



Building the East Bay Green Economy:

Critical Steps for Supporting & Engaging East Bay Green Businesses

by
Elizabeth Redman

October 20, 2009

Special recognition goes to
the Surdna Foundation and the Living Cities Philanthropic Collaborative
for their financial support that made this industry outreach and report possible.

Table of Contents

Executive Summary	3
Introduction & Background.....	5
Results and Recommendations from Industry Roundtables	3
<i>Energy Efficiency</i>	<i>5</i>
<i>Green Building Construction & Materials</i>	<i>5</i>
<i>Solar Energy</i>	<i>6</i>
<i>Recycling & Reuse</i>	<i>7</i>
<i>Environmental Consulting.....</i>	<i>8</i>
Table 1: Summary of Challenges Faced by Industry	9
Table 2: Corresponding Opportunities & Solutions by Industry	10
Table 3: Existing and Possible Industry- Workforce Partnerships	11
General Recommendations.....	12
Conclusions	14
Appendix A: Literature Review	15
Appendix B: Green Tech Surveys Including East Bay Employers	18

Executive Summary

The following report summarizes the results of five roundtable discussions held with representatives from East Bay green businesses. It identifies the primary challenges and opportunities confronting regional green companies, maps existing and potential industry-led workforce and educational partnerships, and makes recommendations for further integrating the private sector in the development of workforce training programs, policies, and other regional efforts to make the East Bay a center of innovation for the green technology industry.

With a goal to promote the growth and development of “green” businesses and to create additional green jobs in the East Bay, the Oakland Metropolitan Chamber of Commerce and the East Bay Green Corridor Partnership (EBGCP) worked together to reach out to companies in five sectors of the regional green economy:

- Energy Efficiency, HVAC and Home Performance
- Green Building Construction and Materials
- Solar Energy
- Recycling and Re-Use
- Environmental Consulting

In July and August of 2009, the Chamber and EBGCP convened five roundtable discussions with businesses in each of these sectors. In each case, industry leaders discussed the major challenges, opportunities, and priorities of their sector with representatives from regional non-profit organizations, academic institutions, cities, and government agencies.

Overall recommendations for improving the region’s ability to engage with private sector employers include:

- 1. Engage the business community around specific issues, needs, and opportunities;**
- 2. Shift the emphasis from research & data collection to project management and responding to industry needs;**
- 3. Standardize and harmonize policies and incentives for promoting green tech industry growth among the Corridor cities and partners;**
- 4. Stay mindful of the dynamism and shifting opportunities in all of the sub-sectors of the green-tech industry.**

There is a significant opportunity to grow the East Bay Green Economy, but it must be done as a collaborative effort between the private sector and cities, universities, community colleges, training centers, and economic development and marketing associations. Forming real public-private partnerships and finding mechanisms for ongoing industry engagement in the development of policies, promotional materials, incentive programs, and training curriculum should be a key focus of the Oakland Metropolitan Chamber of Commerce and East Bay Green Corridor Partnership in the years ahead. The two organizations should work together closely to make sure that the private sector’s priorities are reflected in the collaborative agenda developed by the EBGCP’s many public sector and non-profit partners.

Introduction & Background

In May, 2007, Oakland Mayor Ron Dellums launched *The Oakland Partnership*, a public-private collaborative effort focused on Oakland's economic development. The Oakland Partnership established a goal to create a thriving, innovative, equitable, globally competitive regional economy that would “create 10,000 new jobs in five years by tapping into the creativity and talent of all segments of the population and providing benefits to all Oakland residents and businesses.”

To meet this goal, the Oakland Partnership focused on a number of key industry clusters identified by McKinsey & Company as essential to the economic health of Oakland's economy: International Trade & Logistics, Healthcare & Life Sciences; Green Technology; and Art, Design & Digital Media.¹

Oakland was not alone in its recognition of “green tech” as a primary opportunity for economic growth. Several other East Bay cities recognized the value of the “green tech” industry for green job creation. In December 2007, the Mayors of Oakland, Berkeley, Richmond, and Emeryville, along with UC Berkeley and Lawrence Berkeley National Laboratory joined forces to form the East Bay Green Corridor Partnership (EBGCP). Since that time, the partnership has added four additional cities (Albany, Alameda, San Leandro, and El Cerrito), two community college districts (Peralta and Contra Costa), and California State University- East Bay. The result is a highly collaborative approach to supporting the development of green tech companies and generating green jobs. As such, the East Bay Green Corridor Partnership's eight cities, two universities, two community college districts, and world-renowned national laboratory have settled on the following primary objectives:

- Attracting and retaining green businesses;
- Promoting research and technology transfer;
- Strengthening green workforce development programs; and
- Working together to secure federal funding (for things like job training, alternative energy research, capital infrastructure improvements, etc.).

The EBGCP has been successful in bringing together regional public sector and academic partners to identify opportunities for collaboration in the development of public policy, workforce training programs, business creation strategies, and joint marketing. The Oakland Metropolitan Chamber of Commerce has also played an important role in reaching out to private green technology companies. The efforts which this paper summarizes sought to join these two sets of activities in order for all to gain a better understanding of the private sector's perspective in order to drive green business and economic growth.

Recognizing the importance of involving the private sector in the development of regional policies, programs, and economic development strategies, the EBGCP partnered with the

¹ *Taking Stock of Oakland's Economy*. A report prepared by McKinsey & Company for the Oakland Metropolitan Chamber of Commerce, 2007. Available at www.oaklandpartnership.com.

Oakland Metropolitan Chamber of Commerce to identify the key opportunities and constraints facing some of the green technology companies in the region. This report draws on information gathered from five industry-specific roundtables that convened representatives from more than 50 private sector companies and their relevant public sector partners in each of five sub-sectors of the region's "green economy." The result is a set of recommendations for engaging the private sector in regional efforts and further supporting the growth and development of the green technology industry.

Results and Recommendations from Industry Roundtables

Energy Efficiency

The energy efficiency and home performance industry includes energy auditors, home performance retrofitters, energy efficiency consultants, engineering and manufacturing of heating, ventilation, and air conditioning (HVAC) equipment, general and building performance, and HVAC contractors, and energy efficiency trainers (both for homeowners and industry certifications). Key priorities for the industry include:²

- Better enforcement of Title 24 energy codes at the state level and more rigorous energy efficiency standards at the municipal level (such as adding building performance requirements to Climate Action Plans).
- Increased marketing and education of the public about how to undertake building retrofits and energy efficiency upgrades (what incentives and rebates are available).
- The development or expansion of performance-based rebates and incentives with clear minimum standards or accreditation requirements (such as those from the Building Performance Institute).
- The establishment of a mechanism for better industry organization, coordination with other entities, and political advocacy (such as creating a local chapter of Efficiency First).
- Subsidized apprenticeship programs for new hires or retraining.

Green Building Construction & Materials

The green building industry includes all those involved in improving the environmental sustainability of buildings and landscapes (e.g., contractors, architects, engineers, landscapers, developers). This industry has been hit hard by the economic downturn which caused the market for green building to contract, resulting in more competitive bidding processes for construction contracts and a shift toward repairs, maintenance, and smaller jobs. Key recommendations to improve the business climate for this group include:

² The order of the list does not indicate priority ranking.

- Expanding programs that provide customers and contractors with additional information about the benefits and costs of green building, including information about product reuse, available tax credits, and acceptable aesthetics.
- Requiring contractors to have a standard green building certification to receive city contracts.
- Exploring the development of additional rebates for green building, green point-of-sale requirements, and expedited permitting.
- Connecting green building employers with training providers, educators, and students to further develop training curriculum, internships, mentorships, and other opportunities for students to get real-world experience with local companies.
- Offering subsidized training programs for both soft and hard skills training, including construction administration and green building project management.
- Connecting green building and home performance/energy efficiency industry leaders (such as inviting the green building construction industry to participate in the development of a local chapter of Efficiency First.)



Solar Energy

The solar industry is comprised of designers, manufacturers, installers, and financiers of both photovoltaics and solar thermal generators. Solar companies' greatest challenge is overcoming cost barriers to make solar products more affordable for residential, commercial, and municipal customers. Recommended next steps for this group include:

- Replicating innovative financing models like Berkeley FIRST (Financing Initiative for Renewable and Solar Technology) or Sonoma County's Energy Independence Program (SCEIP) program regionally and expanding on rebate programs like the California Solar Initiative to increase the demand for solar in the East Bay.

- Involving industry leaders in the development of curriculum for solar energy sales and design engineering training programs.
- Standardizing:
 - Fire codes across the East Bay to make more rooftop space accessible for solar arrays;
 - Training modules for solar installation apprentices (making sure to include both labor and industry in the process);
 - City contracts for municipal solar projects.

Recycling & Reuse

The recycling industry is comprised of a diverse set of companies engaged in the collection, re-use, recycling, and processing of a range of useful materials, from paper and cloth to metals and glass. Despite everything they do to contribute to building a greener economy, recyclers face challenges on a local, national, and international level. To overcome them, industry representatives recommend:

- Facilitating collaboration between recycling industry leaders, neighborhood environmental groups, and city and county land use and zoning officials to prevent recycling companies from being considered “blight” or nuisance industries if residential properties are in proximity to their operations.
- Coordinating the development of zero waste infrastructure at a regional level (not city by city).
- Improving recycler-resident relations and the public perception of recycling companies by launching a communications campaign to rehabilitate the industry’s image and re-brand it as a legitimate “green” industry.
- Increasing education about recycled or re-furnished products and materials to help reduce the high variation in the global price and level of demand for such materials.
- Promoting state policies that will increase commercial recycling requirements or create additional opportunities for growth for enterprise recyclers.



- Enhancing internal industry coordination and collaboration to prevent the industry from operating in silos, by regularly convening roundtables or strengthening existing trade associations or industry-driven campaigns.

Environmental Consulting

The East Bay has long been home to environmental consulting and remediation firms, many of which have spearheaded innovations in environmental engineering, seismic, geo-technical, and other environmental technologies. The industry includes older firms providing environmental assessments and clean-up as well as newer firms providing sustainability consulting and green business strategies. While some companies are impacted by the overall economic slowdown, long-term prospects for growth are good because of increasing consumer and business interest in sustainability, climate change legislation, and the dispersment of American Recovery and Reinvestment Act 2009 (ARRA) funds. Recommendations from this group include:

- Improving access to financing (banks are lending on the basis of a percentage of past earnings; for companies that want to grow, this does not allow sufficient capital).
- Improving the payment schedules of public entities. Many smaller consulting firms cannot do business with public entities that do not pay on time as it is too disruptive to their cash flow.
- Notifying companies in the industry about local ARRA fund distribution and dispersing funding quickly.
- Developing a clearinghouse of information about local request for proposals (RFPs) or a webpage with links with similar information.
- Convening regional networking opportunities for Environmental Consulting leaders to share information and collaborate on either a bi-annual basis, or as specific opportunities for collaboration arise.

Table 1: Summary of Challenges Faced by Industry

	Industry Marketing & Image	Building Customer Base	Access to Financing	Workforce	Industry Organization
Energy Efficiency	How to make EE "sexy"	Sharing info about available rebates; getting EE to be considered before/ in addition to solar	Financing for customers to do energy audits and retrofits	Increasing demand; no standard certification to guarantee quality	Need unified voice to counter push-back from other industries and opportunities for industry collaboration
Green Building	Overcoming perception that green is more expensive	Increasing demand for green products/ construction	Financing for customers to choose green option	Increasing demand; no standard certification to guarantee quality	Connect with Home Performance & EE industry
Solar Energy	Overcoming 1980s reputation of solar thermal		Financing for customer installations	Increasing demand; finding trained salespeople & design engineers; lack of standardized installation training	
Environmental Consulting		Finding out about available contracts and RFPs	Financing for business expansion		
Recycling	Improving relations with environmental groups, politicians, and residents; getting green business certification	Publicizing "re-use" as option		Finding people to do hard manual labor, stay drug-free	Have few groups representing industry; no history of collaboration. Need to oppose characterization of recycling and "blight".

Table 2: Corresponding Opportunities and Solutions by Industry

	Industry Marketing & Image	Building Customer Base	Access to Financing	Workforce	Industry Organization
Energy Efficiency	Launch an industry-wide advertising campaign, billboards, etc.	Work with cities, utilities, Energy Star, EPA, Efficiency First, DoE, Chambers, unions, etc. to promote EE; performance based rebates	Expand rebates and AB 811 financing programs to include EE; pass REEP in federal legislation	Energy efficient building requirements or incentives tied to BPI certification	Form local Chapter of Efficiency First- attend City Council meetings, present to Chambers, city staff, etc.
Green Building	Advertise <i>re-use</i> as a cheaper green building alternative	City mandated green building requirements on multi-unit, public buildings, & commercial, expedited permits, point of sale ordinances, etc.	Replicate/ expand rebate programs (ie. EBMUD rebate for low-flow sprinklers, Berkeley seismic rebate program)	EBGCP to host a roundtable to connect green building employers with training providers, educators, and students. Discuss internships, curriculum, job fairs, etc.	Connect with Home Performance & EE industry organizing efforts (Efficiency First)
Solar Energy	Implement AB1470 - Solar Water Heating Efficiency Act.		Replicate/ expand rebate programs and tax credits (ie. CSI, Berkeley FIRST, SCIEP)	Increase demand; finding trained salespeople & design engineers; lack of standardized installation training	
Environmental Consulting		EBGCP to create central clearinghouse webpage of ARRA fund distribution/ RFP opportunities	Offer small business loans		
Recycling	Launch an industry-wide imaging campaign including distribution of info about value of industry to jobs/ economy; Invite City Council members and politicians to recycling facilities	Create an EBGCP "re-use guide"; Chamber to spread information to members	Expand City of Oakland financing programs	Partner with Oakland Green Jobs Corps (includes routine drug testing), ATLAS, AC WIB for training	Invite industry to help with development of cities' industrial zoning and land use policies. Reassess applicability of blight ordinances.

Table 3: Existing and Possible Industry- Workforce Partnerships*

	Solar Richmond/ Richmond Build	Rising Sun GETS Employer Council	Oakland Green Jobs Corps	Community Colleges	4-Year University	Industry Specific Training Programs	Unions (IBEW, SMACNA, etc.)
Energy Efficiency	x	x (energy auditing & attic insulation)	x	x (Laney Environmental Controls Technology & Building Performance)		x (BPI, CBBCA, HERS Rater)	
Green Building	x (Pre-apprenticeship Construction Skills)	x	x	x (Laney, Merritt, Ohlone, construction administration & project management training program)	x (construction administration & project management training program)	x (Green Point Rated, LEED AP)	
Solar Energy	x (solar PV and solar thermal installation training)	x (solar installation training)	x (sales)	x (sales, Skyline solar estimator and designer course)	x (design engineer)		x (certified apprenticeship program for installers)
Environmental Consulting		x (energy auditing)			x (Hydro-geology, engineering, Conflict resolution, city planning)		
Recycling			x (Fork-lift operations, How to read a tape measure, Class B license)			x (Northern CA Recycling Association annual training)	

* Based on round-table feedback

General Recommendations

The growth and evolution of the East Bay's green technology industry is an exciting addition to the region's economic portfolio. As with many emerging technology industries, the green tech industry can benefit from close coordination with and support from other area educational institutions and governments. The results of the roundtables summarized in this report underscore how important it is that government policies, promotional materials, incentive programs, and training curriculum reflect the industry's current standards, technologies, operating procedures and industry opportunities. Going forward, the Oakland Metropolitan Chamber of Commerce and EBGCP could consider the following recommendations for building lasting, mutually supporting public-private partnerships in the months ahead.

1. Engage the business community around specific issues, needs, and opportunities

Efforts to engage with and support green tech companies should consider:

- a) *Identify specific opportunities.* Future meetings or roundtables should be called based on specific, real opportunities for industry engagement.
- b) *Convene private sector experts with the appropriate expertise.* Advisory boards or councils should include only the firms with knowledge or expertise relevant to the desired outcome.
- c) *Let industry needs and demands drive workforce development investments and programs.* Workforce development and educational efforts should be designed to meet industry-identified needs and employment opportunities, not target populations seeking employment, to guarantee the greatest possibility of placement after training.
- d) *Focus on the desired outcome of the outreach effort.* For instance, a small business development center wishing to offer small business loans to green businesses should target a different group of employers than a university wishing to design curriculum for solar design and engineering course.
- e) *Understand the way the industry naturally segments itself.* Input from this study's contributors demonstrates that there is substantial overlap in the needs of the green building, solar installation, home performance, and energy efficiency industries. However, while also a part of the regional economy, these industries have a different set of priorities from the recycling and environmental consulting industries.

2. Shift the emphasis from research and data collection to project management and responding to industry needs

No fewer than five surveys were distributed to Bay Area green tech companies during the winter of 2008-09.³ While data and research are important elements of understanding our region's assets and industry strengths, we have sufficient evidence at this point to show the presence of several green tech clusters in our region. Rather than create "survey fatigue," we should develop

³ See Appendix C: Green Tech Surveys Including East Bay Employers

credibility with the companies polled by showing them that we have listened and are responding to their needs.

Key steps for delivering value to companies who have shared information include:

- a) *Sending periodic, industry-relevant updates* with opportunities and information from EBGCP partners.
- b) *Working with local trade associations or industry councils* to keep track of industry priorities and *fostering this type of industry organization* where it does not already exist.
- c) *Identifying the appropriate parties who can help solve problems or capture opportunities* and holding them responsible for working with industry partners to deliver results.
- d) *Communicating outcomes and progress* relating to industry suggestions from roundtables, surveys, etc.

3. Standardize and harmonize policies and incentives for promoting green tech industry growth among the Corridor cities and partners

A key theme echoed in all five roundtables was the need for clear, consistent, and carefully-developed standards, policies, and performance requirements. Though industry is often criticized as being “anti-regulation,” the majority of the green companies included in our outreach efforts were in support of local or regional policies that would spur demand for green products or services (such as mandatory green building requirements, industry certifications, or quality assurance controls tied to incentives or recycling ordinances.). The same was true in relation to training programs and curricula. Industry leaders would like to see further consensus around acceptable “green” certifications and would be willing to help develop or undergo additional trainings, should there be clear rewards for doing so.

To guarantee that additional streamlining and standardization will offer more benefits than drawbacks:

- a) *Identify best practices and replicate best-in-class policies or programs.* Note where efforts are already underway to create national or statewide standards or certifications to avoid duplication at a regional level.
- b) *Engage industry representatives* (including those from other “non-green” sectors) in the development or modification of policies, programs, or codes.
- c) *Include time for an adjustment period* when passing policies that will require major industry shifts.

4. Stay mindful of the dynamism and shifting opportunities in all of the sub-sectors of the green-tech industry

The region’s green economy is comprised of a far more complex set of companies and industries than were engaged in our outreach efforts or profiled in this report. Though this effort did not specifically engage with manufacturers of low carbon transportation fuels or other creators of innovative transportation technologies, data collected by Thomson Reuters and published

quarterly by PricewaterhouseCoopers and the National Venture Capital Association, shows that the largest increases in venture investments in the East Bay were for *solar, biofuel, fuel cell, and battery technologies*. Though the number of biofuels and transportation technology companies in the East Bay Green Corridor is relatively small at this time, it may be worthwhile to conduct additional outreach to these industries and keep an eye out for opportunities to support their growth.

Additionally, it should be noted that despite the growth of regional investment in biofuels and the high concentration of recycling and environmental consulting companies in the EBGCP cities, there are few to no workforce training programs focused specifically on these sectors. This gap should be further explored.

Conclusions

The opportunity to grow the green tech industry in our region is not exaggerated. Approximately 500 companies were identified as part of the East Bay Green Corridor Partnership's green industry employer base. Programs like the Berkeley FIRST solar financing district or Stopwaste's unique public-private partnership to promote recycling and materials re-use are cited as national examples of innovative green tech policies and programs. The investment numbers further legitimize the East Bay's aspiration to become a hub of green technology. A recent MoneyTree report from PricewaterhouseCoopers and the National Venture Capital Association shows that venture capitalists invested a quarter (24.8%) of all their 2008 alternative energy funding in the East Bay.⁴ As a result, "the total \$1.6 billion received by companies in all industries in the East Bay's two counties exceeded the total received by any other state in the nation except for California and Massachusetts."

There is a significant opportunity to grow the East Bay green economy, but it cannot be accomplished by any one sector alone. In the years ahead, it will be essential that the Oakland Metropolitan Chamber of Commerce and East Bay Green Corridor Partnership continue to engage public, private, academic, and non-profit partners in the development of regional business development, workforce development, marketing, research and development, and technology transfer strategies.

⁴ "The East Bay Cashing in on Clean Tech R&D." East Bay Economic Development Alliance Newsletter, Spring 2009. <http://www.eastbayeda.org/eNEWS/2009/Spring2009EastBayEDAnews.html>

Appendix A: Literature Review

To date, there have been three types of studies conducted involving East Bay green tech businesses: those identifying employment opportunities for targeted populations, those focused on specific industries or sub-sectors within the broader umbrella of “green tech,” and those that provide a regional scan of assets and opportunities.

Population- Specific Research

Given that the East Bay cities confront specific demographic challenges, several of the studies have focused on identifying employment opportunities for targeted populations of residents. Oakland was the birthplace of the “green collar jobs” movement and Van Jones and the Ella Baker Center have attracted national attention by demonstrating the importance of creating opportunities for people facing barriers to employment and guaranteeing *access* to jobs while transitioning to a low-carbon economy.

A study commissioned by the City of Berkeley and conducted by San Francisco State University Professor Racquel Pinderhuges identifies 22 green collar job sectors, 16 of which can be found in Berkeley. Though “green collar jobs” can refer to positions involved in the whole spectrum of clean energy-related work, Pinderhuges emphasizes that these green collar jobs are “ideally suited for low-income residents with barriers to employment because they have low barriers to entry and because employers regularly hire workers with very little, if any, direct work experience for entry level green collar jobs.”⁵

A recent study prepared for the East Bay Community Foundation further narrows the scope of research, by seeking to identify “job creation and employment training opportunities” for “formerly incarcerated individuals, adults with limited English skills, and aged-out foster youth.”⁶ Though few green tech companies were surveyed, the report finds opportunities for entry-level jobs within the solar installation and construction industries.

Finally, the East Bay Alliance for a Sustainable Economy (EBASE) has completed a study that zeroes in on employment opportunities in the City of Richmond that are likely to provide “low-income Richmond residents with living wage, family supporting jobs and career pathways.”⁷ This study profiles opportunities for “men and women with barriers to employment in the city of Richmond,” defining this population using Pinderhuges’ definition: “people who have less than a high school degree, limited labor market skills, have been out of the labor market for a long time, and/or were formerly incarcerated or under supervision of the criminal justice or juvenile justice system.”

⁵ Pinderhuges, Racquel. “Green Collar Jobs: An Analysis of the Capacity of Green Businesses to Provide High Quality Jobs for Men and Women with Barriers to Employment—A Case Study of Berkeley, California.” The City of Berkeley Office of Energy and Sustainable Development, 2007. p.24

⁶ Benjamin, Cassandra & Kimberlin, Sara. “Urban Workforce Development Study: Employment Opportunities for Formerly Incarcerated Adults, Limited English Proficient Adults, & Aged-Out Foster Youth.” csb consulting, September 2009. Written for the East Bay Community Foundation and funded by the Ford Foundation. p.15

⁷ Lin, Jennifer, Levitt, Zoe and Pinderhuges, Racquel. “EBASE’s Report of the Green Jobs Report.” *Not Yet Released*

Industry-Specific Research

Other reports limit their scope by industry sector. “Environmental Scans” conducted by the California Community Colleges Centers of Excellence on the solar and energy efficiency industries provide tremendous insight into the workforce needs of regional employers in these two green tech industries. These reports show that both the solar and energy efficiency industries expect high levels of employment growth and have a wide range of occupational needs, from entry-level sales representatives to highly skilled technicians and contractors to designers and engineers with 4-year degrees. While both reports suggest a number of industry drivers and cover the range of occupational opportunities available, recommendations are focused on actions that California’s community colleges can take to be a part of the green workforce training system.

Regional Asset Scans

Finally, there are studies that divide the East Bay green economy into sectors by defining the industries represented and identifying the opportunities for growth. The June 2008 *East Bay Green Economy Industry Cluster Study* conducted by Craft Consulting Group finds the East Bay to have “a critical mass of core companies involved with clean technologies, environmental services, green building, and alternative energy.”⁸ Among the region’s strong green tech industry base are four “clusters” with the right mix of industry concentration, local resources, and growth potential: Green Building, Solar Technology, Biofuels, and Environmental Solution Providers. While the majority of these companies are small businesses with fewer than 100 employees, the report notes that “Six of the 2007 top 200 largest environmental service firms in the United States are headquartered [in the East Bay]” and many of the region’s solar technology companies have received substantial venture capital financing.

The San Francisco Planning & Urban Research Association’s (SPUR) September 2008 issue of *Urbanist* also provides a breakdown of the components of the Bay Area’s green economy. In “Growing Green: How San Francisco can become a leader in the cleantech boom,” SPUR staff Egon Terplan identifies “11 different but overlapping industry segments” all with a presence in the Bay Area.⁹ Among these, renewable energy generation, finance/investment, energy and environmental consulting, green building and design, clean transportation, and energy efficiency make up almost 80% of the total Bay Area cleantech sector. Of the 428 cleantech establishments identified in the Bay Area, 81 of them (or 19%) are located in the East Bay, with the greatest industry concentrations found in the renewable energy generation (21%), green building (19%), energy and environmental consulting (17%), and clean transportation (11%) sectors. The article lays out a series of critical factors for the success of the industry, including strengthening the Bay Area’s “innovation pipeline” stemming from regional universities, institutes, and laboratories, “accessing and attracting early stage funding,” training or attracting a high-skill workforce, developing the physical infrastructure to support clean tech companies’ growth, and simplifying public policies and bureaucratic procedures to stimulate rapid growth. The article also offers a series of recommendations for San Francisco’s “clean tech strategy,” including the creation of

⁸ “East Bay Green Economy Industry Cluster Study: Building a Sustainable Economy Based on Clean Technology.” *Craft Consulting Group*, June 25, 2008. p.73. Prepared for the East Bay EDA.

⁹ Terplan, Egon. Growing Green: How San Francisco can become a leader in the cleantech boom.” *Urbanist*. San Francisco Planning & Urban Research Association, September 2008.

public-private-academic partnerships, demonstration centers for cleantech products, green jobs training programs, a cleantech-eco-industrial park, and a seed fund to provide companies with early stage capital.

Though primarily focused on the opportunities for job growth in the East Bay's Tri-Valley region (Dublin, Livermore, Pleasanton, San Ramon, and Danville), Workforce Incubator's "East Bay Green Economy: Developing A Professional Workforce In the Tri-Valley" also provides a useful framework for East Bay green industry segmentation, along with a series of recommendations for building a green workforce.¹⁰ In this report, industry classifications are based on a modified version of the *Climate Change Business Journal* segmentation taxonomy and applied to Craft Consulting Group's East Bay Green Economy Directory. The report identifies nine clean tech industry segments with a presence in the East Bay, of which consulting and research, efficiency systems, low-carbon/ renewables, green building, and transportation have the greatest concentration of firms and employees. In addition to providing data on the prevalence of specific green job titles, educational degree programs, and skills training opportunities in the East Bay, the report suggests that workforce development efforts should be accompanied by a combination of "foundational and operational initiatives that encourage investment, business formation, and job creation."

With support from the East Bay Green Corridor Partnership, a fourth regional scan is being led by Karen Chapple, Faculty Director at the UC Berkeley Center for Community Innovation. This report, compiled by UC Berkeley graduate students, will include asset maps for the East Bay green economy, a comparison of the East Bay green economy to that of Silicon Valley, network analyses for each Bay Area sub-region, and business survey data, including responses from 90 green businesses in the East Bay. Preliminary data shows that the East Bay has the second largest quantity of green jobs in the state (second only to the Los Angeles area) and that the region's cumulative clean tech venture capital investments for 2000-2008 were exceeded only by Silicon Valley, when compared with all of California's "top six Metropolitan Statistical Areas (MSA's) and study regions." Asset maps show the prevalence of key public, private, and non-profit "green resources," as well as the location of companies in the energy services, green building, recycling, environmental services, green manufacturing, and environmental remediation industries.¹¹ The final report should be released in the Fall of 2009.

¹⁰ *East Bay Green Economy: Developing A Professional Workforce In the Tri-Valley*. Workforce Incubator, July 2009.

¹¹ http://www.jordanklein.us/ebgcp/asset_maps.html

Appendix B: Green Tech Surveys Including East Bay Employers*

Organization	Geography	Industry Focus	Seeking information on...
East Bay Green Corridor Partnership- Green Academy & East Bay EDA	East Bay Counties of Alameda and Contra Costa	solar energy, green building & energy efficiency companies	Career pathways, Target Jobs, Industry Partnerships, Messaging: high wage, high growth & manual labor job requirements and certifications, education, or additional skills sought; industry partnerships for development of curriculum and training programs, participation in grants, internships, etc.
Tri Valley Council Workforce Development Strategy & East Bay EDA	East Bay Counties of Alameda and Contra Costa	All industries associated with alternative and renewable energy	Career pathways and economic development opportunities for the region
East Bay Community Foundation	Oakland and Richmond	5 business clusters: Construction, Custom Manufacturing (Food and Non-Food), Healthcare, Green Tech & Green Manufacturing, and International Trade & Logistics	how employers feel about three target populations: [(1) re-entry; (2) emancipated youth; (3) limited English language speakers], strategies and incentives to increase their hiring, fears and challenges to hiring, potential for promotions, training needs, how flexible community colleges and adult schools can be to meet those training needs, barriers and challenges of target populations to secure and maintain employment. The study can be used to access philanthropy, improve nonprofit service delivery models, and encourage employers to hire from these populations.
East Bay Alliance for a Sustainable Economy (EBASE)	Richmond	green employers	what sectors are represented, what led green companies to locate there, what jobs exist and who works in them, how many more jobs are expected to open up, and whether these businesses currently operate on or need to expand to industrial land.
California Community Colleges & Nor Cal Chapter of USGBC	statewide	green building and efficiency	Community colleges are ready to build new certificate and degree programs that focus on energy efficiency and demand side management, but need accurate labor market information from employers in order to accelerate this effort.
California Public Utilities Commission	statewide	energy efficiency	what the jobs are, what training efforts are in place now, who is taking advantage of CPUC programs/efforts, what new jobs are needed/how can existing infrastructure be transformed, how can greater impact in low-income and minority communities be achieved

* This list was compiled Dec.10, 2008 and only covers surveys including East Bay employers in the survey sample.