 130  
**Established:** 1974

### Occidental Solar Power

3629 Taraval St.  
San Francisco, CA 94116  
415-681-8861  
solar@oxypower.com  
www.oxypower.com

Occidental Power is a licensed California Solar Contractor offering design, installation, maintenance, and service of both commercial and residential solar photovoltaic, thermal, and natural gas cogeneration systems. Occidental's applications have included pool and spa water heating systems; space heating systems; emergency back-up, independent and utility inter-tied photovoltaic systems; natural gas cogeneration of electricity and hot water; and heat recovery systems for boilers and furnaces. The company also owns and operates a 60-kilowatt cogeneration power plant.

**Employees:** 10  
**Established:** 1989

### Optimal Technologies

283 East H Street  
Benicia, California 94510  
707-557-1788  
info@otii.com  
www.otii.com

Optimal Technologies offers advanced, supply-side and demand-side management solutions targeted at the end-to-end optimization of electric power networks. The company delivers software and related services to optimize the efficiency of power generation, transmission, and usage. In October 2002, Optimal Technologies was chosen to work with the California Energy Commission's distributed energy resource (DER) planning project for Silicon Valley. Some of Optimal Technologies key customers are the State of California and the National Renewable Energy Laboratory.

**Employees:** 17  
**Established:** 2000

### **PG&E**

77 Beale St  
San Francisco, CA 94105  
(415) 973-6436  
selfgen@pge.com  
www.pge.com

PG&E supports initiatives at the local, state and federal levels to increase the use and development of renewable resources. Currently, 10.6 percent of Pacific Gas and Electric Company's power sales come from renewable resources. In 2002, the state enacted legislation, which the company supported, increasing the percentage of sales that must come from renewable resources to 20 percent within the next 10 to 15 years. PG&E Corporation (Holding company for PG&E Company) is publicly traded on the New York Stock Exchange under symbol PCG.

**Employees:** 19,575  
**Established:** 1905

### **PolyFuel**

1245 Terra Bella Ave.  
Mountain View, CA 94043  
650-429-4700  
info@polyfuel.com  
www.polyfuel.com

PolyFuel has developed the only commercially-viable membrane used specifically in direct methanol fuel cell power systems. The company is currently supplying its DMFC membrane samples to the world's leading consumer electronics manufacturers and other developers of DMFC systems. Examples of consumer electronic equipment being tested by PolyFuel are mobile phones and laptop computers.

**Employees:** N/A  
**Established:** 1999

### **PowerLight Corp.**

2954 San Pablo Ave.  
Berkeley, CA 94702  
510-540-0550  
info@powerlight.com  
www.powerlight.com

PowerLight is a full-service company offering solar electric products and complete energy solutions, from initial consultation to installation, project development, maintenance and financing. The company's patented photovoltaic (PV) products provide solar energy at a very low cost and are uniquely designed to install seamlessly onto existing building infrastructures, without penetrations. Examples of PowerLight's current customers are Fetzer Vineyards, US Navy and Mauna Lani Resort.

**Employees:** 80  
**Established:** 1991

### Praxair

2678 Bishop Dr., Ste. 118  
San Ramon, CA 94583  
925-866-6800  
info@praxair.com  
www.praxair.com

Praxair is one of the world's leading suppliers of hydrogen, offering several different supply options. Over the last few decades, Praxair has been working with materials providers, device suppliers, end-use customers and government on the development of new, clean fuel technologies, including fuel cells for electricity and mobile power generation. In 2000, Praxair was chosen by the U.S. Department of Energy (DOE) to lead one of eight teams that will pioneer a new generation of ultra-clean, transportation fuels and associated emission controls to meet stringent tailpipe emission standards later this decade. Praxair is publicly traded on the New York Stock Exchange under symbol PX.

**Employees:** 25,000  
**Established:** 1907

### Prevalent Power

20 Galli Dr., No. 8  
Novato, CA 94949  
415-506-0123  
info@prevalentpower.com  
www.prevalentpower.com

Prevalent Power is a solar energy company that brings together engineering, construction, capital financing, and project management services critical to the timely deliver of today's large-scale grid-tied renewable energy systems. Clients include Swinerton Property Services, Inc., Marin County General Services and Sonoma State University.

**Employees:** 10+  
**Established:** 2001

### RWE Schott Inc.

4051 Alvis Court, Ste 1  
Rocklin, CA 95677  
916-625-9033  
info@rweschottsolar.us  
www.rweschottsolar.us

RWE SCHOTT Solar (RSS) is a joint venture of the RWE Group, a global multi-utility, and the SCHOTT Group, a leading international specialty glass manufacturer. RSS combines technical leadership in solar module manufacturing with extensive engineering abilities and dedicated customer service to create high-performance photovoltaic power systems for a wide variety of requirements.

**Employees:** N/A  
**Established:** 1974

### SELCO

50 California St., Ste. 1500  
San Francisco, CA 94115  
415-277-5407  
info@selco-intl.com  
www.selco-intl.com

SELCO, the Solar Electric Light Company, has brought reliable, affordable, and environmentally sustainable electricity to 35,000 homes and businesses worldwide. The company delivers small-scale modular wireless technologies, like solar PV, to their customers. By providing a combination of product, service, and financing, SELCO is able to offer superior lighting and electricity at a monthly price comparable to using traditional, less effective sources. SELCO has built a network of 40 retail sales and service centers in India and Sri Lanka.

**Employees:** 350  
**Established:** 1997

#### **SMA America INC.**

12438 Loma Rica Dr., Unit C  
Grass Valley, CA 95945  
530-273-4895  
jberdner@sma-america.com  
www.sma-america.com

SMA America INC. is home of the Sunny Boy Inverter. Founded in Germany, SMA Regelsysteme GmbH has grown to over 700 employees worldwide. SMA's office in California supplies the North American solar power industry with high efficiency solar inverters. SMA is also developing a central inverter for the largest commercial or industrial solar plants, and a battery inverter for the off-grid and backup power markets.

**Employees:** 11 (in Calif.)  
**Established:** 1981

#### **Solaicx**

160 Albright Way, Ste. E  
Los Gatos, CA 95032  
408-374-3308  
jts@solaicx.com  
www.solaicx.com

Solaicx is developing and implementing breakthrough manufacturing technology that yields low-cost, high-efficiency silicon wafers for the photovoltaic PV industry. The company designs and builds equipment optimized for the high volume, continuous manufacturing of high-performance, single crystal wafers. These single crystal wafers will be sold to major solar cell and module manufacturers such as Sharp, BP, Kyocera, and Shell.

**Employees:** 12  
**Established:** 2000

#### **Solar Depot**

1240 Holm Rd.  
Petaluma, CA 94954  
707-766-7727  
info@solardepot.com  
www.solardepot.com

Solar Depot is a wholesale designer, distributor and integrator of solar thermal and solar electric power systems. The company is one of the largest integrators of solar systems in the United States and the largest distributor of BP Solar in the Western Hemisphere. Solar Depot's customers include the U.S. Military, the Federal Government, NASA, the States of California, Nevada, Oregon, Washington, and others, Municipal Utilities, as well as, the private sector.

**Employees:** N/A  
**Established:** 1980

### Solaria

2560 Ninth St., Ste. 213A  
Berkeley, CA 94710  
510-883-1200  
info@solaria.com  
www.solaria.com

Solaria is a technology innovator providing advanced engineering services to the solar industry. The company, with a center in Hyderabad, India, and headquarters in Berkeley, CA is working to lower costs by providing advanced engineering services to a range of solar PV companies.

**Employees:** 14 (3 in U.S.)

**Established:** 2000

### Stuart Energy

5101 Orbitor Drive, Mississauga  
Ontario, Canada L4W 4V1  
905.282.7700  
www.stuartenergy.com

Located in Canada, Stuart has built 8 of the existing 16 hydrogen refueling stations in California, including a facility in nearby Richmond. A station in Oakland is in development with AC Transit. The company is poised to play a major role in the development and expansion of Governor Schwarzenegger's Hydrogen Highway initiative.

**Employees:** 165

**Established:** 1948

### Sun Power & Geothermal Energy

863 E. Francisco Blvd., Ste. A  
San Rafael, CA 94901  
415-459-4201  
sales@sunpowergeo.com  
www.sunpowergeo.com

Sun Power is an integrated designer/installer of solar power systems for business, public works projects and residences in California. The company claims to be the only solar energy contractor in CA that installs solar systems for single residences as well as large commercial and government facilities. Sun Power has designed, installed and commissioned over 300 grid-tied, net metered solar photovoltaic installations in California.

**Employees:** 40

**Established:** 2001

### SunPower Corp.

430 Indio Way  
Sunnyvale, CA 94085  
408-991-0900  
sales@sunpowercorp.com  
www.sunpowercorp.com

SunPower is a majority-owned subsidiary of Cypress Semiconductor Corp. (NYSE: CY) The company designs and manufactures high-performance silicon solar cells, photodetectors, and other optoelectronic products. SunPower's latest A-300 solar cell achieves over 20% efficiency compared with currently available cells in the 12% — 15% range. The A-300 cell is developed and manufactured in SunPower's Round

Rock, Texas 1-MW facility, with large-scale production in the Philippines scheduled in 2004.

**Employees:** 75  
**Established:** 1988

### 3 Phases Energy Services

1004 O'Reilly Street, Suite 300A  
Presidio of San Francisco  
San Francisco, CA 94129  
866.476.9378  
www.3phases.com

3 Phases is a pure play renewable energy services company providing integrated green power solutions for our customers. The Company's Green Direct program allows for businesses/institutions to purchase 100% renewable electricity via the grid if they are eligible for Direct Access in California. The Green Certificates division manages green pricing programs for utilities and supplies green tags directly to businesses and institutions. 3 Phases Green Onsite develops, facilitates, and co-manages commercial energy efficiency and solar power projects throughout the state.

**Employees:** 16  
**Established:** 1994

### Zap Bikes

501 Fourth St.  
Santa Rosa, CA 95401  
707-525-8658  
zap@zapworld.com  
www.zapworld.com

ZAP has announced a breakthrough electric propulsion system that uses a new hydrogen fuel cell and lead-cobalt battery design developed by Apollo Energy Systems. ZAP, the company, markets many forms of transportation, including electric automobiles, motorcycles, bicycles, scooters, and personal watercraft.

**Employees:** 42  
**Established:** 1994

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## FINANCIAL RESOURCES

### Advent International

525 University Avenue  
Suite 700  
Palo Alto, CA 94301  
(650) 233-7500  
info@ca.adventinternational.com  
www.adventinternational.com

Advent International is one of the world's leading investors in energy technologies. Now investing its second venture capital fund focused on emerging energy technologies, products and services, Advent's target sub-sectors include renewable energy, emission technology and energy storage. Some of Advent's previous investments include Xenergy and AstroPower.

**Employees:** 4 (Palo Alto)  
**Established:** 1984

### **Aqua International Partners**

345 California Street  
Suite 3300  
San Francisco, California 94104

Aqua International Partners, L.P., a \$232 million investment fund, was established to make private equity investments in companies providing water and water-related products or services to emerging market economies. The partners are looking at expanding into energy-related investments.

**Employees:** 11  
**Established:** 1997

### **ChevronTexaco Technology Ventures**

3901 Briarpark Road  
Houston, TX 77042-5301  
713-954-6803  
[www.chevrontexaco.com/technologyventures](http://www.chevrontexaco.com/technologyventures)

ChevronTexaco Technology Ventures, a unit of ChevronTexaco, is involved with identifying, developing, and commercializing new and emerging technologies and new energy systems that promise to play an increasingly important role in the world's energy mix and environmental stewardship. Such activities include fuel cells, fuel processing, hydrogen storage, and advanced batteries. ChevronTexaco's operating unit is headquartered in Houston, Texas, with additional operations in California.

**Employees:** 10+  
**Established:** N/A

### **Draper Fisher Jurvetson**

2882 Sand Hill Road,  
Menlo Park, CA 94025  
650-233-9000  
[mail@dfj.com](mailto:mail@dfj.com)  
[www.dfj.com](http://www.dfj.com)

Draper Fisher Jurvetson is a venture capital firm who among other things is interested in identifying and helping extraordinary entrepreneurs who want to change the world. Current portfolio companies include: Konarka Technologies, Inc., titanium dioxide based roll-to-roll photovoltaics, and Solicore, flexible, solid state rechargeable batteries.

**Employees:** N/A  
**Established:** 1985

### **EasEnergy**

2107 1st St., Suite 520  
San Jose, CA 95131  
408-441-0370  
[fxrongere@easenergy.com](mailto:fxrongere@easenergy.com)  
[www.easenergy.com](http://www.easenergy.com)

EasEnergy works in partnership with Electricité de France and its mission is to speed up innovation in energy markets by detecting promising ventures and facilitating resource investment by Electricité de France in emerging companies in North America. EasEnergy is a business development partner with certain energy start-up companies such as Nth Power.

**Employees:** 12  
**Established:** 2000

### Expansion Capital Partners

1 Embarcadero, Suite 4100  
San Francisco, CA 94111  
info@expansioncapital.com  
www.expansioncapital.com

Expansion Capital Partners is a venture capital firm that invests in clean-energy companies; Technologies that offer dramatic improvements in resource productivity, creating more economic value with less energy, less materials, and less waste.

**Employees:** 8  
**Established:** N/A

### Firelake Capital Management, LLP

575 High Street, Suite 330  
Palo Alto, CA 94301-1648  
650-321-0880  
lagodm@firelakecapital.com  
www.firelakecapital.com

Firelake Capital invests in public and private companies at the edge of, among other things, energy technology. Their focus is on emerging technology markets, looking out over a long time horizon. Firelake was one of the investors in Solicore, Inc. a manufacturer of innovative solid polymer lithium-ion and advanced battery manufacturing systems.

**Employees:** 4  
**Established:** N/A

### Garage Technology Ventures

3300 Hillview Avenue  
Suite 150  
Palo Alto, CA 94304  
650-354-1800  
matt@garage.com  
www.garage.com

Garage Technology Ventures is an early stage venture capital firm, specializing in software, networking, and emerging technologies. Garage's emerging technologies group has a focus on cleantech, alternative energy, and materials science. Garage is an investor in Miasole' (formerly Raycom Technologies), an innovative manufacturing process to produce advanced thin-film solar cells in high volumes.

**Employees:** 10  
**Established:** 1997

### Kleiner Perkins Caufield & Byers

Four Embarcadero Center  
Suite 3620  
San Francisco, CA 94111  
415-421-3110  
www.kpcb.com

Kleiner Perkins Caufield & Byers is committed to helping entrepreneurs build sustainable technology businesses. They are constantly on the lookout for ideas with the promise to invent new business categories or radically alter existing ones. Their focus is on new technologies and new applications of technology that will drive high-impact change.

**Employees:** 23  
**Established:** 1972

### **Nth Power**

50 California Street  
Suite 840  
San Francisco, CA 94111  
415-983-9983  
www.nthpower.com  
info@nthpower.com

Nth Power is a leading venture capital firm dedicated exclusively to high potential investments resulting from the restructuring of the global energy industry. Nth Power works in close association with its industry partners-leading players in the electric and gas markets-to further assist each of its portfolio companies. Nth Power has partners in Europe, Asia and North America. Portfolio investments include Encorp, Capstone, Evergreen Solar, Northern Power Systems, and Metallic Power.

**Employees:** 9  
**Established:** 1995

### **PacRim Venture Partners**

605 Cowper Street  
Palo Alto, CA 94301  
650-330-0880  
info@pacrimpartners.com  
www.pacrimpartners.com

PacRim Venture Partners (PVP) is a professional venture capital firm that invests primarily in Silicon Valley-based information technology companies.

**Employees:** 8+  
**Established:** 1999

### **Sigma + Partners**

1600 El Camino Real,  
Suite 280  
Menlo Park, CA 94025  
650-853-1700  
www.sigmapartners.com

Sigma Partners, a high technology venture capital firm with over a billion dollars under management helps entrepreneurs transform ideas into substantial, profitable businesses. Their partners have experience as successful CEOs, entrepreneurs and technologists. One of the firm's portfolio companies, iWatt, Inc. develops patented pulseTrain digital technology for the power supply industry. Unlike most power supply controllers, iWatt's power supply controller is nearly all digital.

**Employees:** 23  
**Established:** 1984

### **Technology Partners**

550 University Avenue  
Palo Alto, CA 94301  
650-289-9000  
admin@technologypartners.com  
www.technologypartners.com

Technology Partners is a 20 year-old venture capital firm that manages more than \$400 million of investment capital with current investments being made from Technology Partners Fund VII. The firm invests approximately half of its capital in Information Technology companies and the other half into companies focused on the Life Sciences. Within Information Technology, Technology Partners currently focuses on the areas of Cleantech (Energy Tech, Water Tech, and Materials) and Enterprise Software.

**Employees:** 15  
**Established:** N/A

### USVP

2735 Sand Hill Road  
Menlo Park, CA 94025  
650-854-9080  
www.usvp.com

US Venture Partners (USVP) is a venture capital firm that is dedicated to helping entrepreneurs realize their dreams of building world class companies that are leaders in their industry. One of their portfolio companies, Nanosolar, Inc., is a technology company focused on making solar electricity ubiquitous through a new generation of solar cells which are flexible, light-weight, and unprecedented in their cost effectiveness. Nanosolar is also located in Palo Alto.

**Employees:** N/A  
**Established:** 1980

### Vanguard Ventures

525 University Ave  
Suite 1200  
Palo Alto, CA 94301  
650-321-2900  
info@vanguardventures.com  
www.vanguardventures.com

Vanguard Ventures is a leading early stage venture capital firm that helps entrepreneurs build pioneering technology and life science companies. Vanguard specialized in communications, life sciences and information technologies. Vanguard Ventures is an investor in Konarka Technologies.

**Employees:** 9  
**Established:** 1982

### VantagePoint Venture Partners

1001 Bayhill Drive  
Suite 300  
San Bruno, CA 94066  
650-866-3100  
chinton@vpvp.com  
www.vpvp.com

Vantage Point Venture Partners is a venture capital firm that focuses on technology investments in clean tech, communications, healthcare, commerce, Internet 3.0, semiconductor & components, and software sectors. VantagePoint's portfolio cleantech companies include STM Power and Miasole.

**Employees:** 50 (35-40 in San Bruno)  
**Established:** 1996

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## EVENTS, WORKSHOPS, AND CONFERENCES

### Challenge Bibendum

Nathalie.Zhang@cn.michelin.com  
www.challengebibendum.com

Challenge Bibendum was conceived by the Michelin Group as an objective way to bring together and test the best available technologies for environmentally responsible vehicles. Challenge Bibendum features vehicles from major vehicle manufacturers on three continents and brings together all facets of the automotive world. In 2003 the event was held in Bay Area during three days. Major manufacturers from three continents participated with more than 80 vehicles.

**Participants:** 900 (award ceremony)

**Established:** 1999

### California Solar Center Solar Forum

www.californiasolarcenter.org  
forum@californiasolarcenter.org

The annual Solar Forum is open to all parties interested in learning about current issues regarding Solar Energy policy and development in California and an opportunity to network with others in the field. In 2004 the California Solar Center's annual Solar Forum was held in San Francisco and hosted by PG&E's SelfGen Program. Topics of presentation and discussion included: Celebration of the 50th Anniversary of the Silicon Solar Cell, PV for New Construction Initiative, Changes to the Self-Gen Program, RECs/Greentags, Realtime data monitoring advances, Shared Savings contracts for large systems, Solar on Schools, and more

**Participants:** 300+

**Established:** N/A

### Cleantech Venture Network Forum

www.cleantechventure.com  
517-223-9608

Cleantech's annual forum draws together clean technology entrepreneurs and investors, as well as corporate executives, professional advisors, and senior policymakers in a twice-yearly exchange of information about cleantech business and investment opportunities. The Forums are the only capital forums designed exclusively to facilitate the finance of companies commercializing clean technologies by bringing together clean technology entrepreneurs and venture investors, thus providing them with a venue in which deals and relationships can originate and incubate. The spring forum is held in San Francisco each year, with the fall forum on the East Coast.

**Participants:** 300+

**Established:** 2002

### Energy Tech Investor 2004

www.srinstitute.com/cx511  
925-825-8738

The 2004 Energy Technology Investor Conference was produced by the Strategic Research Institute. It brought together an illustrious faculty of leading corporate and strategic buyers from the energy technology community to share their perspective on investment opportunities, challenges and critical issues facing the industry today

**Participants:** N/A

**Established:** 2004

### Green Business Conference

www.coopamerica.org/cabn/conference  
202-872-5330

Held in San Francisco each November, the conference features experts who shared insights on how businesses dedicated to social justice and sustainability can emerge and thrive in today's economy. Experts from leading green businesses such as Organic Valley, Working Assets, GAIAM, Conscious Media, and Expansion Capital Partners outlined successful strategies for marketing, partnering with, and financing small green businesses.

**Participants:** N/A  
**Established:** 2003

### Green Festival

Global Exchange  
2017 Mission Street, #303  
San Francisco, CA 94110  
415-255-2341

exhibit@greenfestivals.com  
www.greenfestivals.com

Held in San Francisco each November and co-sponsored by Global Exchange and Co-op America, Green Festival brings together leading thinkers of the green movement, hundreds of green businesses, and thousands of attendees who together demonstrate that not only is another world possible, but another world is happening. Attendees attend lectures and workshops given by thought leaders, business visionaries, and community activists who are shaping the green movement.

**Participants:** 19,000  
**Established:** 2001

### PlaNetwork Conference

1230 Market Street, #517  
San Francisco, CA 94102  
www.planetwork.net

PlaNetwork operates as a convening organization, gathering people from a wide variety of disciplines and vocations — science, technology, activism, business, the arts. We create international forums where people from distinctly different backgrounds can meet, find common ground, inspire each other, wrestle with and envision answers to solving some of our most pressing global issues. The 2005 Planetwork Conference will be held at the Golden Gate Club in the Presidio on April 1-3.

**Participants:** N/A  
**Established:** 1998

### Solar Power 2004

(202) 628-7745  
ebrown@seia.org  
www.solarpower2004.com

Solar Power 2004 is for residential and commercial solar applications. Attendees will learn from others' experience, initiate business deals, influence federal and state policy, and help grow solar markets. The premiere U.S. conference and expo will cover photovoltaics, solar water heating, solar pool heating, and concentrating solar power. The event will take place October 18-21 at the Hyatt Regency San Francisco.

**Participants:** 600  
**Established:** 1993 (renamed Solar Power Conference and Expo in 2004)

### **Sustainable World Symposium**

Presidio Building 1007, Gen. Kennedy Ave.  
PO Box 29275  
San Francisco, CA 94129  
415-785-1888  
info@swcoalition.org  
www.swcoalition.org

The intention of the Symposium was to make Americans aware of the actions they can take — individually and collectively — that will be part of the solution in achieving a peaceful, just and healthy world for all. The program was given as a one-day conference, with a set of breakout sessions in the afternoon. The event took place on June 19, 2004 at St. Mary's Cathedral Conference Center in San Francisco. There were exhibitors, speakers and presentations.

**Participants:** 6  
**Established:** N/A

### **World Environment Day 2005**

50 U.N. Plaza, Suite 102  
San Francisco, CA 94102  
415-355-9905  
info@wed2005.org  
www.wed2005.org

World Environment Day (WED) was established by the United Nations General Assembly in 1972. WED is hosted every year by a different city and commemorated with an International Expo through the week of June 5th. WED is celebrated around the world in much the same way that the world embraces Earth Day. The UN uses WED to stimulate awareness of the environment and enhance political attention and public action. San Francisco is the host city for WED 2005 which marks the first time that the UN has held World Environment Day in North America. The theme for WED 2005 is "Green Cities." From June 1-5, festivities will include special events taking place all over the city of San Francisco focusing on urban environmental issues.

**Participants:** N/A  
**Established:** 1972

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## **NONGOVERNMENTAL ORGANIZATIONS**

### **BALLE — Business Alliance for Local Living Economies/Local Exchange**

28 Clayton Street  
San Francisco, CA 94117  
www.localexchange.org  
www.sfballe.org

Local Exchange is a dedicated group of independent, locally owned businesses and professionals in the San Francisco Bay Area whose goal is to help create a more balanced & sustainable local economy. Members work together to inspire a local living economy by supporting the success of community-based businesses, creating opportunities for business leaders to network and share best sustainable business practices, educating the community about local living economies, and advocating public policies to support the health and growth of local living economies

**Employees:** N/A  
**Established:** N/A

### **Business For Social Responsibility**

111 Sutter Street, 12th Floor  
San Francisco, CA 94104 USA  
415-984-3200  
advisoryservices@bsr.org  
www.bsr.org

Business for Social Responsibility seeks to create a just and sustainable world by working with companies to promote more responsible business practices, innovation and collaboration. BSR is a global organization that helps member companies achieve success in ways that respect ethical values, people, communities and the environment. It provides information, tools, training and advisory services to make corporate social responsibility an integral part of business operations and strategies.

**Employees:** N/A  
**Established:** 1992

### **California Fuel Cell Partnership**

3300 Industrial Boulevard Suite 1000  
West Sacramento, CA 95691  
916-371-2870  
info@cafcp.org  
www.fuelcellpartnership.org

The California Fuel Cell Partnership is a unique collaborative of auto manufacturers, energy companies, fuel cell technology companies, and government agencies. The organization is advancing a new vehicle technology that could move the world toward practical and affordable environmental solutions. The California Fuel Cell Partnership is committed to promoting fuel cell vehicle commercialization as a means of moving towards a sustainable energy future, increasing energy efficiency and reducing or eliminating criteria pollutants and greenhouse gas emissions. The CaFCP currently consists of twenty full members and ten associate members.

**Employees:** N/A  
**Established:** N/A

### **City CarShare**

410 Jessie St., Ste. 503  
San Francisco, CA 94103  
415-995-8588  
info@citycarshare.org  
www.citycarshare.org

City CarShare is a nonprofit organization that promotes car-sharing as a means of reducing automobile dependence and enhancing the environmental and social integrity of urban neighborhoods. Its goals include 1) reducing private car ownership; 2) providing access to vehicles for people of all income levels; and 3) contributing to creating ecologically sustainable cities around the world. Notable organizations that provide funding to City CarShare include The City of Berkeley, The East Bay Community Foundation, Gaia Fund and the San Francisco County Transportation Authority.

**Employees:** 10 fulltime, 6 parttime  
**Established:** 2001

### **Earth Island Institute**

300 Broadway, Suite 28  
San Francisco, CA 94133  
415-788-3666  
www.earthisland.org

Earth Island Institute develops and supports projects that counteract threats to the biological and cultural diversity that sustain the environment. Through education and activism, these projects promote the conservation, preservation, and restoration of the Earth. EII provides activists the freedom to develop program ideas, supported by services to help them pursue those ideas, with a minimum of bureaucracy.

**Employees:** 15  
**Established:** 1982

### Energy Foundation

1012 Torney Avenue #1  
San Francisco, CA 94129  
415-561-6700  
energyfund@ef.org  
www.ef.org

The Energy Foundation is a partnership of major foundations interested in sustainable energy. The foundation supports efforts to advance energy efficiency and clean energy, both through competitive and regulatory structures for the electric utility industry and through policies to accelerate the commercialization of renewable energy.

**Employees:** 17  
**Established:** 1991

### Environmental Business Cluster

2 N. First St., 4th Floor  
San Jose, CA 95113  
408-938-3920  
www.environmentalcluster.org

The Environmental Business Cluster is a nonprofit incubator created to assist new for-profit companies developing products or services that will have a positive impact on the environment. The EBC provides a location where 15 environmental businesses can operate at one site. Among the EBC's Special Energy Programs are: National Renewable Energy Laboratory, U.S. Department of Energy; Inventions & Innovation, U.S. Department of Energy; and Energy TechNet. In addition, the cluster has attracted a diverse group of start-ups, including the following technologies: solar, energy efficiency, hydrogen fuel cells, alternative fuels, and electric vehicles.

**Employees:** N/A  
**Established:** 1998

### Environmental Entrepreneurs (E2)

c/o NRDC  
111 Sutter St.,  
San Francisco, CA 94105  
415-875-6100  
E2@nrdc.org  
www.nrdc.org/e2

Environmental Entrepreneurs (E2) is a national community of professionals and business people who believe in protecting the environment while building economic prosperity. Through its support of the Natural Resources Defense Council, E2 works to influence state and national environmental policy. Through activities in New York, the San Francisco Bay area, and Southern California, E2 brings together business and professional leaders committed to strong environmental stewardship, and foster new collaborations among the environmental, business and technology communities.

**Employees:** N/A  
**Established:** 2000

### Equal Access

38 Keyes Avenue, #3  
Building 38, The Presidio  
San Francisco, CA 94129  
415-561-4884  
info@equalaccess.org  
www.equalaccess.org

Equal Access creates positive change for large numbers of people in the developing world by providing information and education through targeted content, cost-effective technology and community engagement. The organization was founded in order to close the information gap for communities in the developing world. It is firmly rooted in the belief that people everywhere are entitled to "Equal Access" to information and education and should have the opportunity to join the dialogue as both recipients and contributors of content. Recognizing that many of the communities we serve also lack access to reliable electricity, Equal Access also adds solar systems to provide electrical power for receivers and computers to select project sites.

**Employees:** 16  
**Established:** 1999

### Green-e

P.O. Box 29512  
Presidio Building 97  
Arguello Boulevard  
San Francisco, CA 94129  
415-561-2100  
webmaster@green-e.org  
www.green-e.org

The Green-e Renewable Electricity Certification Program is administered by the non-profit Center for Resource Solutions. Green-e certifies renewable electricity products that meet the environmental and consumer protection standards established by the program. The program also requires that electricity providers disclose information about their product to their customers in a standardized format. In each state where Green-e is active, the Green-e program works with diverse stakeholders to form Regional Advisory Committees who ensure that the consumer protection and environmental standards of the Green-e Program work for their regions.

**Employees:** 12  
**Established:** 1997

### Greenpeace Clean Energy Now! Campaign

415-255-9221: media center  
www.cleanenergynow.org

The Greenpeace Clean Energy Now! campaign is committed to forcing the increase of clean energy solutions required to meet the challenges of climate change. Greenpeace supports the struggle for clean and affordable electricity, and is committed to making renewable energy affordable worldwide. On November 18, 2002, Greenpeace hosted a "Breakfast of Solar Champions" in San Diego to recognize the growing leadership in the city working towards making San Diego the nation's leader in solar energy.

**Employees:** N/A  
**Established:** N/A

### Net Impact

111 Sutter Street, 12th Floor  
San Francisco, CA 94104  
415-984.3300  
mail@net-impact.org  
www.net-impact.org

Net Impact is a network of business leaders committed to using the power of business to positively impact social and environmental concerns throughout the world. Net Impact has developed from a great idea shared by a few business students into a mission-driven network of over 9,000 new leaders for better business. Through its central office and 90 local chapters, it offers a portfolio of programs to help members broaden their business education, refine their leadership skills, and pursue their professional goals, while building their networks.

**Employees:** 7  
**Established:** 1993

### Rahus Institute

1535 Center Ave.  
Martinez, California 94553  
925-370-7262  
info@rahus.org  
www.rahus.org

The Rahus Institute is a nonprofit research and educational organization with a focus on resource efficiency. Its primary goal is to accelerate the implementation of resource-efficient technologies and practices through research, development, demonstration, education, and policy change. Programs include: California Solar Center, Solar Schoolhouse, Solar e-Clips, and SunPower Displays.

**Employees:** 5 (board of directors)  
**Established:** 1998

### Renewable and Appropriate Energy Laboratory (RAEL)

310 Barrows Hall #3050  
University of California  
Berkeley, CA 94720-3050  
510-643-2243  
rael@socrates.berkeley.edu  
ist-socrates.berkeley.edu

RAEL is a unique research, development, project implementation, and community outreach facility based at the University of California, Berkeley in the Energy and Resources Group and the Department of Nuclear Engineering. RAEL focuses on designing, testing, and disseminating renewable and appropriate energy systems. The laboratory's mission is to help these technologies realize their full potential to contribute to environmentally sustainable development in both industrialized and developing nations while also addressing the cultural context and range of potential social impacts of any new technology or resource management system. Some of the projects planned include: developing training multi-language training materials for the installation, maintenance, and economic assessment of solar, wind, and biogas energy systems; and hybrid renewable-fossil fuel energy systems for stand-alone and grid-connected application.

**Employees:** N/A  
**Established:** N/A

### Rose Foundation

6008 College Ave, Suite 10  
Oakland, CA 94618  
510-658-0702  
rosefdn@earthlink.net  
www.rosefdn.org

The Rose Foundation is based upon the principle that environmental protection and community regeneration must go hand in hand and are inextricably linked to a healthy economy. The foundation fulfills its mission through direct advocacy and grant making programs. Rose currently manages over 15 separate grant making, donor-advised, contract, and direct project funds.

**Employees:** 3 (plus outside consultants)  
**Established:** 1992

### Sierra Club

85 Second Street, 2nd Floor  
San Francisco, CA 94105  
415-977-5500  
information@sierraclub.org  
www.sierraclub.org

Inspired by nature, the Sierra Club works together to protect our communities and the planet. The club is America's oldest, largest, and most influential grassroots environmental organization.

**Employees:** N/A  
**Established:** N/A

### Social Venture Network

P.O. Box 29221  
San Francisco, CA 94129  
415-561-6501  
svn@svn.org  
www.svn.org

SVN promotes new models and leadership for socially and environmentally sustainable business in the 21st century. It champions this effort through initiatives, information services, and forums that strengthen its community and empower members to work together on behalf of their shared vision.

**Employees:** N/A  
**Established:** 1987

### Sustainable Business Alliance

PO Box 11944  
Berkeley, CA 94712  
510-282-5151  
Info@sustainablebiz.org  
www.sustainablebiz.org

The Sustainable Business Alliance is a membership organization for companies committed to greater sustainability in their business policies and practices. Projects include: Monthly networking meetings, workshops/seminars, business development/project SIS, and a green business directory.

**Employees:** N/A  
**Established:** N/A

### **The Natural Step**

116 New Montgomery Street, Suite 800  
San Francisco, CA 94105  
415-318-8170  
services@naturalstep.org  
www.naturalstep.org

The Natural Step provides a visionary blueprint for a sustainable world. Their upstream approach means they address problems at the source and turn them into opportunities for innovation. As an international advisory and research organization, they work with some of the largest resource users on the planet to create solutions, models and tools designed to accelerate global sustainability.

**Employees:** 14  
**Established:** 1989

### **Vote Solar Initiative**

182 2nd Street, Suite 400  
San Francisco, CA 94105  
415-874-7434  
adam@votesolar.org  
www.votesolar.org

Vote Solar's mission is to promote a national transition to clean energy by empowering city governments to implement large-scale, cost-effective solar projects. In November 2001, San Francisco voters overwhelmingly approved a landmark \$100 million bond initiative created by Vote Solar that pays for solar panels, energy efficiency and wind turbines for public facilities.

**Employees:** N/A  
**Established:** N/A

### **WestStart-CALSTART**

1160 Brickyard Cove, Suite 101  
Point Richmond, California 94801  
510-307-8700  
calstart@calstart.org  
www.calstart.org

WestStart-CALSTART is a nonprofit organization that works with the public and private sectors to develop advanced transportation technologies and foster companies that will help clean the air, lessen our dependence on foreign oil, and reduce global warming.

**Employees:** 18  
**Established:** 1992

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## SERVICE PROVIDERS

### Antenna Group

625 Market St., 6th Fl  
San Francisco, CA 94105  
415-896-1800  
info@antennagroup.com  
www.antennagroup.com

Antenna Group is a public relations firm specializing in media and analyst relations for technology companies. In addition to more traditional high-tech clients, the firm has established itself as a leader in working with both nanotechnology and clean energy companies. Recent Bay Area clean-energy clients include Anuvu, Clean Edge, Solaicx, and Nanosys.

**Employees:** 16  
**Established:** 1996

### California Environmental Associates

423 Washington Street, 3rd Floor  
San Francisco, CA 94111  
415-421-4213  
wini@ceaconsulting.com  
www.ceaconsulting.com

CEA is a full-service consulting firm that provides businesses and public institutions with a range of environmental management, regulatory compliance, and sustainable business solutions. CEA assisted Toyota with the engineering development and regulatory issues of its alternative fuel vehicles, the award-winning Prius, and next-generation fuel cells.

**Employees:** 14  
**Established:** 1984

### Clean Edge, Inc.

415-386-8681  
info@cleanedge.com  
www.cleanedge.com

Clean Edge is a research and strategy firm that helps companies, investors, governments, and nongovernmental organizations understand and profit from clean technology. The company's services include research writing and publishing, online publications, and a free electronic newsletter, and strategic marketing. Clients have included the Connecticut Clean Energy Fund, Global Environment Fund, Solar Catalyst Group, and companies including Miasole', Solaicx, Solaria, and H2Onsite.

**Employees:** 3  
**Established:** 2000

### Donald Aitken Associates

2625 Alcatraz Ave., Suite #505  
Berkeley, CA 94705  
(510) 649-9571  
donaldaitken@earthlink.com  
www.donaldaitkenassociates.com

Donald Aitken Associates provides worldwide renewable energy policy and marketing consulting as well as design consulting in energy-efficient and solar houses for all income ranges and commercial buildings. One of the firm's previous projects is a 40,000-square-foot office building, constructed in 1985, in Palo Alto, California. The courtyard office building designed for daylighting and natural environmental thermal conditioning. (Can you reference more recent activities?)

**Employees:** 2  
**Established:** 1981

#### Global Business Network

5900-X Hollis Street  
Emeryville, CA 94608  
510-547-6822  
info@gbn.com  
www.gbn.org

GBN is internationally acclaimed for its leadership role in the evolution and application of scenario thinking, planning, and complementary strategic tools. They work closely with companies, governments, and nonprofit organizations to explore the future of industries, technologies, resources, logistics, products and services, customers, and geographic areas. Some of these efforts are focused around specific decisions involving major, long-term investments; others are designed to foster innovation and corporate transformation. GBN also develops multiclient projects often around emerging markets and technologies.

**Employees:** 41  
**Established:** 1987

#### Heller Ehrman/Venture Law Group

333 Bush Street  
San Francisco, CA  
94104-2878  
415-772-6000  
info@hewm.com  
www.hewm.com

Heller Ehrman has one of the nation's most extensive energy practices. They assist clients on all aspects of restructuring, regulation, and commercial transactions in electric power, oil, and natural gas markets. In addition, the firm practices multiple forms of environmental litigation for a variety of subject areas, including oil refining and hazardous and solid waste management and disposal.

**Employees:** 720  
**Established:** N/A

#### Natural Logic

2118 Seventh St.  
Berkeley, CA 94710  
510-548-7904  
info@natlogic.com  
www.natlogic.com

Natural Logic offers a suite of advisory services that build profit, competitive advantage, and quality of life through exceptional environmental performance. The firm's process-based Strategic Sustainability program provides an integrated collection of products and services that helps companies gain strategic, operational, and market advantage by moving toward zero waste and 100% product. Clients include: Green Mountain Energy Resources, PG&E, and the U.S. Department of Energy.

**Employees:** N/A  
**Established:** N/A

### **Kema–Xenergy**

492 9th Street, Suite 220  
Oakland, CA 94607  
510-891-0446  
www.xenergy.com

Xenergy Inc. is an energy services and consulting company with a 27-year history of providing advanced technical and information-based solutions for the energy marketplace. Xenergy helps its clients keep existing customers and gain new ones by focusing on the importance of customer care services such as: acquiring data, turning data into useful information and developing strategies based upon this knowledge. Xenergy's Green Power Services Team, in partnership with parent company KEMA, has extensive hand-on experience with renewable power technologies and green energy markets throughout North America and abroad.

**Employees:** 51  
**Established:** 1975

### **Navigant Consulting Inc.**

1 Market, Spear St. Tower, Ste. 1200  
San Francisco, CA 94105  
415-356-7100  
tmaloney@navigantconsulting.com  
www.navigantconsulting.com

Navigant Consulting works to consult with businesses and the governments regarding emerging technology in the energy arena. The company is knowledgeable in such areas as renewable energy, biomass, wind energy, and transmission.

**Employees:** 1,300 worldwide, 100 in San Francisco  
**Established:** 1999

### **Nexant Inc.**

101 Second Street, 11th Floor  
San Francisco, California 94105-3672  
415-369-1000  
bburdett@nexant.com  
www.nexant.com

Nexant Inc. is a provider of technology solution and consulting services to companies in the energy industry such as electric utilities, energy producers, petroleum and chemical companies, governments, and energy end-users worldwide. Nexant was formed to respond to the enormous opportunities created by energy industry deregulation.

**Employees:**  
**Established:** 2000

### Reed Smith LLP

1999 Harrison Street  
Suite 2400  
Oakland, CA 94612-3572  
510-466-6899  
dreinke@reedsmith.com  
www.reedsmith.com

Reed Smith is a global law firm that represents energy and natural resources clients in numerous domestic and international negotiations. Their practice includes representation of regulated and unregulated public utilities and industrial companies both as developers and joint venture participants, as well as the development, construction and financing of power plants. The firm also works with a number of clean energy start-ups.

**Employees:** 66

**Established:** 1877 (Oakland office established in 2003)

### Solarbuzz

P.O. Box 475815,  
San Francisco, CA  
94147-5815  
415-928 9743  
info@solarbuzz.com  
www.solarbuzz.com

Solarbuzz is a provider of both consultancy services and industry reports to photovoltaic companies. The organization disseminates public information and press releases to the PV industry and puts out a quarterly 30-40 page news and comment report. Solarbuzz.com is a leading portal for solar energy information and "now drives more traffic to their company website than any other site dedicated to solar energy or renewable energy on the web."

**Employees:** N/A

**Established:** 2001

### Stoel Rives, LLP

111 Sutter Street, Suite 700  
San Francisco, CA 94104  
415-617-8900  
www.stoel.com

Stoel Rives is a full-service law firm providing corporate law and business litigation services in the western United States to public and private utilities, financial institutions, software companies, developers, newspapers, hospitals, universities, charitable foundations, forest products companies, retailers, and manufacturers. The firm has an extensive energy practice representing national and international energy generators, utilities and renewable energy developers.

**Employees:** More than 370

**Established:** 100 years ago

### Strategies Unlimited

201 San Antonio Circle  
Suite 205  
Mountain View, CA 94040  
650-941-3438  
info@strategies-u.com

Strategies Unlimited specializes in providing market research, custom studies, and newsletters for reviewers in the optoelectronic, optical communications, photovoltaic, compound semiconductor material, and RF/microwave components industries.

**Employees:** N/A  
**Established:** N/A

**Wilson Sonsini Goodrich & Rosati**

One Market, Spear Tower, Suite 3300  
San Francisco, CA 94105-1126  
415-947-2000  
sanfrancisco@wsgr.com  
www.wsgr.com

Wilson Sonsini is a premier legal advisor to technology and growth business enterprises worldwide, as well as the investment banks and venture capital firms that finance them. (found no connection to clean energy or transportation)

**Employees:** N/A  
**Established:** N/A