

GREEN COLLAR JOBS

An Analysis of the Capacity of Green Businesses
to Provide High Quality Jobs for Men and
Women with Barriers to Employment



RAQUEL PINDERHUGHES, Ph. D.

A CASE STUDY OF BERKELEY, CALIFORNIA
Funded by The City of Berkeley Office of Energy and Sustainable Development

2007

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

Funded by The City of Berkeley Office of Energy and Sustainable Development

This report was commissioned by staff in the City of Berkeley's Office of Energy and Sustainable Development. The report was written by Dr. Raquel Pinderhughes with assistance from Michelle Jacques-Menegaz and David Schechter. The report is based on a research study designed and conducted by Professor Raquel Pinderhughes with assistance from Michelle Jacques-Menegaz and Ed Dehaan. Data collection and analysis took place in 2006-2007. Aly Pennucci and Annie Pennucci assisted with the design of the SPSS component. Ipeleng Kgositsile assisted with preliminary analysis of 2007 data on the level of interest in green collar work force opportunities. Lana Chan assisted with graphic design and layout of the final report.

The full report can be found at:

www.ellabakercenter.org

www.greenforall.org

<http://bss.sfsu.edu/raquelrp/>

www.cityofberkeley.info/sustainable/Government/actionplans.html

For more information contact:

Professor Raquel Pinderhughes at raquelrp@sfsu.edu

Table of Contents

List of Tables, Figures, and Maps	1
Executive Summary	3
Introduction	9
Green Collar Jobs	9
Factors Affecting Growth of the Green Economy in the Bay Area	11
<i>Public Policies Designed to Improve Urban Environmental Quality</i>	
<i>Government Actions to Reduce Greenhouse Gas Emissions</i>	
<i>Government Support for Green Economic Development and Green Businesses</i>	
<i>Efforts to Reduce the Ecological Footprint of Educational Institutions</i>	
<i>Changes in Consumer Spending Patterns</i>	
<i>Venture Capital Investments in Green Technologies</i>	
Organization of the Report	14
I Poverty, Unemployment, and Social Inequality	15
Berkeley	15
Oakland	16
San Francisco	16
California	17
Summary	17
II Analysis of the Data on Green Businesses and Green Collar Jobs	19
Green Collar Jobs	20
Green Businesses	36
Opening a Small Business in Berkeley	60
Importance of Industrial Zoning for Businesses that Provide Green Collar Jobs	64
Importance of Social Networks for Workers Seeking Green Collar Jobs	67
Developing Green Collar Jobs for Men and Women with Barriers to Employment ...	70
III Preparing People with Barriers to Employment for Green Collar Jobs	73
Green Collar Jobs Training and Placement Program Model	73
Target Population	74
Training	74
Case Management and Follow up	74
Pathways to Employment & Educational and Occupational Mobility	74
Employers	74
Green Business Council	74
Local Government	74
Community Involvement	74
Conclusion	75
Bibliography	80
Appendix	83
Methods, Data Collection, Data Analysis	84
Summary Analysis of Data on Job Seeker’s Level of Interest in Green Collar Jobs	87
Research Team	88
Acknowledgements	90

Pedal Express Bike Delivery Service



List of Tables, Figures, and Maps

Tables

1. Green Collar Job Sectors in the United States	20
2. Green Collar Job Sectors in Berkeley	21
3. Green Collar Jobs are Community Serving Work Force Opportunities	22
4. Green Collar Jobs Provide Workers with Many Additional Benefits	30
5. Sample of Benefits Provided by Green Businesses	31
6. Green Collar Jobs Provide Workers with Opportunities for Internal Advancement and Occupational Mobility	34
7. Green Collar Jobs Provide Workers with Opportunities for External Advancement and Occupational Mobility	35
8. Alameda County Businesses Registered with the Bay Area Green Business Program	36
9. Businesses Registered with the City of Berkeley's Green Business Program	38
10. Businesses that Provide Green Collar Jobs in Berkeley	41
11. Amount of Space Dedicated to Industrial, Office and Retail Uses by Berkeley Green Businesses	54
12. Green Businesses Plan to Expand Services, Staff and Space	55
13. Adequate, Affordable Space is Essential for Small Green Businesses Providing Green Collar Jobs	58
14. External Support for Green Businesses and Green Collar Workers	59
15. Opening a Small Business: Analysis of Website Information in Berkeley, Oakland, Richmond	61
16. Structural Needs of Businesses that Provide Green Collar Jobs	66

Figures

1. Green Collar Jobs Have Low Barriers to Entry	24
2. Green Businesses Provide On the Job Training for Green Collar Jobs	26
3. Green Collar Jobs Provide Workers with Living Wages	27
4. Green Collar Jobs Provide Workers with Health Benefits	28
5. Green Collar Jobs Provide Workers with High Levels of Job Satisfaction	32
6. Green Businesses Providing Green Collar Jobs are Stable Businesses	42
7. Green Businesses Providing Green Collar Jobs are Mostly Privately Owned	43
8. Green Businesses Providing Green Collar Jobs Serve Mostly Residential and Commercial Clients	44
9. Most Green Businesses Providing Workers with Green Collar Jobs are Small Businesses	45
10. Green Businesses Measure Growth Through Revenue and Volume	47
11. Green Businesses are Experiencing Significant Growth	48
12. The Majority of Green Businesses Lease Their Property	49
13. Many Green Businesses Have Leases that will Expire in the Next Few Years	50
14. Owners and Managers of Green Businesses Would Like to Stay in the Same Location	51
15. Green Business Employers Unsure of Where they Would Relocate	52
16. Green Business Employers Anticipate the Need for Additional Space	56
17. Social Networks are the Primary Way Job Seekers Learn about Green Collar Job Openings	67
18. There is a Shortage of Workers for Skilled Green Collar Jobs	68
19. Employers are Willing to Hire Workers with Barriers to Employment for Green Collar Jobs	70
20. Employers are Willing to Partner with Local Workforce Development Programs	71

Maps

1. Map One: Majority of Green Businesses that Provide Workers with Green Collar Jobs are Located in Areas of City Zoned for Industrial/Mixed Use	64
--	----

Inkworks Green Printing Services



Executive Summary

Poverty and unemployment are significant problems in Berkeley and other Bay Area cities and there is an urgent need for a new source of living wage jobs for low income residents with barriers to employment – a population that includes youth and adults who do not have a high school degree, have been out of the labor market for a long time, were formally incarcerated, have limited education and/or labor market skills. This report describes a category of jobs with significant potential to fill this need – green collar jobs.

Green collar jobs are blue collar jobs in green businesses – that is, manual labor jobs in businesses whose products and services directly improve environmental quality (Pinderhughes, 2006). Green collar jobs are located in large and small for-profit businesses, non-profit organizations, social enterprises, and public sector institutions. What unites these jobs is that all of them are associated with manual labor work that directly improves environmental quality.

Green collar jobs represent an important new category of work force opportunities because they are relatively high quality jobs, with relatively low barriers to entry, in sectors that are poised for dramatic growth. The combination of these three features means that cultivating green collar jobs for people with barriers to employment can be an effective strategy to provide low-income men and women with access to good jobs - jobs that provide workers with meaningful, community serving work, living wages, benefits, and advancement opportunities.

Twenty-two different sectors of the U.S. economy currently provide workers with green collar jobs (Pinderhughes, 2006). These sectors include:

1. Bicycle repair and bike delivery services
2. Car and truck mechanic jobs, production jobs, and gas-station jobs related to bio-diesel, vegetable oil and other alternative fuels
3. Energy retrofits to increase energy efficiency and conservation
4. Food production using organic and/or sustainably grown agricultural products
5. Furniture making from environmentally certified and recycled wood
6. Green building
7. Green waste composting on a large scale
8. Hauling and reuse of construction and demolition materials and debris (C&D)
9. Hazardous materials clean up
10. Green (sustainable) landscaping
11. Manufacturing jobs related to large scale production of a wide range of appropriate technologies (i.e. solar panels, bike cargo systems, green waste bins, etc.)
12. Materials reuse/producing products made from recycled, non-toxic materials
13. Non-toxic household cleaning in residential and commercial buildings
14. Parks and open space maintenance and expansion
15. Printing with non-toxic inks and dyes and recycled papers
16. Public transit jobs
17. Recycling
18. Solar installation and maintenance
19. Tree cutting and pruning
20. Peri-urban and urban agriculture
21. Water retrofits to increase water efficiency and conservation
22. Whole home performance (i.e: HVAC, attic insulation, weatherization, etc.)



Green collar jobs are manual labor (“blue-collar”) jobs in businesses whose products and services directly improve environmental quality (“green businesses”). They represent an important new category of work force opportunities for men and women with barriers to employment because they are high quality jobs, with low barriers to entry, in sectors of the economy that are experiencing dramatic growth.

This report presents an assessment of the potential of Bay Area green businesses to provide high quality green collar jobs to men and women with barriers to employment. The assessment is based on an in-depth study of green businesses in Berkeley that provide workers with green collar jobs conducted by Professor Raquel Pinderhughes in 2006-2007. The study addresses seven major questions:

1. **To what extent are green collar jobs good jobs?**
2. **To what extent are green collar jobs suitable for people with barriers to employment?**
3. **To what extent are people with barriers to employment interested in green collar jobs?**
4. **Are green business owners willing to hire workers with barriers to employment for green collar jobs?**
5. **To what extent are the green collar job business sectors growing?**
6. **What strategies are needed to grow the number of green collar jobs?**
7. **What strategies are needed to ensure that workers with barriers to employment can gain access to green collar jobs?**

The assessment reveals that placing job ready workers with barriers to employment in green collar jobs can be an effective way to provide low income people with access to good jobs that can lift these individuals and their families out of poverty.

The key findings for the seven major questions addressed by the study are:

1. Green collar jobs are good jobs. They provide workers with:

- Living wages
- Health benefits
- Additional benefits
- Meaningful work
- High levels of job satisfaction
- Opportunities for occupational mobility

2. Green collar jobs are well suited for workers with barriers to employment.

- Green collar jobs have low barriers to entry.
- Green businesses provide on the job training for entry level and advanced green collar jobs.
- Green collar jobs provide workers with opportunities for advancement.
- Green collar jobs are located in sectors that are growing rapidly.

3. People with barriers to employment are interested in working in green collar jobs.

Bay Area workers with barriers to employment are extremely interested in green collar work force opportunities. Importantly, many of the people surveyed have relevant work experience, particularly in the areas of construction, landscaping and bike repair.

4. The owners and managers of green business are willing to hire job ready workers with barriers to employment for green collar jobs.

Most owners and managers are enthusiastic about the opportunity to provide low-income local residents with an opportunity to train for, and obtain, green collar jobs in their firms. However, employers need candidates to be job ready. For these employers, "job ready" means that workers have:

- A sense of responsibility
- A positive attitude
- Consistent punctuality
- Basic presentation, listening, communication, and literacy skills
- A strong work ethic
- The ability to work independently and as part of a team

Employers are willing to partner with job training programs to prepare and place workers with barriers to employment in their firms but these programs need to be well-organized, effective at getting clients job ready, and sensitive to the needs of employers.

5. Green collar job sectors are growing.

All of the Bay Area's green collar job sectors are expected to grow over the next decade(s) and as they expand there will be increases in green collar work force opportunities in areas such as alternative energy, bicycle transit, energy and water efficiency and conservation, green building, materials reuse, organic food, public transit, and recycling. Most firms are not adequately prepared to address the work force development issues that will accompany rapid growth. Seventy-three percent of the business owners/managers surveyed stated that there was a shortage of qualified green collar workers for their sector, with the greatest needs in energy, green building, mechanics, and bike repair.

6. Green businesses that provide green collar jobs need to be supported. Support would include:

- Ensuring that green businesses have adequate, appropriate, affordable space.

Most green businesses in the Bay Area are small enterprises that do not own their property, have leases that will expire in the next few years, are growing, and are concerned about space to accommodate growth. These businesses would like to stay in the same locations and are very concerned about maintaining affordable space. City planning agencies can do a great deal to help meet this critical need – especially by preserving affordable industrial land.

- Following the recommendations in the Sustainable Business Action Plan approved by City Council.

Although it makes no reference to green collar jobs, the Sustainable Business Action Plan identifies strategies for developing green businesses in Berkeley in four critical areas: (a) building the demand for green products and services, (b) nurturing existing green businesses; (c) fostering environmental innovation and entrepreneurship in the city; and (d) branding and communication.

- Stimulating the growth of its green business sector and local green businesses.

Strategies to stimulate growth include providing (a) procurement dollars and contracts to purchase goods and services that local green businesses provide; (b) assistance with marketing; (c) access to capital; and (d) technical assistance.

7. Ensuring that workers with barriers to employment gain access to green collar jobs will require coordination between effective job training programs and local green businesses.

Providing people with barriers to employment with access to green collar jobs will require a strong partnership between green business employers and job training programs that prepare people with barriers to employment to enter the labor market. These two entities must work closely together to support training and placement. Ideally employers would be convened by the Chamber of Commerce under the umbrella of a *Green Business Council* whose members would meet regularly to inform job training program staff about the needs of their firms and identify placement opportunities in their firms as they emerge.

The report includes a model for an effective green collar jobs training and placement program that meets these needs. The essential features of the model are outlined below.

Green Collar Jobs Training and Placement Program Model *

Purpose of the Program: To prepare men and women with barriers to employment to become job ready and obtain entry-level green collar jobs

Types of Jobs. This program is focused on existing bay area green collar sectors and jobs:

1. bicycle repair
2. bike delivery services
3. energy retrofits to increase energy efficiency and conservation
4. food production using organic and/or sustainably grown agricultural products
5. green furniture (using environmentally certified and recycled wood and other materials)
6. green building
7. green composting on a large scale
8. hauling and reuse of construction and demolition materials and debris (C&D)
9. green (sustainable) landscaping
10. materials reuse (i.e. producing products made from recycled, non-toxic materials)
11. parks and open space maintenance and expansion
12. green printing (using non-toxic inks and dyes, recycled paper, etc.)
13. recycling
14. solar installation and maintenance
15. tree cutting and pruning
16. water retrofits to increase water efficiency and conservation
17. whole home performance (i.e. HVAC, attic insulation, weatherization, etc.)

Target Population: 18-35 year old men and women with barriers to employment. This population includes men and women who do not have a high school degree, have been out of the labor market for a long time, were formally incarcerated, and/or have limited labor market skills and experience.

Training: This is an approximately 3-6 month training program that utilizes both training in the classroom and on-the-job training to provide clients with the following direct services: (1) initial assessment; (2) basic literacy skills (math, English, writing, computer, oral presentation, basic communication skills, etc.); (3) life skills and soft skills training; (4) financial management skills; (5) OSHA Safety Training Certification; (6) an environmental educational component; (7) basic vocational skills relevant to green collar work force opportunities.

Internships: The internship component is designed to place job ready clients in local green collar jobs for a trial period of 2-6 months. Internship sites and placements will be identified by employers in the *Green Business Council* who will meet regularly to identify green collar internships as well as full-time jobs for job ready clients. The internships allow the employer and the client a trial period during which they can assess fit and capacity without committing to a full-time permanent position for the client. In the best case scenarios, clients who excel in their internships will be hired on as full-time workers.

* This model was used to develop the Oakland Green Jobs Corp Program championed by the Ella Baker Center and the Oakland Apollo Alliance.

Case Management and Follow Up: Each client will have access to case management and follow up services during the period in which they work as interns and for up to 6-12 months after they start their first job in a green business. Case management and follow up services are designed to help both the client and the employer.

Pathways to Employment & Educational and Occupational Mobility: Graduates of training programs that prepare people for green collar jobs will have access to multiple pathways to employment as well as to educational and occupational mobility. These pathways include: (1) ongoing on-the-job training opportunities in green businesses; (2) information about union apprenticeship programs, particularly electrical and construction; (3) access to higher education through adult schools, community colleges, and four year institutions; and (4) ongoing job placement services through employers in the *Green Business Council*.

Employers: To succeed, the program must have an involved, supportive, and enthusiastic group of green business employers who regularly communicate with the job training staff preparing program participants to enter the labor market. These employers will: (a) identify growing green economic sectors and opportunities; (b) identify training standards for specific green-collar jobs; (c) identify placement opportunities; (d) create internship opportunities for program participants; and (e) hire job ready applicants for entry level green collar jobs when there are job openings in their firms. They may also refer job ready applicants to firms outside of Berkeley.

Green Business Council: To develop and nurture relationships with employers, the Chamber of Commerce should convene a *Green Business Council* composed of the owners and managers of local green businesses in the private, non-profit, and public sectors that provide workers with green collar jobs.

Local Government: Government staff working on issues related to economic development, work force development, and improvements in environmental quality should provide ongoing support to the green businesses that provide workers with green collar jobs. This can be accomplished in many ways, including: streamlining permitting processes for green businesses that provide green collar jobs in the city; utilizing procurement dollars and city contracts to support local green businesses; creating incentives for working with “first source” hiring policies; helping green businesses access tax credits; working with regional organizations that support job training programs.¹

Community Involvement: The program should involve members of Berkeley’s low income communities in assisting with recruitment and retention of program applicants as well as supporting public and private sector initiatives to improve urban environmental quality and create green collar jobs.

¹ Examples of how the city of Berkeley is currently supporting green businesses that provide workers with high quality local green collar jobs include awarding its recycling contract to the Ecology Center, providing affordable office space to Rising Sun Energy Services, contracting with Pedal Express bike delivery service to deliver city packets, and the School District’s (BUSD) contracting with Vital Vittles Bakery to provide healthy baked goods made for students in the Berkeley public schools.

Missing Link Bicycle Repair Tools



Introduction

Green Collar Jobs

Poverty and unemployment are significant problems in Berkeley and other Bay Area cities and there is an urgent need for a new source of living wage jobs for low income residents with barriers to employment - youth and adults who do not have a high school degree, have been out of the labor market for a long time, were formally incarcerated, and/or have limited labor market skills.

Where can these jobs come from? An important part of the answer is the deliberate cultivation of green collar jobs. *Green collar jobs* are blue collar jobs in green businesses – that is, manual labor jobs in businesses whose products and services directly improve environmental quality (Pinderhughes, 2006).²

The green businesses that provide workers with green collar jobs are large, medium and small. They include for-profit and non-profit businesses, social enterprises, public sector entities, worker-owned cooperatives, and worker collectives. They represent different sectors, such as alternative energy, materials reuse/recycling, water, sustainable food systems, green building, and sustainable transportation. What unites green collar jobs across these diverse categories is that they are all manual labor jobs that directly improve environmental quality.

Twenty-two different sectors of the U.S. economy currently provide workers with green collar jobs (Pinderhughes, 2006). These sectors include:

1. Bicycle repair and bike delivery services
2. Car and truck mechanic jobs, production jobs, and gas-station jobs related to bio-diesel, vegetable oil and other alternative fuels
3. Energy retrofits to increase energy efficiency and conservation
4. Food production using organic and sustainably grown agricultural products
5. Furniture making from environmentally certified and recycled wood
6. Green building
7. Green waste composting on a large scale
8. Hauling and reuse of construction and demolition materials and debris (C&D)
9. Hazardous materials clean up
10. Green (sustainable) landscaping
11. Manufacturing jobs related to large scale production of a wide range of appropriate technologies (i.e. solar panels, bike cargo systems, green waste bins, etc.)
12. Materials reuse/producing products made from recycled, non-toxic materials
13. Non-toxic household cleaning in residential and commercial buildings
14. Parks and open space maintenance and expansion
15. Printing with non-toxic inks and dyes and recycled papers
16. Public transit jobs related to driving
17. Recycling
18. Solar installation and maintenance
19. Tree cutting and pruning
20. Peri-urban and urban agriculture
21. Water retrofits to increase water efficiency and conservation
22. Whole home performance

² The term “green collar jobs” was first used by Alan Durning to describe logging jobs in the Northwest United States (1999). In 2004, I revised and extended the term to refer to manual labor jobs that improve environmental quality in some way. I used this expanded definition to develop and identify the 22 sectors of the U.S. economy that provide workers with green collar jobs and to inform my research on green collar jobs.



The average hourly wage for green collar work in Berkeley is \$15.80 plus benefits. This is \$4.00 higher an hour than Berkeley’s current minimum “living wage”, which is the highest in the nation. Most employers pay the full cost of insuring workers, extend health care coverage to dependents, offer financial incentives, and provide workers with opportunities for advancement and occupational mobility.

Green collar jobs represent an important new category of work force opportunities because they are relatively high quality jobs, with relatively low barriers to entry, in sectors that are poised for dramatic growth (Pinderhughes, 2007). The combination of these three features means that the deliberate cultivation of green collar jobs for low income men and women can be an effective way to provide low-income residents with access to jobs that provide living wages, meaningful work, benefits, and advancement opportunities.

This report presents the findings of a study designed to assess the potential of green businesses and green collar jobs in the Bay Area to provide high quality work force opportunities to low-income men and women with barriers to employment. The study was conducted by Professor Raquel Pinderhughes in 2006-2007. In addition to reporting on the findings, the report (1) summarizes the factors driving the growth of green businesses and green collar jobs; (2) describes what needs to be done to ensure that green collar jobs are accessible to people with barriers to employment; and (3) lays out a programmatic model for how to do this. The study addresses seven major questions:

1. To what extent are green collar jobs good jobs?
2. To what extent are green collar jobs suitable for people with barriers to employment?
3. To what extent are people with barriers to employment interested in green collar jobs?
4. Are green business owners willing to hire workers with barriers to employment for green collar jobs?
5. To what extent are the green collar job business sectors growing?
6. What strategies are needed to grow the number of green collar jobs?
7. What strategies are needed to ensure that workers with barriers to employment can gain access to green collar jobs?

Over the next decade, the green economy in the Bay Area is poised to expand significantly. As it expands there will be huge increases in green collar work force opportunities in the private, public, non-profit, and cooperative businesses that make up the Bay Area's green economy, in areas such as alternative energy, bicycle transit, energy and water conservation and efficiency, green building, materials reuse, organic food, public transit, and recycling.

Factors Affecting Growth of the Green Economy in the Bay Area

At least six factors are contributing to the growth of green businesses and green collar jobs in the Bay Area. They include: (1) state and local policies to improve urban environmental quality, (2) government actions to reduce greenhouse gas emissions, (3) support for green economic development, (4) efforts of large educational institutions to reduce their environmental footprint, (5) consumer spending patterns, and (6) private investment in the green economy. Below, each of these factors is discussed in detail.

(1) State and local governments are increasingly adopting public policies designed to improve urban environmental quality in areas such as solar energy, waste reduction, materials reuse, public transit infrastructures, green building, energy and water efficiency, and alternative fuels. The goals and programs associated with these public policies increase business opportunities for green enterprises which results in an expansion of green collar job opportunities.

Growth in the recycling industry is illustrative of this trend.³ As cities and states pass policies to reduce waste going to landfills and incinerators, green collar jobs are increasing exponentially. According to the US Environmental Protection Agency, 50.8 million tons of materials were recycled or composted in 1999, a 50% increase from the previous decade. Throughout the United States over 56,000 recycling facilities, both private and public are creating more than 1.1 million jobs. Recycling is now a major industrial sector of the US economy, comparable to automobile manufacturing and mining industries and surpassing waste management (Williams, 2004).

Reuse and recycling operations are typically labor-intensive and are an excellent source of entry level positions. Recycling creates more jobs than conventional waste disposal methods. Between 1992 and 1995, there was a 30% job growth in the recycling industry in the state of Washington; between them, 371 firms created 3,700 jobs in recycling and 13,000 jobs in the remanufacturing sector. Additional jobs can be created locally by attracting industries that convert recovered materials into finished products (http://www.smartcommunities.ncat.org/success/materials_reuse_and_recycling, May 2007).

Realizing the importance of this new economic sector, the state of California designated 40 Recycling Market Development Zones and now provides low interest loans of up to \$1 million for businesses utilizing recycled materials. In its first 18 months, the Oakland/Berkeley Zone generated \$8.2 million in investment for recycling, creating 155 new jobs and diverting 100,000 tons of new material from landfills (tufts.edu/tuftsrecycles/notenough, May 2007).

In 2005, the Berkeley City Council committed the city to 75% waste diversion by 2010 and to zero waste by 2020. Even achieving 75% waste diversion rates will require huge increases in the number of jobs associated with hauling construction and demolition materials, composting green waste, and picking up, hauling, sorting and selling recycled materials. It will also generate more work for materials reuse businesses and industries.

³ The recycling industry is comprised of a system of many integrated facets and activities that include public and private sector curbside pickup programs, actual processing of recyclable items and materials, transfer of reprocessed raw materials to manufacturers and ultimately the construction of new products (Williams, 2004).

(2) Government action to reduce greenhouse gas emissions is fueling growth of green businesses and green collar jobs. In the State of California, Assembly Bill 32 requires that the state's global warming emissions be reduced to 1990 levels by 2020, through an enforceable statewide cap on global warming emissions. In Berkeley, a strong majority of voters (81%) passed Measure G in November 2006, calling for the Mayor to develop a plan to achieve an 80% reduction in greenhouse gas emissions by 2050. Measures like these, and general concern over greenhouse gas emissions and climate change, are stimulating national, state, and local public and private investments in renewable energy, energy efficiency, alternative fuels, water conservation, resource recovery systems, bicycle infrastructures, and public transit that will generate millions of green collar jobs for U.S. workers over the next decade(s).

Sales of biofuels, wind, solar photovoltaics, and fuel cell/distributed hydrogen in the alternative energy sector were estimated to total \$39.9 billion in 2005 and are projected to reach more than \$226.5 billion within the next decade (Pernick and Makower, 2007). A study conducted by the Apollo Alliance concluded that major national investments in energy efficiency, renewable energy, and renewable fuels could result in nearly three and a half million new jobs in the United States (Community Jobs in the Green Economy, 2007). A study conducted by the Department of Energy showed that for every million dollars invested in weatherization programs in low income communities, 52 jobs are created in those communities (U.S. Dept. of Energy, 2006).

(3) State and local officials are steadily increasing their support for green economic development and green businesses. As states and cities provide green businesses with marketing and branding opportunities, streamlined permitting processes, procurement contracts and infrastructure support, existing Bay Area green businesses will expand their operations, entrepreneurs will create new green businesses, and green businesses from other parts of the U.S. - and beyond - will decide to locate in the Bay Area.

The City of Berkeley's Sustainable Business Action Plan is a good example. The plan sets bold goals and strategies for reductions in waste and greenhouse gas emissions, water conservation, and green building. It also sets out a program to develop green businesses by increasing demand for green products and services, nurturing existing green businesses in the city, creating the necessary conditions for startup environmental businesses, and developing an environmentally-oriented "Berkeley brand" that would be useful to all the city's green businesses.

(4) Educational institutions are creating green collar jobs as they implement initiatives designed to reduce their ecological footprints and improve environmental quality. At the 4th University of California Berkeley Sustainability Summit in April 2007, Chancellor Birgeneau announced an aggressive target for reducing campus greenhouse gas emissions to 1990 levels by 2014, six years ahead of Governor Schwarzenegger's target for California. In the 2007 Associated Students (ASUC) election, students passed the Green Initiative Fund, a student-led initiative that will generate \$200,000 per year for 10 years through a \$5/semester student fee increase, to support projects that increase the energy efficiency of campus operations, lower greenhouse gas emissions, and contribute in other ways to improving environmental quality.

(5) Bay Area residents are increasingly choosing to purchase goods and services from businesses that are environmentally responsible whose products and services improve environmental quality. As people reorient their consumption behaviors towards purchasing greener goods and services, they will generate more work for green businesses and, as these businesses stretch to meet increases in consumer demand, more green-collar jobs.

The statistics on consumer spending in the green economy are telling. In the U.S. alone, there is a \$228.9 billion market for goods and services focused on health, the environment, social justice, personal development and sustainable living. These include purchases related to renewable energy, organic food, alternative fuel vehicles, non-toxic cleaning products, alternative health care and resource-efficient products. This market – sometimes referred to as LOHAS, short for Lifestyles of Health and Sustainability -- is projected to reach \$1 trillion annually by 2020 (LOHAS Journal, 2007). Sales of organically grown food are skyrocketing at 20 percent a year growth (Jason and Danaher, 2006). According to a study done by the Outdoor Industry Association, bicycles contribute \$15 billion to the economy of the Pacific region, most of it in the form of tourism and supported rides (Business Leaders Hear from Cycling Industry - bikeportland.org/2007/04/05).

(6) Venture capital investment in green technologies is increasing. A survey by market research firm Dow Jones VentureOne and consulting firm Ernst & Young found that in 2006, venture capitalists in the United States, China, Europe, and Israel boosted investments in clean technology by 93.5 percent over the \$664.1 million spent in 2005 (www.planetark.com/dailynewsstory.cfm/newsid/40558/story.htm).

A study conducted by Environmental Entrepreneurs and the National Resource Defense Council concluded that venture capital investments in California's Clean Tech industry could seed 52,000 to 114,000 new jobs statewide through 2010 (Pernick et al, 2004). According to the Cleantech Venture Network, venture capital investment in clean technologies increased to \$1.6 billion in 2005, a 35% increase over 2004. Clean tech is now the third largest investment category behind biotechnology and software. In the first half of 2006, investment in clean tech reached \$1.4 billion in 2006 (California Clean Tech Open, 2006).

Taken together, these six factors are steadily improving the climate within which green businesses and green collar jobs in the Bay Area will grow and thrive. As the infrastructure and support systems for green businesses in the Bay Area are strengthened, green collar jobs will expand exponentially across multiple sectors ranging from alternative energy to weatherization.

Who will benefit from current and future investments in improving environmental quality and the expansion of green collar work force opportunities that accompany these investments? Will investments in green economic development reinforce existing patterns of social and racial inequality by primarily creating new green business opportunities for the wealthy, new consumer choices for the affluent and new work force opportunities for adults with relatively high levels of education and skills? Is it possible to structure investments in green economic development so that they bring new opportunities and benefits to low-income people and communities?

This report shows that preparing men and women with barriers to employment for entry level green collar jobs, and ensuring that these jobs are consistently made available to them, are very effective ways to bring the opportunities and benefits associated with green economic development to low-income residents and communities in the Bay Area.

Organization of the Report

Green Collar Jobs: An Analysis of the Capacity of Green Businesses to Provide High Quality Jobs for Men and Women with Barriers to Employment is organized in three major sections.

Section One, ***Poverty, Unemployment, and Social Inequality***, establishes the need for living wage jobs for low-income residents in the Bay Area generally, and in the city of Berkeley particularly.

Section Two, ***Developing Green Collar Jobs for Low-income Residents with Barriers to Employment***, presents the research findings using tables, figures, maps, and text to summarize conclusions drawn from an in-depth analysis of employer survey and interview data, and analyses of public documents related to local environmental and economic development policies and programs.

Section Three, ***Preparing Residents with Barriers to Employment for Green Collar Jobs***, presents a model for a green collar job training and placement program which would provide men and women with barriers to employment the opportunity to be trained for, and placed in, entry level green collar jobs.

These three sections are followed by a Conclusion, Bibliography, and Appendix.

I. Poverty, Unemployment, and Social Inequality

This section establishes that poverty and unemployment are significant problems in Berkeley and other Bay Area cities and that there is a need for living wage jobs for low-income residents. The analysis reveals that economic, educational, and racial/ethnic inequalities are profound and non-white residents suffer far more than their proportional share of economic and social hardships.

Berkeley

Berkeley is a prosperous city in a prosperous region. It is home to one of the most prestigious public universities in the world and, relative to many other U.S. cities, its population is highly educated and affluent. Unfortunately, Berkeley's prosperity is not shared by all its residents. Economic, educational, and racial/ethnic inequalities in the city are profound. There is significant unemployment, poverty, and social inequality in the city, and Berkeley's non-white residents suffer far more than their proportional share of economic and social hardships.

According to the 2000 census:

- Black median household income is a little more than half of White median household income, Latino median household income is about 70% of White median household income, and Asian household income is 40% of White median household income;
- Per capita income for Blacks, Latinos and Asians are each less than half of per capita income for Whites;
- Black median family income is only 41% of White median family income, while Latino and Asian median family income are each about half of White median family income;
- Black unemployment is 3.22 times White unemployment, Latino unemployment is 1.88 times White unemployment, and Asian unemployment is 1.67 times white unemployment
- The poverty rates for Blacks and Latinos are each more than 50% greater than the rate for Whites, and the poverty rate for Asians is almost three times the rate for Whites.

Although these economic inequalities are dramatic in and of themselves, economic inequality between White Berkeley residents and their Black and Latino counterparts is significant and actually much greater than what these numbers indicate. This is because approximately 30% of the city's population are UC Berkeley university students -- people whose economic and life prospects are considerably brighter than their incomes indicate at the time that they are enrolled in school and not yet in the labor market. The vast majority of these students are White and Asian and they make up a significant portion of the City's overall White and Asian populations. Because of this, income numbers for White and Asian Berkeley residents are misleadingly low, and poverty rates for Whites and Asians in the city are misleadingly high.



Preparing men and women with barriers to employment for green collar work, and providing them with consistent access to green collar jobs, can help to reduce poverty and unemployment, and bring the benefits of green economic development to low-income people and communities.

The situation for low-income Black and Latino residents is particularly severe in the West and South Berkeley neighborhoods located in the 94710, 94702, and 94703 zip code areas, where the majority of the city's low-income residents and the vast majority of the city's Black and Latino population reside. In these zip code areas, Black poverty rates ranged from 21% to 23%, Latino poverty rates ranged from 17% to 19%, compared to 9%-14% for Whites. Black unemployment rates were up to 16% and Latino unemployment rates were as high as 10%, compared to 3%-5% for Whites.

Education is one of the most critical factors for finding a good job in the Bay Area, and lack of a college education constitutes a significant barrier to residents finding and maintaining living wage/family supporting employment. Unfortunately, education, like employment, income, and poverty, is distributed inequitably by race and ethnicity in Berkeley. While 78% of Berkeley's White residents and 64% of its Asian residents over 25 years of age have a bachelor's degree or higher, only 40% of Latinos and 20% of Blacks do. In proportional terms, Berkeley's Black residents do only one quarter as well as Whites, Latino residents only half as well as Whites, and Asian residents 82% as well as Whites. The greatest barriers to employment are faced by those who do not have a high school diploma. White high school students in Berkeley have a 4 year dropout rate of 8.9%, and Asian high school students have a 6.5% four year dropout rate. The Black 4 year dropout rate is 18.4% - more than twice the White rate - and the Latino rate is 26.2% - almost three times the rate for White students.

Another important barrier to employment is faced by single mothers with children. In Berkeley, the proportion of Latino children in homes with a female householder and no husband is 1.8 times the proportion of White children; the percentage of Black children in this situation is almost three and a half times as great as the percentage of White children. The percentage of Asian children living in single parent family is about three quarters the rate for White children. These patterns of poverty, unemployment, and racial inequality are systemic; they are present in the larger Oakland metropolitan area, in San Francisco, and in the state of California as a whole.

Oakland metro area

- Black unemployment is almost three times as great as White unemployment, Latino unemployment is twice the rate of White unemployment, and Asian unemployment is 1.17 times White unemployment
- Black per capita income is slightly more than half of White per capita income, Latino per capita income is less than half of White per capita income, and Asian per capita income is 69% of White per capita income
- The Black poverty rate is more than three times the White poverty rate, the Latino poverty rate is more than twice the White poverty rate, and the Asian poverty rates is almost twice the White poverty rate.

San Francisco

- Black unemployment is more than four times as great as White unemployment, Latino unemployment is more than twice the rate of White unemployment, and Asian unemployment is 1.17 times White employment

- Latino and Black per capita income is less than half of White per capita income, and Asian per capita income is a little less than 70% of White per capita income
- The Black poverty rate is more than three times the White poverty rate, the Latino poverty rate is more than twice the White poverty rate, and the Asian poverty rate is 1.9 times the White poverty rate

California

- Black unemployment is more than four times as great as White unemployment, Latino unemployment is more than twice the rate of White unemployment, and Asian unemployment is slightly higher than White unemployment
- Black per capita income is about 55% of White per capita income, Latino per capita income is less than 40% of White per capita income, and Asian per capita income is 70% of White per capita income
- The Black poverty rate is 2.87 times the White poverty rate, the Latino poverty rate is 2.83 times the White poverty rate, and the Asian poverty rate is 1.64 times the White poverty rate.

Summary

Berkeley, the Bay Area, and the state of California as a whole have significant problems of poverty, unemployment, and racial inequality. Confronting these systemic problems will require a multi-pronged approach that addresses structural barriers to equal opportunity. Principal among these barriers is differential access to high quality educational and employment opportunities in the city. Providing low-income residents with access to living wage jobs is a critical step towards alleviating poverty, unemployment, and racial inequality. In this context, the deliberate cultivation of green collar jobs for men and women with barriers to employment provides city staff, staff in job training programs, and green business employers with a unique opportunity to work together to bring the benefits of green economic development to low-income residents and communities. The fact that there are so many green businesses in Berkeley, relative to other cities, provides public officials with a very strong foundation on which to build this effort.

Berkeley Mills Fine Furniture Making



II. Analysis of the Data on Green Businesses and Green Collar Jobs

Are green collar jobs really good jobs? Are they suitable for workers with barriers to employment? Are the sectors and businesses that provide workers with green collar jobs growing? To what extent do green businesses have the capacity to hire workers with barriers to employment for green collar jobs in their firms? What strategies and programs would be needed to ensure that workers with barriers to employment gain access to green collar jobs in these firms?

This section of the report addresses each of these questions based on an analysis of data collected on green collar jobs, the businesses that provide them, how employers find workers for their jobs, and how employers could work with public officials to bring workers with barriers to employment into their firms. The section provides in-depth information on the characteristics of green collar jobs, the structural conditions and future needs of green businesses, the services the city of Berkeley provides to existing and potential green businesses, the social networks that employers and workers use to find green collar work, and the level of interest employers have in working with cities to employ a new group of workers for green collar work in their firms.

Overall, an analysis of the data shows that:

1. Green collar work force opportunities are ideally suited for low-income men and women with barriers to employment.
2. There is a shortage of skilled workers for green collar jobs in the Bay Area.
3. Employers are willing to hire job ready workers with barriers to employment for entry level green collar jobs in their firms and provide them with on the job training as long as they are job ready.⁴
4. Green business employers are willing to partner with job training programs to prepare and place workers with barriers to employment in green collar jobs, but these programs need to be well-organized and sensitive to the needs of employers in order to be effective.
5. Green businesses in Berkeley have short-term and long-term capacity to employ workers with barriers to employment in green collar jobs over the next decade(s).
6. Berkeley is well positioned to be a leader in attracting and developing green businesses that provide workers with high quality living wage green collar jobs.
7. Berkeley's ability to provide green collar jobs for residents with barriers to employment is significant but it will not happen without planning, investment, and a strong partnership between job training programs and employers.

⁴ For employers in this study, "job ready" workers have a sense of responsibility, ability to consistently arrive to work on time, a positive attitude towards the work and colleagues, ability to work both independently and as part of a team, basic presentation, listening, literacy, and communication skills, and a strong work ethic. Bike repair and furniture making are exceptions, wherein employers typically require previous work experience.



Of the Berkeley green businesses surveyed:

- 86% hire workers without previous direct experience or training for green collar jobs in their firms.
- 94% provide on the job training for workers in entry level positions.
- 90% pay the full cost of insuring their workers, and many extend health care coverage to workers dependents.
- Many offer additional benefits such as paid time off in addition to vacation, financial incentives such as IRA and 401-K plans, profit sharing programs, and mileage allowances.

1. Green Collar Jobs

Green collar jobs are manual labor jobs in businesses whose good and services directly improve environmental quality.

Green collar jobs are located in large and small for-profit businesses, non-profits organizations, social enterprises, public and private institutions. What unites these jobs across these various entities is that all green collar jobs are associated with manual labor work that directly improves environmental quality.

Twenty-two different sectors of the U.S. economy currently provide workers with green collar jobs (Pinderhughes, 2006). These sectors are shown in Table One:

Table One Green Collar Job Sectors in the United States	
1. Bicycle repair and bike delivery services	12. Materials reuse/producing products made from recycled, non-toxic materials
2. Car and truck mechanic jobs, production jobs, and gas-station jobs related to bio-diesel, vegetable oil and other alternative fuels	13. Non-toxic household cleaning in residential and commercial buildings
3. Energy retrofits to increase energy efficiency and conservation	14. Parks and open space expansion and maintenance
4. Food production using organic and sustainably grown agricultural products	15. Printing with non-toxic inks and dyes
5. Furniture making from environmentally certified and recycled wood	16. Public transit jobs related to driving
6. Green building	17. Recycling
7. Green waste composting on a large scale	18. Solar installation and maintenance
8. Hauling and reuse of construction and demolition materials and debris (C&D)	19. Tree cutting and pruning
9. Hazardous materials clean up	20. Peri-urban and urban agriculture
10. Green (sustainable) landscaping	21. Water retrofits to increase water efficiency and conservation
11. Manufacturing jobs related to large scale production of a wide range of appropriate technologies (ie solar panels, bike cargo systems, green waste bins, etc.)	22. Whole home performance (i.e. attic insulation, weatherization, energy and water audits, reducing air flow through buildings, installing control devices on appliances to reduce energy and water use, improving lighting systems, reducing hot water flows by installing appropriate technologies, etc.)

Hundreds of small and mid-size for-profit firms, public agencies, non-profit organizations, cooperatives, and co-ops own and operate green businesses in Berkeley. The vast majority of these firms (86%) provide workers with white-collar (primarily office and retail) jobs.

Fourteen percent (14%) of these firms provide workers with green collar (manual labor) jobs. Together these businesses provide hundreds of workers in Berkeley with high quality, living wage manual labor jobs that engage them in meaningful, environmentally restorative, community serving work and livelihoods. Every one of the sectors represented by these businesses is expected to grow in the next decade(s), which means that the number of manual labor jobs they depend upon to provide their goods and services will grow exponentially in the near future.

Green businesses in Berkeley include many, but not all, of the 22 green collar job sectors listed in Table One. Sectors not well represented include: green waste composting on a large scale, haz mat, materials reuse industries, non-toxic household cleaning, public transit jobs, and manufacturing of appropriate technologies such as solar panels, bike cargo systems, green waste bins, and commercial biodiesel.

Table Two shows the range of green business sectors in Berkeley in 2007.

<p style="text-align: center;">Table Two Green Collar Job Sectors in Berkeley</p>
1. Bicycle repair and bike delivery services
2. Gas-station jobs related to bio-diesel
3. Energy retrofits to increase energy efficiency and conservation
4. Food production using organic and sustainably grown agricultural products
5. Furniture making from environmentally certified and recycled wood
6. Green building
7. Hauling and reuse of construction and demotion materials and debris (C&D)
8. Green (sustainable) landscaping
9. Materials reuse/producing products made from recycled, non-toxic materials
10. Parks and open space expansion and maintenance
11. Printing with non-toxic inks and dyes
12. Recycling
13. Solar installation and maintenance
14. Tree cutting and pruning
15. Water retrofits to increase water efficiency and conservation
16. Whole home performance (including attic insulation, weatherization, etc.)

Green businesses in Berkeley provide workers with a wide range of green collar work force opportunities. They include jobs in agriculture, attic insulation, bike repair, bike delivery, biofuels, energy audits, energy efficiency, energy retrofits, food preparation, furniture making, green building and architectural construction, heating, ventilation, and air-conditioning (HVAC), landscaping, recycling, materials reuse, organic agriculture, solar panel installation, tree cutting and pruning, water efficiency, water retrofits, and whole home performance. Table Three shows that these jobs provide workers with opportunities to serve their community and improve environmental quality.

Table Three Green Collar Jobs Are Community Serving Work Force Opportunities			
Green Business Sector	Types of Services Providing Green Collar Jobs	Types of Entry Level Green Collar Jobs Currently Available	More Advanced Green Collar Work
Energy	Energy Retrofits HVAC (Heating, Ventilation, Air Conditioning) Solar Installation Water Conservation Whole Home Performance	Customer Service, Evaluation, Installation, Construction, Maintenance, Repair	Energy Partner Journeyman Solar Electrician Service Technician Project Manager
Water	Water Conservation Adaptive Grey Water Reuse	Installation, Construction, Maintenance, Repair	Journeyman Project Manager
Green Building	Construction Demolition & Removal	Construction, Carpentry Demolition, Hauling, Driving	General Contractor Project Manager
Woodworking	Custom architecture, cabinetry, furniture, repairs	Assembly, Sanding, Finishing, Carpentry, Installation	Journeyman Head Carpenter
Green Space	Parks & Open Space Landscaping	Planting, Maintenance Tree Cutting/Pruning	Project Manager Head Gardener
Food	Urban Agriculture Farmers' Markets Specialty Foods Production Baking	Growing, Packaging, Delivery Set-up/Tear-down, Selling Brewing, Roasting, Packaging Baking, Mixing, Cleaning	Production Manager Market Manager Floor Manager Head Baker
Transportation	Bicycle Delivery Bicycle Repair Bio-Diesel/Veggie Fuels Public Transportation	Dispatch and Delivery Assembly and Repair Fuel Production, Distribution Driving, Maintenance, Repair	Messenger/Owner Shop Manager Production Manager Head Mechanic
Non-Toxic Printing	Commercial Printing Services	Binding, Post-Press, Delivery	Press Op, Pre-Press
Non-Toxic Cleaning	Residential & Commercial Cleaning	Cleaning, Customer Service	Team Leader
Waste Stream Diversion	Materials Recycling, Materials Re-use	Collection, Sorting, Driving, Loading, Salvaging, Warehouse, Packaging and Composting	Warehouse Manager, Floor/Department Manager

Ecology Center

The Ecology Center is a broad-based multi-issue community organization focused on increasing environmental and social benefits for people living in cities. Since its inception, in 1969, the Ecology Center has provided direct services for the city of Berkeley and served as a gathering place for environmental activists in the Bay Area. Today, the Center's work focuses on waste & consumerism, water conservation & protection, energy conservation & alternatives, transportation & alternative fuels, and food & farming. Although the organization's direct services are focused locally in Berkeley, California, all of the Center's programs, events, publications, and demonstration sites provide the public with ideas and information that can be used in other localities in the United States and abroad.

The Ecology Center runs the city of Berkeley's curbside recycling program, which serves as a model for thousands of municipal recycling programs and in which recycling education is a key component. This highly successful recycling program keeps resources in the local community and maintains a very high environmental standard for the recycling program. The Center also runs three vibrant farmers markets in Berkeley, all of which support and promote organic agriculture, provide information on toxics and their alternatives, and reduce packaging waste by providing customers with recycled and used bags and containers.

The Center provides the public with high quality non-commercial information, products, and classes on a range of social and environmental issues that include: alternatives to harmful practices like pesticide overuse, avenues to local policy makers, and connections with others concerned with environmental issues. In addition, the Center runs a food justice program called *Farm Fresh Choice*, produces *Terrain* magazine, runs a residential demonstration site called the *EcoHouse*, and acts as a fiscal sponsor for a wide range of groups focusing on critical environmental issues. Current fiscal projects are focused on reducing incineration, saving old growth forest, reducing the use of virgin paper, saving seeds, promoting community gardening, and reducing environmental toxins in residential areas.



Figures One and Two reveal that 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

According to the owners and managers of green businesses that provide workers with green collar jobs, to qualify for most green collar jobs, potential employees do not have to have experience in the sector and/or with the work involved but they must have “job ready” attributes. As previously stated, for the employers we interviewed and surveyed, “job ready” characteristics include a sense of responsibility, ability to consistently arrive to work on time, a positive attitude towards the work and colleagues, ability to work both independently and as part of a team, basic presentation, listening and communication skills, and a strong work ethic.

- 86% of the Berkeley green businesses surveyed hire workers without previous direct

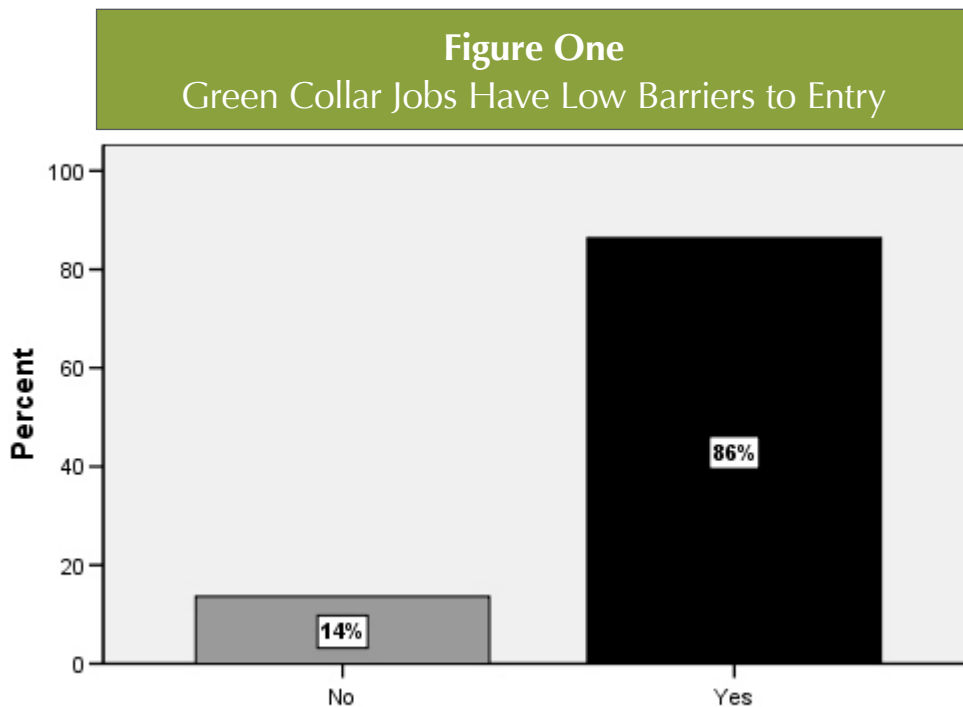


Fig. 1 Does your business hire workers without direct experience or training?

experience or training for green collar jobs in their firms.

- “...We prefer them (new workers) to not have any baking skills when they come because they may not be appropriate to what we do... Work ethic, basic intelligence - we like to have nice people because we’re all working together so a person’s attitude is really important - willingness to work... We don’t require certain education or a High School degree at all...”
- “Basically you just have to have a good attitude and good physical health [to get a job].”

⁵ Furniture making and bike repair are exceptions to this trend. In these two sectors, workers typically have previous experience with the basic work involved in these two sectors before they are hired into entry level positions.

We don't do background checks. The people that we hire are young and from various lower income neighborhoods.... We hire walk-ins from word of mouth. We have lots of applicants for the entry level job but a little bit more skill is hard to find."

- "It would be absolutely possible for a person with no skill [to get a job here] – we do it all the time.... When we hire people they are people with a need for both intellectual and physical challenge and who like other people. When you have those characteristics together then you have an environment that's rewarding psychologically as well as... financially. After that it's just about do you like who you work with and what you do every day."

Figure Two

Green Businesses Provide On-the-Job Training for Green Collar Jobs

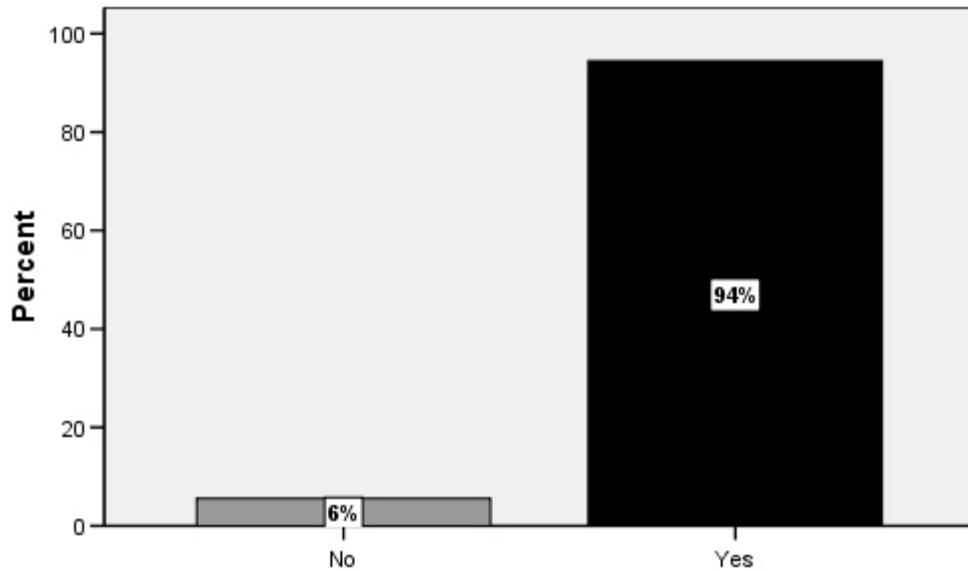


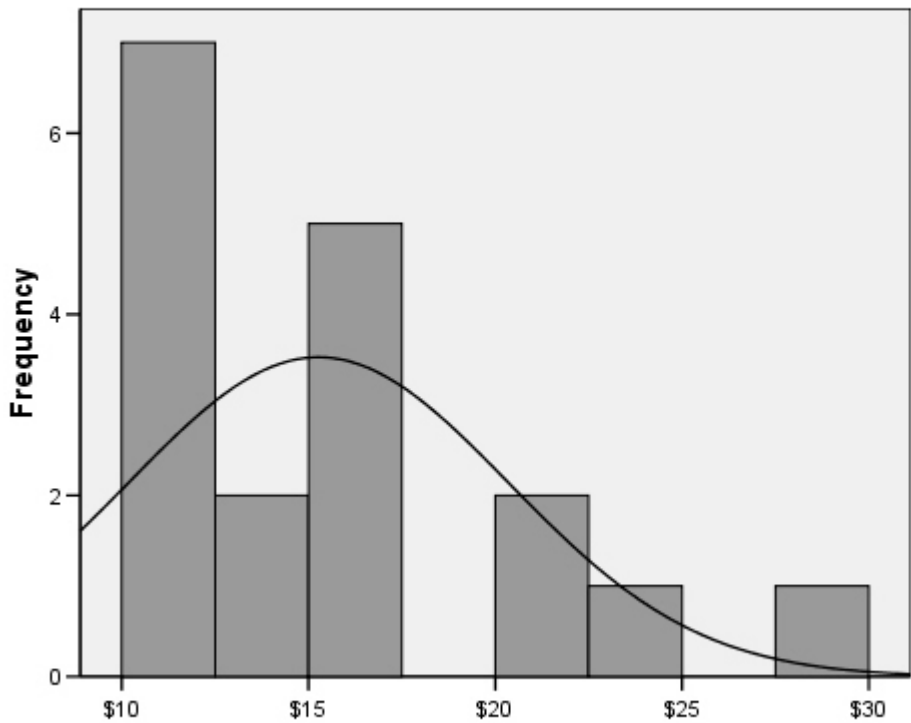
Fig. 2 Does your business provide workers with on the job training?

- 94% of businesses surveyed provide on the job training for workers in entry-level positions.
- Most employers pay for forklift operation training and certification as well as other appropriate skills training.
- “We start people out with the least dangerous machines and jobs and train them from there. People can come in with few skills as long as they are good with their hands and want to work. We have had people start with basic assembly and move all the way up to full carpenter... We provide all training on the job – outside training is not necessary as it’s best to be trained in-house.”
- “Trainees can come in with no experience but have to be enrolled in a State-accredited school... We look for positive attitude. It’s nice if they have some background in any kind of mechanical or building, but that can be trained. What is their general attitude about work and what do they feel about green and the environment? Generally just a willingness to learn and willingness to work – that they have some enthusiasm about the job. So far with the three that we just hired that’s been really good.”
- “We do a lot of the training here; we provide forklift training and everything else.”
- “People enter as either marginally skilled bakers or baker’s assistants and can learn pretty much all the skills they need on the job, although one can’t really reach the pinnacle of that track without fairly well developed arithmetic skills.”
- “We’re always eager to increase a workers’ versatility because it’s better for them, they become more skilled and earn more, as well as for us. Cross training avoids stress and boredom and prevents injuries. Our hope is that over a course of a year a person will be able to acquire a level of skill to perform all functions.”

- “We train our employees here. We pay half of our employee’s certification program fees each semester.... We pay half-time wages for off-site trainings that we send them to. Everyone is happy with that because the trainings are things they really could use. They could leave us and use those skills anywhere, so it feels fair that they are contributing somewhat by getting only half-time wages. The trainings are voluntary but all of our employees take advantage of them.”
- “We don’t have deviated pay here [for training periods]. The Company has paid for everything from one-day seminars to things like how to use technical equipment.”

Figures Three and Four and Tables Four and Five show that green collar jobs provide workers with excellent wages and benefits.

Figure Three Green Collar Jobs Provide Workers with Living Wages



Minimum Wage Comparison	2007
Berkeley	\$11.39
San Francisco	\$9.14
California	\$7.50
Federal	\$5.15
Green Collar Jobs In Berkeley	15.80

Fig. 3 Hourly Wage Range for Green Collar Jobs in Berkeley Green Businesses

- The average hourly wage for a green collar worker in Berkeley is \$15.80 (plus benefits). This is \$4.00 an hour higher than Berkeley’s current minimum, or “living wage” of \$11.39 per hour, with benefits – by far the highest in the nation.⁶
- In contrast to the commonly accepted economic axiom that mandating a higher wage is likely to reduce demand and therefore limit employers’ ability to grow their workforce, 86% of the businesses surveyed that provide green collar jobs in Berkeley are growing, and expect to increase their number of employees in the future.

⁶ \$11.39 is the minimum wage paid to the worker if the employer provides benefits. If the employer does not provide the employee at least \$1.89 per hour toward an employee medical benefits plan, the employer shall pay an hourly wage of not less than \$13.28 (<http://www.ci.berkeley.ca.us/finance/Purchasing/LivingWageInfo.html>).

Figure Four Green Collar Jobs Provide Workers with Health Benefits

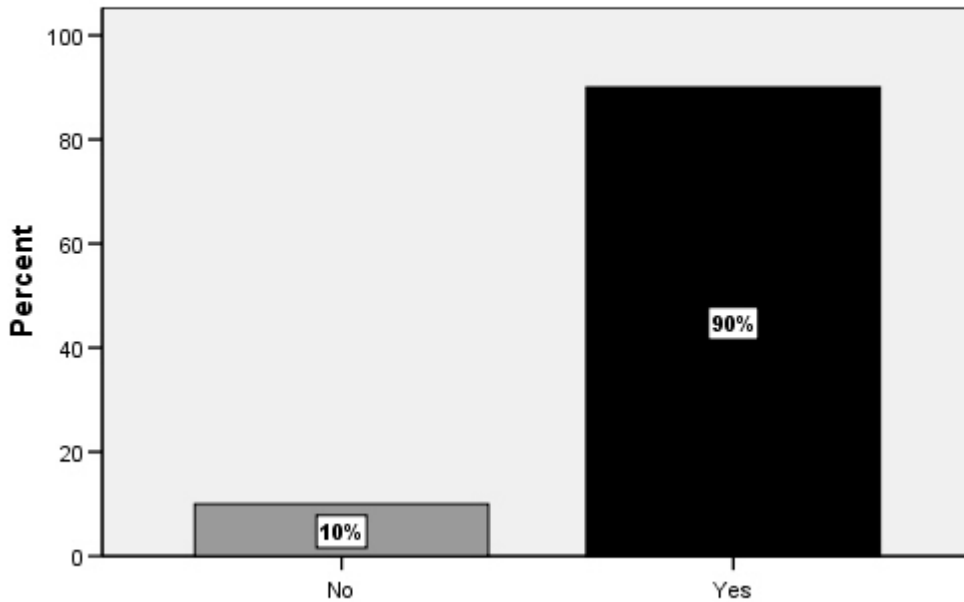


Fig. 4 Does your business offer benefits to employees?

- Despite rising health care costs, which are especially burdensome for small businesses, 90% of the Berkeley green businesses included in the study offer health care coverage to their green collar employees.
- Most of these employers pay the full cost of insuring their workers, and many extend health care coverage to workers' dependents.

Urban Ore



"End the Age of Waste"

Urban Ore's 3-acre facility is a reuser's dream. Filled to the brim with tools, furniture, doors, windows, vases, dishes, dolls, knobs, clothes, sculptures, and knick knacks of every kind, it's possible to find almost any material object you can imagine in this funky warehouse located right off the Ashby exit of the 580 freeway.

Providing full-time employment to about 30 people, Urban Ore hires people who work full-time in green collar jobs related to evaluating and pricing incoming items of all kinds, sorting, organizing and selling merchandise, and interacting with the public. Workers earn the City of Berkeley's "living wage," (starting pay over \$11.00 per hour), an income-sharing incentive, and benefits that include paid vacations and employer-paid health, dental, and vision plans for full-time staff and their dependents.

Urban Ore offers well-organized, used goods that include doors, windows, sinks, tubs, lumber, bricks, fencing tile, lighting, locks, tools, motors, bikes, sporting equipment, computers, small electronics, books, art, music, furniture, cabinets, housewares, appliances, collectibles, and lots of miscellaneous goods.

Urban Ore workers prevent landfilling by receiving individual donations, salvaging from the city dumps, receiving unwanted items from private, public and non-profit businesses, and then selling these materials to the public in their retail store. Seventy-five percent of their merchandise comes from community drop offs; the other twenty-five percent is collected by their Outside Trader Department (which makes pickups in response to calls) and by their Salvage and Recycling Department (which collects material from the city of Berkeley's dump). The business serves as a disposal service for people who need to get rid of their unwanted but still-useful goods without wasting them, and as a retail store for people who want to find things they want at a lower price or who don't want to buy new goods when they can use recycled goods.

Table Four Green Collar Jobs Provide Workers with Many Additional Benefits			
Green Business Sector	Salary Range	Health Benefits	Other Benefits Provided
Energy	\$8.00 - \$40.00	Medical	PTO, flex-time, 401K, mileage, transit passes ⁷
Green Building	\$13.00 - \$40.00	Medical, Dental	PTO, add'l unpaid vacation
Food	\$7.00 - \$25.00	Medical, Dental, Vision	PTO, bonuses, IRA, trade benefits, profit-sharing
Transportation	\$10.00 - \$18.00	Medical, Dental	Paid vacation
Non-Toxic Cleaning	\$7.00 - \$13.00	Medical, Dental, Vision	Paid vacation
Non-Toxic Printing	\$13.00 - \$22.00	Medical, Dental, Vision	PTO, pension, union
Materials Recycling	\$8.00 - \$32.00	Medical, Dental, Vision	PTO, bonuses
Materials Re-use	\$8.75 - \$21.90	Medical, Dental, Vision	PTO, profit-sharing

- At least half of the green businesses surveyed offer some form of Paid Time-Off (PTO), such as accrued vacation and sick leave time, as well as paid holidays.⁷
- Many green businesses offer financial incentives such as IRA and 401-K plans or profit-sharing programs.
- In order to help their employees manage the increasing demands of dependent care, many green businesses employers in Berkeley offer a set amount of “personal” time-off instead of the more traditional vacation and sick leave time, to be used as needed by the employee.
- Other benefits available to green collar workers employed by Berkeley green businesses include bonuses, trade-related benefits, mileage allowances, transit passes, service awards, employee assistance programs, flexible scheduling, additional unpaid time off, and, for some, the benefits associated with union membership.
- “The overall compensation package... is very competitive. [Our employees] get vacation, eight days their first year and twelve days their second year, and get sick days, five days in the first year. We have a 401(k) where we do matching up to 1.5% of their annual salary... we also have shared ownership of the company. The biggest [benefit] is the bonus program. If they achieve certain installation goals they get bonuses and that could be at least an additional 10%.”

⁷ PTO refers to “Paid Time Off” and includes holidays, vacation and sick leave. Vacation and sick leave generally accrue over time and benefits often increase over the length of employment.

Table Five
Sample of Benefits Provided by Green Businesses

Sample of Benefits Provided to Green Collar Workers by Berkeley Green

Health Insurance: Medical, Dental, Vision & Dependent Coverage	Trade Benefits
Paid Time Off (PTO): Vacation, Sick Leave, Holidays	Mileage Allowances
Paid Over-Time	Service Awards
Flexible Work Scheduling	Employee Purchases (i.e., replacement of worn-out tools)
401-K Plans and IRAs	Employee Assistance Programs
Profit-sharing	Additional Unpaid Time off
Bonuses	Union Membership Related Benefits such as protection and representation

Figure Five and Tables Six and Seven reveal that people employed in green collar jobs have high levels of job satisfaction and many opportunities for occupational mobility both within and outside of their current place of employment.

Figure Five
Green Collar Jobs Provide Workers with High Levels of Job Satisfaction

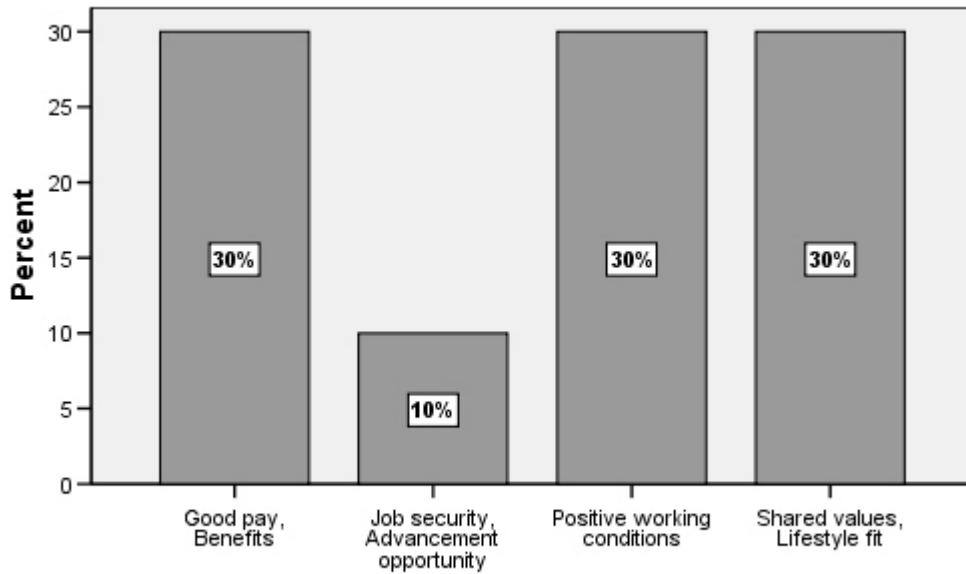


Fig. 5 What factors contribute to an employee staying with your business?

- Positive working conditions were among the most-often cited reason that owners and managers gave for high levels of employee satisfaction in their green collar jobs.
- Business owners and managers in the study stated that small businesses are particularly well suited to providing a warm and caring environment for workers.
- “Workers feel valued when their working environment is clean, safe, free from unnecessary stresses, and when they feel that they have an active voice in the decisions made about their work.”
- “In a small business, everyone knows everyone else, employers are frequently more easily accessed and approachable and employees often become like family to one another.”
- “I think people stay here because it is steady work – they almost always get their hours and they can usually get overtime. The compensation and overall treatment of employees is very good for any industry and especially good compared to others in the construction industry. The benefits package and flexibility we give people with their schedule are good. In general, the culture is one with lots of people with similar social, political, philosophical views and shared values. The team tends to get along really well.”
- “We have a very steady employee group. We haven’t lost anybody and we’ve been hiring more people. The reason for that is that we take good care of them... a concern for us that is part of being ‘green.’”

Berkeley Mills

Berkeley Mills is committed to ecologically sound manufacturing and business practices. The company was one of the first U.S. furniture companies certified by the Forest Stewardship Council for their use of sustainable, responsibly harvested woods that include cherry, Honduras mahogany, maple, and specially ordered woods such as jarrah. Every piece of handmade furniture from Berkeley Mills begins with the selection of a piece of wood—always export-grade logs of a quality unobtainable by most furniture makers. You won't find veneered particle board in Berkeley Mills custom closets; they use premium hardwoods throughout.

In addition to providing consumers with beautiful furniture made from certified FSC woods, Berkeley Mills creates dozens of stable, high paying green collar jobs with benefits that include paid holidays and vacation, health insurance and a 401k plan benefits for workers.

The company's high quality handmade furniture depends on the skills and dedication of the people who create it. Their craftsmen/women work in teams using mortise-and-pinned-tendon joinery and other craft techniques and processes to produce each and every piece of furniture by hand. Their journeyman cabinetmakers have experience in all phases of design, construction and installation of commercial and residential cabinetry and are able to meet demanding quality and volume requirements and manage teams and cabinet-making projects. Green collar job responsibilities include:

- Manufacturing cabinetry, doors and drawers according to drawings and specifications
- Assisting in training other employees in proper setup, use and maintenance of sliding panel saw, edgebander, CNC router, line boring machines, minipress
- Providing technical assistance to co-workers and draftsmen regarding selection, location and proper installation of hardware in a 32 mm system
- Cutting list materials for milling and panel saw using Excel spreadsheets
- Optimizing panel materials based on yield, labor, or grain matching
- Specifying hinges, plates and drawer components based on drawing elevations and floor plans



Table Six
Green Collar Jobs Provide Workers with Opportunities for
Internal Advancement and Occupational Mobility

Green Collar Entry Level Jobs: Advancement Opportunities & Wage Increases

Green Business Sector	Types of Services Providing Green Collar Jobs	Examples of Entry Level Green Collar Jobs Currently Available	Examples of Related Higher-level Green Collar Work
Energy	Energy Retrofits	Customer Service, Evaluation, Installation, Construction, Maintenance, Repair, Apprenticeship	Project Manager, Journeyman, Solar Electrician, Service Technician
	HVAC (Heating, Ventilation, Air Cond.)		
	Solar Installation		
	Water Conservation		
	Whole Home Performance		
Water	Water Conservation	Installation, Construction, Maintenance, Repair	Project Manager, Journeyman
	Adaptive Grey Water Reuse		
Green Building	Construction	Construction, Carpentry	General Contractor
	Demolition & Removal	Demolition, Hauling, Driving	Project Manager
Woodworking	Custom architecture, cabinetry, furniture manufacture/installation	Assembly, Sanding, Finishing, Carpentry, Installation	Lead Carpenter, Journeyman
Green Space	Parks & Open Space	Planting, Maintenance	Project Manager
	Landscaping	Tree Cutting/Pruning	Head Gardener
Food	Urban Agriculture	Growing, Packaging, Delivery	Production Manager
	Farmers' Markets	Set-up/Tear-down, Selling	Market/Events Manager
	Specialty Foods Production	Food Prep/Pkg, Brewing, Roasting	Floor Manager
	Baking	Baking, Mixing, Cleaning	Lead Baker
Transportation	Bicycle Deliver	Dispatch and Delivery	Messenger/Owner
	Bicycle Repair	Assembly and Repair	Shop Manager
	Bio-Diesel/Veggie Fuels	Fuel Production, Distribution	Production Manager
	Public Transportation	Driving, Maintenance, Repair	Head Mechanic
Non-Toxic Printing	Commercial Printing Services	Binding, Post-Press, Delivery	Press Op, Pre-Press
Waste Stream Diversion	Materials Recycling	Collection, Sorting, Driving, Loading	Operations Manager
	Materials Re-use	Salvaging, Sorting, Loading, Driving, Warehouse, Packaging, Retail sales	Warehouse Manager, Floor/Department Manager

- Most of Berkeley's green businesses provide workers in green collar jobs with opportunities to gain experience and develop skills that can lead to occupational mobility within the firm or in a similar or related field outside of the firm.

- Assistance provided to green collar workers by Berkeley green businesses includes: training and assistance to obtain a Class B license, forklift operator certification, green building certification, and certifications to become a journeyman, solar electrician or general contractor.
- Opportunities to increase skills, licenses, and certifications provide green collar employees with opportunities for advancement and occupational mobility.
- “We’re always eager to increase a worker’s versatility because it’s better for them – they become more skilled and earn more – as well as for us. Cross training avoids stress and boredom and prevents injuries. Our hope is that over a course of a year a person will be able to acquire a level of skill to perform all functions.”

Table Seven Green Collar Jobs Provide Workers with Opportunities for External Advancement and Occupational Mobility	
Destinations Upon Departure from Berkeley Green Businesses	%
Similar business in related field	32
School	26
Free-lance/start own business	11
Local city government	11
Similar work in other field	5
Employment agency	3
Union job	5
Completely different work	3
Retire	3
Other	3

- Berkeley green business owners and managers report that, after several years’ employment, some workers leave their positions to enhance their education and income by returning to school or starting their own business. However, even after departing from a particular business, most workers continue to work for similar businesses or perform similar work in another field.

2. Green Businesses

Since 1996, the Bay Area has had several green business programs. One of these programs is the Bay Area Green Business Program, which resulted from a successful partnership between environmental agencies and utilities that assist, recognize, and promote businesses and government agencies that volunteer to operate in a more environmentally responsible way. To be certified as a “green business” participants must be in compliance with regulations and meet program standards for conserving resources, preventing pollution and minimizing waste ([www. bapd.org/gbabam-1.html](http://www.bapd.org/gbabam-1.html), April 2007). Table Eight shows the number of Alameda County green businesses registered with the Bay Area Green Business Program by city.

Table Eight Alameda County Businesses Registered with the Bay Area Green Business Program	
Green Businesses Certified by Alameda County’s Bay Area Green Business Program	
CITY	TOTAL
Alameda	10
Albany	13
Berkeley	50
Castro Valley	4
Dublin	6
Emeryville	14
Fremont	17
Hayward	9
Livermore	9
Newark	4
Oakland	62
Pleasanton	10
San Leandro	10
Union City	4
Other (Includes government agencies and other unlisted certified entities)	45
	267 ⁸

- Over 920 Bay Area businesses and agencies are certified through the Bay Area Green Business Program.
- 267 of these organizations reside within Alameda County.
- Oakland, with 62 registered green businesses, and Berkeley, with 50 registered green businesses, are the leading cities in green business certification in Alameda County.
- 77% of the Berkeley green businesses surveyed in the study on which this report focuses, participate in some form of green business program.

⁸ Bay Area Green Business Program [online]. <http://www.greenbiz.ca.gov>. Accessed March 2007.
Personal communication with Evans, Pamela. Alameda County Coordinator, Bay Area Green Business Program, Alameda County Department of Environmental Health, Alameda County, California, March 2007.

Alameda County Computer Resource Center

“Obsolescence is Just a Lack of Imagination”

Founded in 1994 and located in Berkeley since 2001, the Alameda County Computer Resource Center recycles computers, VCRs, televisions, and copy machines. These electronic items are gathered by the staff from individuals, businesses, and corporations.

The organization’s focus is on repairing and upgrading discarded computers and then giving these refurbished computers, free of charge, to schools, non-profit organizations, economically and physically disadvantaged individuals, and other organizations in need, including a human-rights organization in Guatemala and the Russian space program. If the staff are unable to make a piece of electronic equipment usable, it will be recycled in an environmentally responsible manner.

In addition to responsibly recycling electronic equipment and providing people and organizations with much needed computers, the Alameda County Recycling Resource Center creates dozens of green collar jobs for men and women who are homeless, mentally ill, and/or have been unable to find work until they discovered the Center. Many of the people who work at the Center have been sent there by local rehabilitation programs, homeless shelters, or parole officers who know that they will receive basic on the job training and work skills that they can use as a foundation to build on in the future.

You do not have to know anything about computers to work at the Alameda County Computer Resource Center; they will train you to identify computer parts and pieces; separate electronic equipment, fix computers, create whole computers, and install and use computer software packages.

Since 2001, the Center has employed over 18 workers in Berkeley, all of whom had barriers to employment. According to founder James Burgett, working at the Center has had a transformative impact on these workers; helping them to get their lives together in essential ways that include: moving from living on the street into an apartment, kicking drugs and alcohol habits, improving their health by taking their medications regularly and keeping medical appointments, and increasing their self esteem and ability to work with others.



Many of the green businesses registered with the City of Berkeley's Green Business Program are not included in the Bay Area Green Business Program registry. Table Nine shows that the total number of green businesses in Berkeley is considerably larger than the number listed with the Bay Area Green Business Program (50 vs. 218 businesses in 2006).⁹

Table Nine Businesses Registered with the City of Berkeley's Green Business Program		
Businesses Registered with the City of Berkeley's Office of Energy & Sustainable Development Green Business Program as of December 2006		
ABC Diaper Service	David Brower Center	Organic Harvest Network
Ackerman's Auto	David Grubb Construction	Pamela O'Malley Chang, Architect/C.E.
Acme Bread Co. (wholesale)	Deringer Group, Inc.	Papa's Restaurant & Catering
Acme Electric Solar Systems	Design Community & Environment	Patti's Auto Care
Adagia Restaurant	Designformation	Pedal Express
ADPSR	DeYoe Wealth Strategies	Planning for Sustainable Communities
Adura Technologies	DoubleTree Hotel, Berkeley Marina	Polar Alpine, Inc.
Aerosol Dynamics, Inc.	Earthsake	Porocrit, LLC
Ajanta	Eastbay Depot for Creative Reuse	Power Factors
Alameda County Computer Resource Center	Eco Development Associates	Powerfood, Inc.
Aloha Construction	Ecohouse	PowerLight Corporation
Alta Design + Planning	Ecology Center	Premier Organics
Alward Construction Company, Inc.	Elbow-Grease Cleaning	Razan's Organic Kitchen
Andrea Traber Architecture + Sustainability	Electrochemical Design Assoc & Geokinetics Intl	RECREATIONAL EQUIPMENT, INC.(REI)
Arkin Tilt Architects	Electronically Monitored Ecosystems	Reiff/Shaffer Architects
Art's Automotive	Ellen Weinreb Social Responsibility Consulting	Rising Sun Energy Center
Asbestos Tem Lab	eLock Technologies, LLC	Robert Odland Consulting
Back to Earth Catering	ELS Architecture & Urban Design	Roots & Shoots Program - JGI
Balance Hydrologics, Inc.	Energy Auditor & Retrofitter	Seacology Foundation
Bartle Wells Associates	Environmental News Network	SeaVolt Technologies
Bayer Corporation	EnviroSpec	Sesco Electrical
Baystep	Extreme Pizza	Seven Generations Land Trust
BEC Associates	Fernau & Hartman Architects	Shared Living Resource Center (2)
Belladonna	Financial Alternatives	Shelterbelt Builders
Berkeley Biodiesel Collective (Ecology Center)	Flooring Alternatives	Shorebird Nature Center
Berkeley Chamber of Commerce	Gabel Energy Associates, LLC	Sierra Club
Berkeley Ecohouse	Geier & Geier Consulting Inc	Smith & Hawken Retail Store
Berkeley Honda (formerly Jim Doten Honda)	Golden Gate Audubon Society	Smith & Sun

⁹ At the time of publication, the number of green businesses located in the city of Berkeley had increased from 218 in 2006 to 237 in 2007 (personal communication with Jennifer Cogley, Sustainable Business Coordinator, and Karen Tsai, Sustainable Development Intern, Office of Energy and Sustainable Development, City of Berkeley, April 2007).

Berkeley Mills	Grandma's Garage	Social Equity Group
Berkeley Natural Grocery Company	Grassetti Environmental Consulting	Solaria
Berkeley Solar Electric Systems	Grateful Body	Space Share
Berkwood Hedge School	GreenChange	Splendor Designs
Betsy Morris, Planning Consultants	Greener Printer	Stellar Environment Solutions
Bicycle Friendly Berkeley Coalition	Greg VanMechelen Architect	Steven Grover & Associates
Bio Integral Resource Center (BIRC)	Gregoire	Stillwater Sciences
Biofuel Oasis	Griffin Motorwerke	Studio Rasa
Biosphere Genetics, Inc.	Ideal Design	Sun Light & Power Company, Inc.
Bison Brewery	Inkworks Press, Inc.	Sustainable Agriculture Education (SAGE)
BMT Environmental	Integrid Building Systems	Sustainable Business Alliance
Bob's Volvo/Toyota Specialists	International Rivers Network	Sustainable Ventures
Body Time - Retail (3) and Wholesale Operations	International Society for Ecology & Culture	Tappan Builders
Books Out Loud	Ion Systems, Inc.	Tax Plus
Borrego Solar	Isotope Solutions	Teleosis
Breads of India	Jacobson, Silverstein & Winslow Architects	Thai Delight Cuisine
Build It Green (formerly Green Resource Center)	Jenny Hurth Bags	Thimmakka's Resources for Environmental Education
Building Lab Inc.	Jetton Construction, Inc.	Todd Jersey Architecture
Burks Toma Architects	Juliet Lamont, PhD.	Transcendentist
Buy Back at Berkeley Recycling Center/ CCC	Kamal Palace	Tulip Graphics, Inc.
Café de la Paz	Khana Peena	Turnbull Griffin Haesloop Architects
Café Tibet	Kyoto USA	Two Star Dog
California Invasive Plant Council	La Cascada Taqueria	UCB Center for Environmental Design Research
Calthorpe Associates	Lalime's	UCB Clark Kerr Campus Dining
CarfreeCity, USA	Leger Wanaselja Architecture	UCB Cross Roads Cal Dining
Cartridge World - Berkeley	Levitch Associates, Inc.	UCB Energy and Resources Group
Celery Design	Livable Berkeley	UCB Green Campus Program
Center for Building Science	Living Tree Community Foods	UCB Haas, Center for Responsible Business
Center for Ecoliteracy	LSA Associates, Inc.	Uncommon Grounds
Ceridono Engineered Heating	MacLeod Design & Construction	Union of Concerned Scientists
Charlie's Garage	Mal Warwick & Associates	Urban Advantage
Chez Panisse	Marfield Company, Inc.	Urban Creeks Council
City of Berkeley, Economic Development	Marie Jones Consulting	Urban Ore, Inc.
Clif Bar	McCutcheon Construction, Inc.	V B & C Construction, Inc.
CoHousing Co., The /McCamant & Durrett	Mechanics Bank	Vital Vittles
Community Conservation Centers	Missing Link Bicycle Cooperative	Wagstaff Associates
Community Energy Services Corporation	Morimoto Architects	Waterways Restoration Institute
Concur, Inc.	Nabolom Bakery	Westside Family Chiropractic
Consolidated Printers	Natural Logic, Inc.	What's Working
Consortium on Green Design & Mfg.	Nautilus Institute	Wooden Duck, The
Cordornices Foundation	Nectarine/Terra Nova Body	WorldBuild Technologies
Crossborder Energy	Northern California Solar Energy Association	Zatar Restaurant
Cultured	Odin's Hammer	
Daniel Smith & Associates Architects	Oil Changer #403	

- In 2006, 218 businesses were registered with the City of Berkeley's Green Business Program.
- Together, these 218 "green" businesses represent 5.8% of the total 3,753 businesses registered with the City of Berkeley in 2006.

Pedal Express

Pedal Express, the Bay Area's leading non-motorized bicycle cargo delivery service, is a nationally recognized environmental cooperative business dedicated to innovative, zero-pollution transportation solutions. Its fleet of cargo bikes provides bike delivery services to city governments, small and large businesses, and residents. Specific clients include bakeries, law firms, book stores, printing companies, design firms, and the cities of Berkeley, Albany and Emeryville.

Operating in the East Bay since 1994, Pedal Express uses human-powered bicycles and cargo bikes to deliver a range of goods weighing up to 800 pounds. Pedal Express is a successful low tech business that highlights the power of the human body as well as the ease with which people can transport goods that most people feel are impossible to do on a bike. Worker owners earn between \$12-\$18.00/hour, typically working between 15-30 hours a week.

Local officials and city governments can have a major impact on the health and vibrancy of small green collar businesses like Pedal Express. In 1994 the city of Berkeley contracted with Pedal Express to deliver commission packets. In 1998 the city expanded its contract to include delivering inter-office mail. This steady, contract based work with the city of Berkeley allowed Pedal Express to expand and strengthen its operations and services. In 2005 the city temporarily terminated its contract with Pedal Express to deliver the inter-office mail to outlying city offices which was a significant blow to the business. Fortunately, this was only a temporary situation because the effect would have been devastating to the business. Pedal Express's experience with the city contract illustrates the importance of procurement dollars and contracts for small green businesses. It also illustrates how important it is for these small businesses to have a diverse range of clients and funding streams.

Until recently Pedal Express was located at the Berkeley Center for Appropriate Transportation (BCAT), a consortium of bicycle related business, advocacy and education projects dedicated to building public support for bicycle and pedestrian transportation. In 2007 staff moved the business to 7th street which facilitated serving clients in Emeryville and Oakland.



Table Ten lists the green businesses that were included in our study and analysis. All of these businesses met two criteria: (1) they provide workers with green collar (manual labor) jobs and, (2) the primary processes, products and/or services associated with their business directly improve environmental quality. In 2006-2007, when we collected our data, we identified 31 businesses in Berkeley that met both of these criteria.

Table Ten Businesses that Provide Workers with Green Collar Jobs in Berkeley	
Berkeley Green Businesses Providing Green Collar Jobs in 2006	
1. ABC Diaper Service	17. McCutcheon Construction, Inc.
2. Acme Bread Co. (wholesale)	18. Missing Link Bicycle Cooperative
3. Acme Electric Solar Systems	19. Nabolom Bakery
4. Alameda County Computer Resource Center	20. Odin's Hammer
5. Berkeley Mills	21. Pedal Express
6. Berkeley Solar Electric Systems	22. PowerLight Corporation
7. BioFuel Oasis	23. Premier Organics
8. Bison Brewery	24. Rising Sun Energy Center
9. Borrego Solar	25. SESCO Electrical
10. Community Conservation Centers	26. Sun Light & Power Company, Inc.
11. Community Energy Services Corporation	27. Tappan Builders
12. Eastbay Depot for Creative Reuse	28. Uncommon Grounds
13. Ecology Center	29. Urban Ore, Inc.
14. Greener Printer	30. Vital Vittles
15. Inkworks Press, Inc.	31. Wooden Duck, The
16. Living Tree Community Foods	

Figures Six and Seven show that green businesses in Berkeley are stable businesses that have low employee turnover and provide workers with a stable work environment.

Figure Six Green Businesses Providing Green Collar Jobs are Stable Businesses

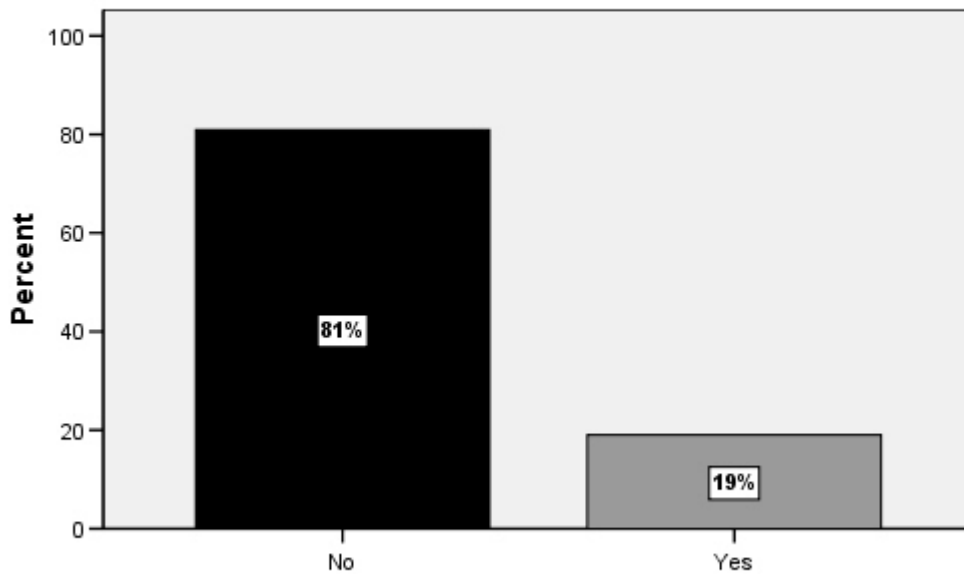
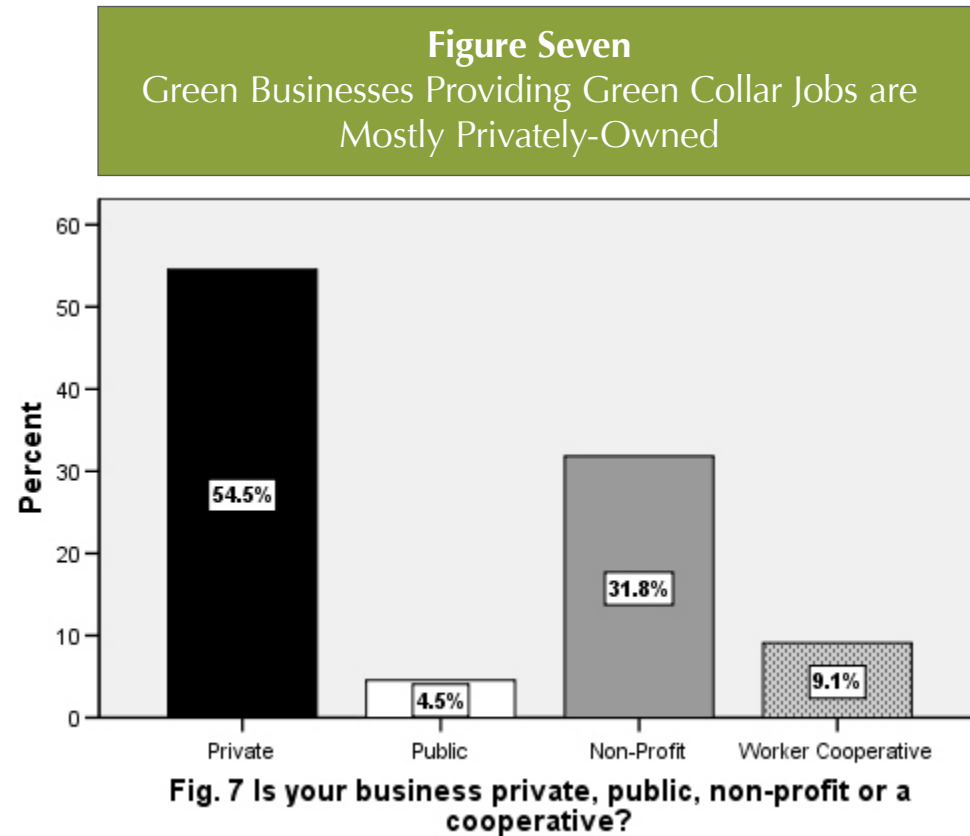


Fig. 6 Has your business experienced a change of ownership in the past three years?

- 81% of businesses surveyed report no change of ownership within the past three years.
- 78% of green business owners and managers reported low employee turnover in their business.
- Low turnover was attributed to high levels of employee satisfaction.
- “Our most recent hire has been here four years.”
- “Our longest employee stay is 8 – 10 years, with the average 4 – 5 years.”
- “Very low turnover, all our workers seem content.”
- “We’ve had no turnover in recent years. We pay at the industry level, offer good benefits and a sense of family with an approachable boss.”
- “Our employees stay here an average of 4 to 5 years. They like working here, we treat them well.”
- “Everybody here is kind of a family member – they are respected as persons and are treated well. We certainly don’t pay a lot, so to some degree [low turnover] is based on that. We’ve been willing to bring in foreign staff members, which isn’t always the case. Even if they can do the work in other places they may not be welcomed; they may be ostracized. Some of it is just feeling that it’s okay to show up here and knowing they won’t be looked down on for being from somewhere else. Certainly the benefits are important – we pay 85% of an employee’s [insurance] premium. We participate in IRA every year so I’m sure that’s in the calculation. Our newest employee has been here four years.”

Figures Seven, Eight and Nine reveal that most green businesses that provide green collar jobs are privately owned small businesses that primarily serve residential and commercial customers.



- 54.5% of the Berkeley green businesses providing green collar jobs are privately owned.
- 31.8% are non-profit organizations.
- 9.1% are worker-owned cooperatives.
- 4.5% are public institutions.

Figure Eight

Green Businesses Providing Green Collar Jobs Serve Mostly Residential and Commercial Customers

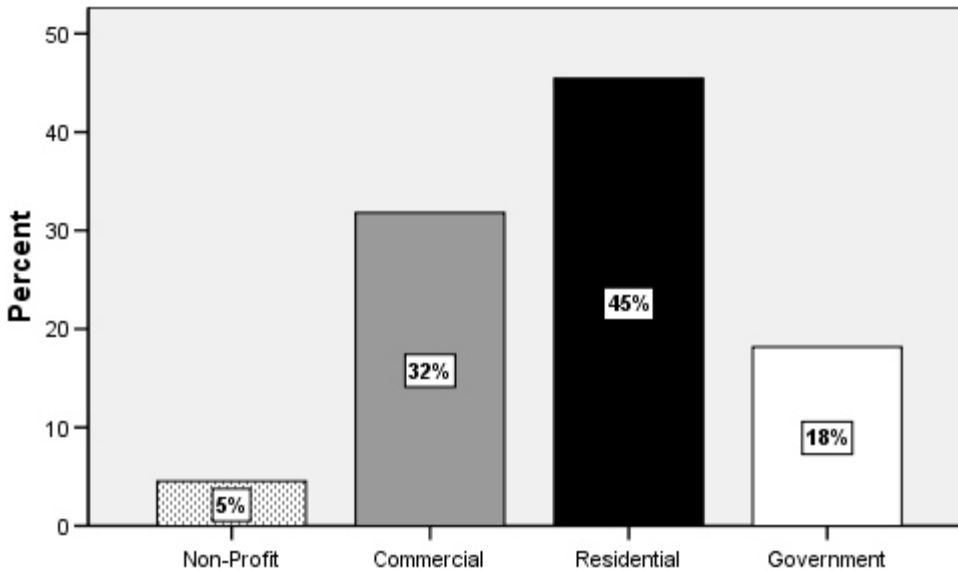


Fig. 8 What is the primary client group served by your business?

- 45% of Berkeley green businesses providing workers with green collar jobs serve primarily residential clients.
- 32% serve primarily commercial clients.
- 18% focus on government entities.
- 5% serve primarily the non-profit sector.
- Many owners and managers reported their businesses serve clients from all of the above sectors.

Figure Nine
Most Green Businesses Providing Workers with Green Collar Jobs are Small Businesses

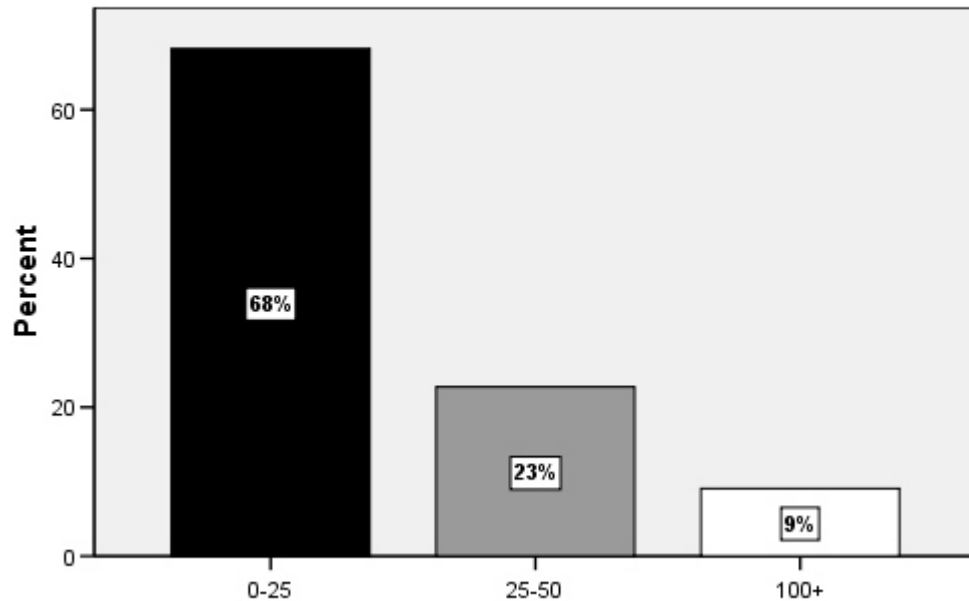


Fig. 9 How many people does your business employ?

- 68% of Berkeley green businesses providing green collar jobs employ fewer than 25 workers.
- 23% employ between 25–50 workers.
- 9% employ 100 employees or more.
- All of the green businesses that provide green collar jobs to workers in Berkeley are small businesses; none employs more than 200 employees and the vast majority employ under 25 employees.
- The average total workforce size of a Berkeley green business providing green collar jobs is 28 employees; on average 20 of these positions are green collar jobs.
- The fact that every green businesses providing green collar jobs in Berkeley is a small business reveals the importance of public policies and programs that support the development, growth and ongoing health of small businesses.

SESCO Electric

SESCO Electrical Inc. is not a large operation, but it provides a valuable service to the individuals and small companies of the East Bay that appreciate efficient electricity and solar power. While solar electric installation is a significant and constantly growing portion of its business, SESCO offers a wide range of remodel and new construction services to implement cutting-edge electricity and resource conservation technologies. Its 13 person staff consists of a wide range of skill levels from beginning apprentice to journeyman electrician, all of whom are cross trained to eventually perform all aspects of a construction job from the initial quote through design, implementation and final completion.

The company started as a two-person operation in Richmond in 1992. Under the direction of its founder, Peitsa Hirvonon, the business has expanded to employ 13 full-time employees working on contracts of up to \$100,000. In 2003 Peitsa moved his company to Berkeley to be closer to his home and to a large portion of his customer base.

SESCO credits its steady growth over the last several years to a combination of factors, including a general increase in awareness of, and demand for, environmentally friendly power; the tremendously-beneficial state and government subsidy and rebate programs for solar installations; and City of Berkeley programs that provide incentives for wiring and lighting upgrades.

As the electric industry is one of the few remaining fields in which an unskilled, uneducated worker can enroll in a training program and grow from an apprentice to a highly paid journeyman in a matter of years, SESCO's growth has provided several local young people with exactly that fantastic opportunity. Provided with full health insurance, competitive wages, paid vacations, tuition assistance, paid job training, and a host of other atypically good benefits, SESCO's workers appear to enjoy and appreciate their employment, as evidenced by the virtually total lack of turnover in recent years.

In addition to the upgrade incentives mentioned above, SESCO has benefited from other City of Berkeley policies and practices. Most notably, SESCO commends the city's inspectors for their better than average knowledge of solar installation, which greatly streamlines the certification process as opposed to neighboring communities.

Being able to identify as a "Berkeley business" also adds a level of prestige and notoriety to a company's image, which appears to be noticed and appreciated by potential clients and customers. However, being located in Berkeley does not come without a price, which for SESCO primarily involves the rapidly rising real estate costs in West Berkeley. Like nearly all of the businesses we interviewed that lease space in West Berkeley, SESCO is seriously concerned that it may be priced out of its current space when its lease expires in 2007. The reality for this and many other companies in the area is that they will soon face the extremely difficult decision as to whether the benefits of being a Berkeley business outweigh the rapidly increasing premium for being located there. With real estate price inflation being largely a fact of life in area, the real focus of this question is on what return the City will provide on the investment of being its commercial resident. In this case, is the "Berkeley Business" brand really worth it?

Figures Ten and Eleven show that green business owners and managers measure growth by revenue and volume.

Figure Ten Green Businesses Measure Growth through Revenue and Volume

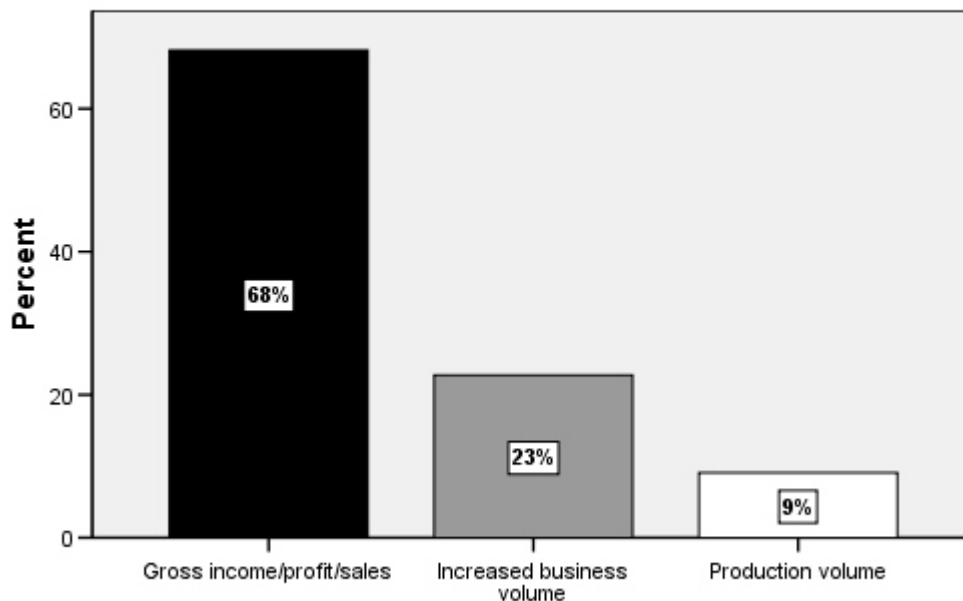


Fig. 10 How does your business measure growth?

- 68% of employers surveyed reported that gross revenue is by far the most important indicator of success for Berkeley’s green business owners, with increased business and production volumes listed as the next most important factors.
- Other benchmarks include: ability to increase number of employees, increase in services provided (which was ultimately linked to their ability to generate additional revenue).
- Improvement in environmental quality is not mentioned as a measure of determining growth.

Figure Eleven
Green Businesses are Experiencing Significant Growth

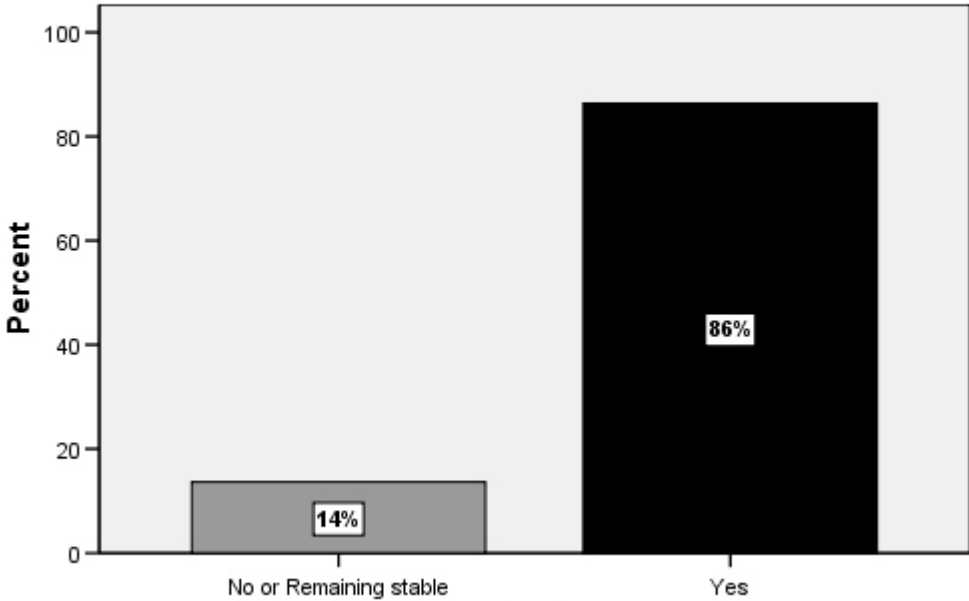


Fig. 11 Is your business growing?

- 86% of the Berkeley green businesses owners and managers reported that their business is growing.
- In most cases, business growth is allowing employers to expand their existing workforce, providing more workers with access to stable, living-wage green collar jobs in Berkeley.

Figures Twelve, Thirteen, Fourteen, Fifteen, and Sixteen and Tables Twelve and Thirteen show some of the most basic infrastructure characteristics and needs of businesses that provide green collar jobs in Berkeley. The findings below reveal that the majority of these green businesses are highly affected by, and vulnerable to, increases in land uses and property values. The vast majority of these businesses:

- Do not own their property or buildings;
- 2. Have leases that will expire in the next few years;
- 3. Are growing and are very concerned about lack of needed space to accommodate growth;
- 4. Would like to stay in the same location;
- 5. Are very concerned that they will have to leave Berkeley due to increases in rent and/or lack of needed space to accommodate growth;
- 6. Do not know what city they would relocate to if they were forced to leave their current property and buildings in Berkeley;
- 7. Are located in areas of the city zoned for industrial/light manufacturing uses where spaces and use permits accommodate their needs and rental prices are lower than in other areas of the city.

Figure Twelve
The Majority of Green Businesses Lease Their Property

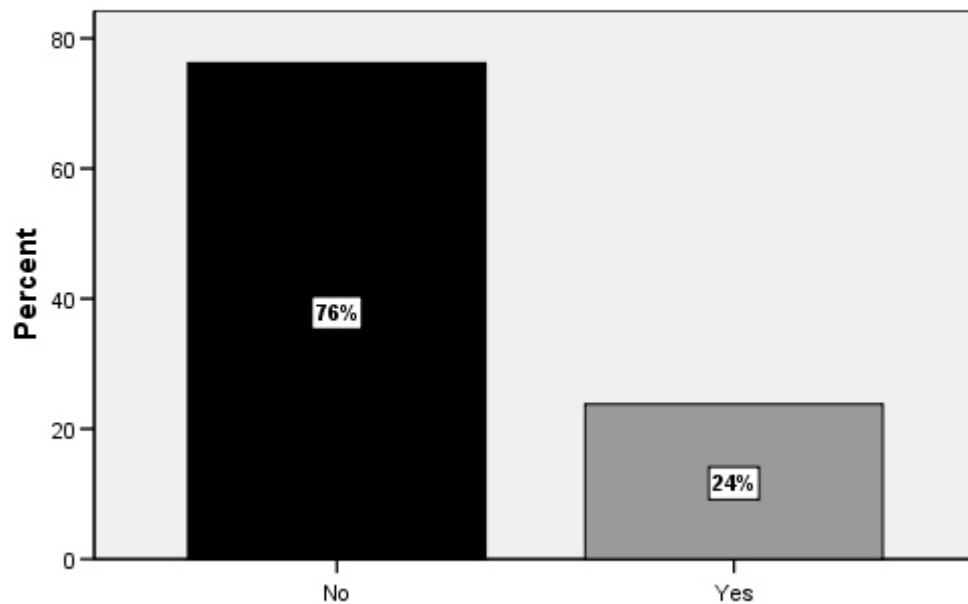


Fig. 12 Do you own your building?

- 76% of the Berkeley green businesses surveyed do not own the buildings or property housing their business.

Figure Thirteen
Many Green Business Leases Will Expire in the Next Few Years

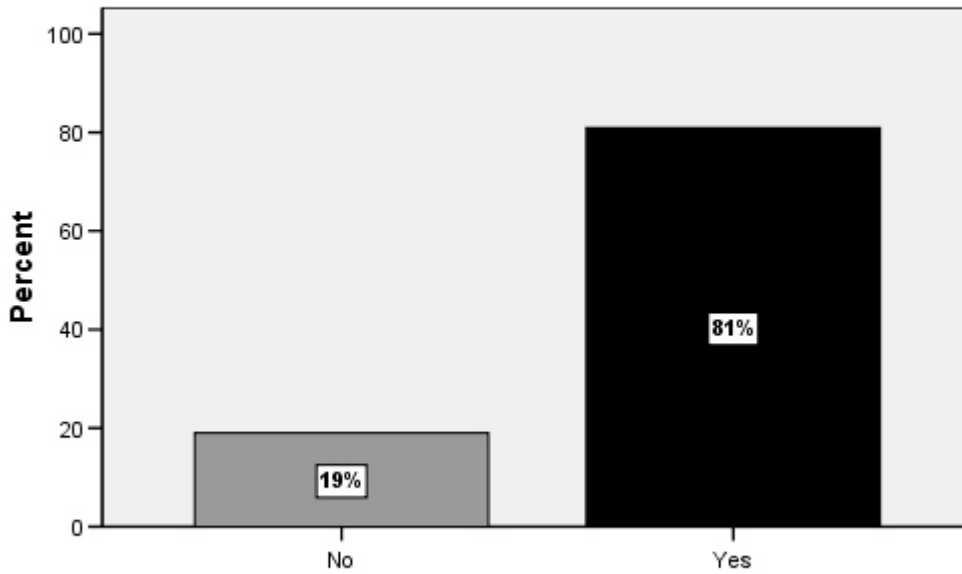


Fig. 13 Do you have a lease that will expire in the near future?

- 81% of businesses surveyed have a lease that will expire in the near future.

Figure Fourteen
Owners and Managers of Green Businesses Would Like to Stay in Same Location

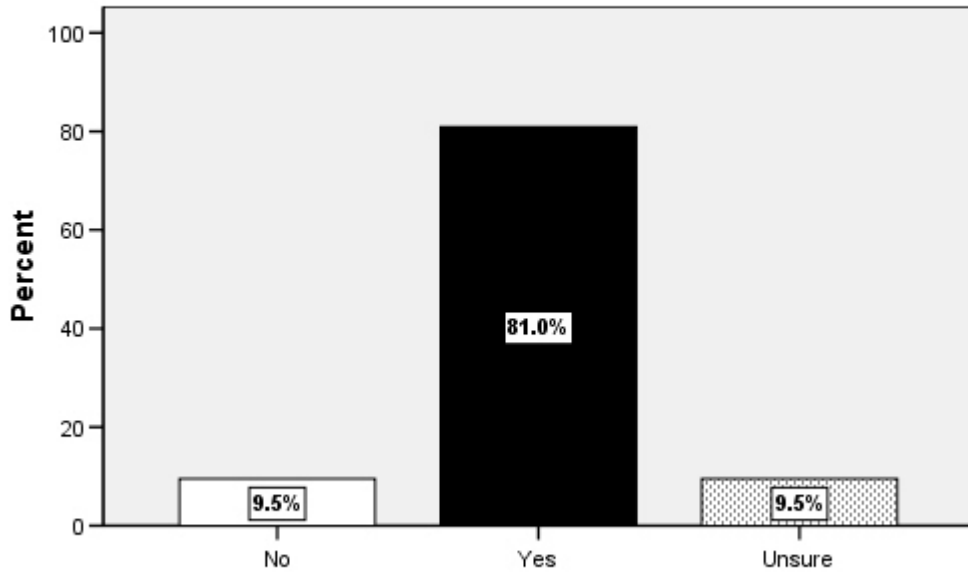


Fig. 14 Upon expiration of your lease, do you plan to stay in the same place?

- Of those businesses with expiring leases, 81% hope to remain in the same location.
- 9.5% of businesses with expiring leases plan to relocate.
- Another 9.5% of businesses are not sure what they will do when their leases expires.

Figure Fifteen
Green Businesses Unsure Where they Would Relocate

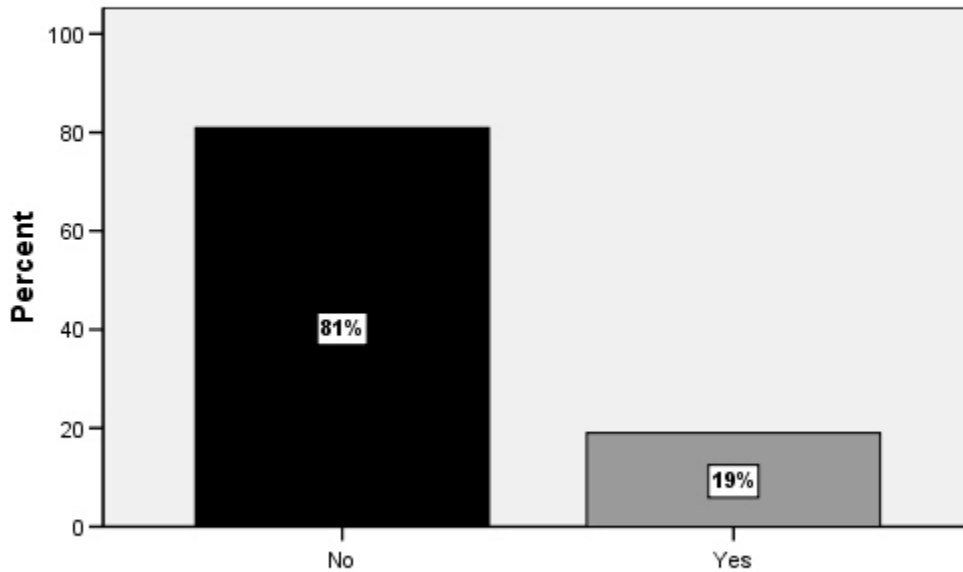


Fig. 15 If you left Berkeley, do you know where you would relocate?

- 81% of Berkeley green business employers stated they were not sure where they would go if they needed to relocate their business and were not able to do so within the City of Berkeley.
- When asked where they might relocate to, employers mentioned the cities of Oakland, Richmond, Emeryville and Alameda, and Contra Costa County.
- Employer concerns about relocating outside of Berkeley included: (a) their business' location and identity, (b) workers getting to/from their jobs, and (c) their client base, especially how they would retain their current customers, many of whom do business with them because of their location in Berkeley.

East Bay Depot for Creative Reuse

“Every teacher’s first stop and every artist’s second home.”



The East Bay Depot for Creative Reuse is a nonprofit organization devoted to getting people to reuse materials. Since the early '80s, the Depot has been promoting solid waste diversion and resource conservation by collecting and redistributing reusable materials for education, arts & crafts, and a wide variety of other creative projects. The Depot also spreads the word about the importance of waste reduction, recycling, and reusable materials through a school-based environmental education curriculum.

The green collar jobs that the Depot provides involve the identification, collecting, and hauling of materials that include a wide variety of reuse, used, and new art supplies, books, magazines, party supplies, office supplies, paper, small furniture, fabric, frames, artwork, jewelry, and many unique and vintage items. The entire Depot inventory is derived from donated materials.

The Depot operates a pick up system that brings goods to its retail store as well as facilitating special events and educational programs like Art in the Heart, where children learn about the importance of reuse and recycling while creating arts and crafts from reuse materials. Art in the Heart is currently operating in after-school classrooms at four Richmond Public Schools, serving a total of 80 children each week.

The Depot’s greatest challenge in recent years has been in affording the physical space it needs to operate. The business of collecting and reselling materials requires not only offices and a sizable retail area, but also space to receive, sort, and warehouse donated items. In the past the Depot operated a storage facility in addition to its main location, but the loss of supporter funds forced its closure and the subsequent reduction in special events the Depot could offer. While the Depot’s slim profit margins and donated funds were sufficient to maintain the below market value lease on its main location, when its landlord (U.C. Berkeley) sold the location in 2006 the company had a tremendously difficult time finding a new, affordable facility. Recently, the Depot was forced to leave its Berkeley location. Their new location is in the Temescal District in Oakland.



Table Eleven
Amount of Space Dedicated to Industrial, Office, and Retail Uses
Varies Greatly Among Green Businesses

Amount of Space Dedicated to Industrial, Office and
Retail Uses by Berkeley Green Businesses

Type of Space	Percentage of Businesses Utilizing	Range of Square Footage	Average Square Footage
Industrial	77%	600 - 72,800	11,981
Office	95%	200 - 6,000	1,470
Retail	41%	25 - 9,000	2,800

- 95% of green businesses utilize some portion of their space for office space, ranging in size of area from 200 to 6,000 square feet, with businesses averaging 1,470 square feet of space for office purposes.
- 77% of green businesses utilize industrial space ranging from 600 to 72,800 square feet, with businesses averaging 11,981 square feet of space for industrial uses.
- Over half (59%) of green businesses have no space set aside for retail purposes; the remaining 41% utilized retail space ranging from 25 to 9,000 square feet. In all, businesses averaged 2,800 square feet for retail uses.
- Only 23% of Berkeley green businesses providing workers with green collar jobs have no space set aside for industrial purposes.

Table Twelve
Green Businesses Plan to Expand Services, Staff and Space

Do you have plans to expand	YES	NO
Sales/services?	95%	5%
Staff?	91%	9%
Space?	57%	43%

- 95% of employers reported that they planned to expand their business' sales or service capacity. This demonstrates the growth and strength of Berkeley's green businesses.
- 91% of employers reported that they plan to expand their staff. This bodes well for the expansion of opportunities in green collar jobs.
- 57% of employers reported that they plan to expand their amount of space, or have recently expanded.

Figure Sixteen Green Businesses Anticipate the Need for Additional Space

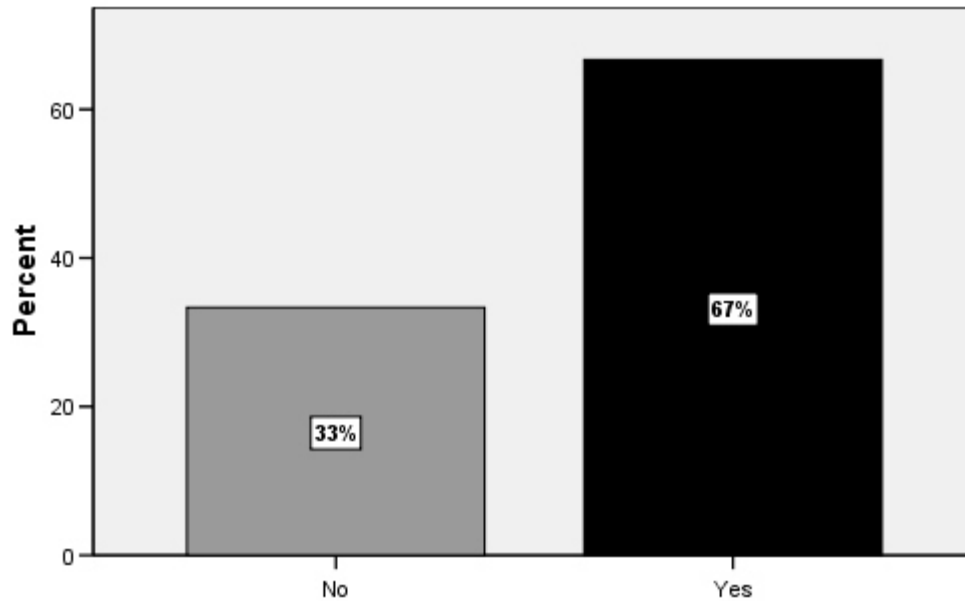


Fig. 16 Will your business need more space in the future?

- 67% of employers reported that they will need more space in the near future. When compared to the 57% of employers who stated they had plans to expand their space, this reveals that the majority of Berkeley green businesses need more space than they currently have access to, or anticipate having access to in the near future.

Vital Vittles

Joe and Kass Schwin founded the Vital Vittles bakery in 1976 with the expressed purpose of providing healthy, organic, whole grain products via a socially conscientious and equitable company. Organic foods and socially responsible business were relatively new concepts in the 1970's and are still considered only small market niches today, but Vital Vittles was committed to its goal and continues to thrive and grow some 30 years hence.

Today Vital Vittles bakes a variety of 100% whole grain breads, rolls, cookies, cakes and muffins with only the highest quality ingredients available, including flour that is ground on site the day before baking, certified organic grains, nuts and fruits, and oil that is free of GMOs and preservatives.

The Tran family joined the Vital Vittles team shortly after their immigration from Vietnam in the early 1980's. Today, they are central to the company's management and operations. Under their guidance are approximately 14 drivers and bakers, the majority of whom have been with the firm for many years due to the living wages, health benefits and the quality of work/life balance that working at Vital Vittles provides.

Although Vital Vittles's steady growth over the last three decades appears to be largely due to greater consumer nutritional awareness and increased demand for organic, whole grain baked products, recently contracts to provide bread to Berkeley public schools have provided a tremendous boost to Vital Vittles's sales base. These contracts, which are excellent examples of the importance of local procurement programs and the tremendous impact they can have on local green businesses; with the dual effects of directly increasing revenues and indirectly improving sales via greater public exposure to Vital Vittles products.

Although the vast majority of Vital Vittles's sales still relate to restaurants and third-party retailers, this recent development, combined with increased consumer traffic in West Berkeley, allowed Vital Vittles to gain another new revenue stream with the opening of a small retail space in their building on San Pablo Avenue.

Due to this recently increased demand, Vital Vittles is finding itself cramped in its current operating space and has plans to expand into the currently sublet portion of its building in the near future. This expansion is only possible due to the fact Vital Vittles owner Joe Schwin owns their current building and can lease this part of the space to the bakery at below-market rates. If this were not the case, it would be unlikely that Vital Vittles could afford to rent or buy their property at current market rates, and the very drivers of Vital Vittles's growth (i.e. city-awarded contracts and increased traffic on San Pablo Avenue) would likely force the firm from its present location and possibly from the city of Berkeley altogether, which ironically would result in the first-source city contracts and retail customer traffic being lost as well.



Table Thirteen shows that the majority of employers whose firms provide workers with green collar jobs are satisfied with the space allocated to their business at this time and that they plan to stay at their present location. However, a small, but significant, number of employers (15%) reported that lack of adequate and/or affordable space would make them consider leaving Berkeley. These owners reported that they were very concerned that the areas of the city currently zoned for industrial use in which they were located were being transitioned for other uses (retail and housing) through the granting of special permits and though explicit zoning changes. They described these changes as resulting from city staff preferring to support local businesses that generate more sales taxes (retail as opposed to industrial or artisan). They stated that if this transition occurred, property values would go way up and be unaffordable to them, causing them to leave Berkeley.¹⁰

Table Thirteen Adequate, Affordable Space is Essential for Small Green Businesses Providing Green Collar Jobs			
Are you looking for larger, more affordable space?		Would your business be okay if you were unable to acquire additional space?	
YES	20%	YES/Probably	31%
NO	80%	NO/Unsure	69%
Would not having adequate space limit your ability to grow your business?		Would you leave Berkeley if you were unable to secure adequate/affordable space?	
YES/Probably	23%	YES/Probably	15%
NO/Unsure	77%	NO/Unsure	85%

- 80% of employers reported that they are not looking for larger, more affordable space at this time.
- 77% of employers reported that they are unsure if not having adequate space would limit their ability to grow the business.
- 69% of employers reported that their businesses might not be okay if they were unable to acquire additional space.
- 85% of employers reported that they are not sure if they would leave Berkeley if they were unable to find adequate/affordable space.
- 15% of employers reported that lack of adequate space would cause them to consider leaving Berkeley and relocating to another Bay Area city.
- Interview data revealed that employers are deeply concerned about lack of affordability in Berkeley.
- “When we last explored relocating and purchasing our own facility as opposed to renting, there were very few suitable locations for sale in the industrially zoned area, which is the only place we can locate, because property owners are holding on to property in the hopes that the zoning will change to allow for more residential and retail, and their property values will go up. When industrial zoning goes to commercial, property values can double; and when it goes to residential, they can quadruple.”

¹⁰ A 2007 article in the Berkeley Planet described property values in Berkeley used for light manufacturing currently being worth between \$40 and \$60 per square foot; but, that if the owner were able to obtain permission to use the property for pure retail, the same property could increase to between \$100 and \$125 per square foot (Bronstein, 2007).

Table Fourteen	
External Support for Green Businesses and Green Collar Workers	
Priority needs for employees of green businesses:	
1	adequate affordable housing
2	accessible/affordable public transit
3	bike-friendly regional transportation
To ensure sufficient access for clients and goods, green businesses need:	
1	convenient access
2	appropriate/available parking/loading space
3	convenient/timely public transportation options

- The interview data with employers reveals that in addition to space and affordability, employers would benefit greatly from stronger and more effective support systems in place for their employees. These include, in order of priority,: adequate affordable housing, accessible and affordable public transportation, and a bike-friendly regional transportation plan.
- In terms of accessibility to both clients and goods, employers talked about the importance of access, appropriate and available parking, and public transportation.
- Employers also talked about the need for a business-friendly city government.
- In addition, employers stressed the need for an external support network to assist workers with barriers to employment, who they might hire in the future, in dealing with personal life issues that might affect their behavior at work.
- “Access to affordable homeownership in Berkeley is not possible for our employees. Even with occupational mobility and increasing salaries, which are excellent compared to many other jobs, our workers cannot afford to buy homes close to where they work. To be fully engaged in the community in which they work, affordable housing is essential for green collar employees.”

3. Opening a Small Business in Berkeley

Opening a new small business in any city is not a simple process. Besides the usual challenges, such as developing a sound business plan, assessing local market conditions, securing financial resources, and finding and outfitting the right location, there is also the daunting process of satisfying all the necessary local and state regulations pertaining to the business's operations. There are zoning issues to consider, state requirements that may need to be addressed, and a complex and sometimes confusing arrangement of local permits, licenses, approvals, and fees that must be dealt with depending on the type, size, and scope of the proposed business. This is a necessary and inevitable process, the objectives of which are relatively similar from city to city. While the key aspects of the process may not differ widely, the ease and timeline in which it can be accomplished, and the assistance provided along the way, varies significantly depending on the city in which the business is trying to locate.

The City of Berkeley has invested both staff and fiscal resources to help small businesses to be more environmentally responsible. Noteworthy efforts include: (1) providing small businesses with free energy audits and subsidies through the Smart Lights energy retrofit program; (2) adding a fee to all new building permits to support a green business program, (3) providing businesses with access to green building experts who work with owners to improve the environmental performance of their buildings, and (4) developing a Sustainable Business Action Plan. Nevertheless, the research reveals that the owners and managers of small green businesses in Berkeley think that city staff should and could to do much more to encourage and support small, green businesses.

To gain an understanding of what a small businessperson's experience opening a business in Berkeley might be like, we reviewed the City of Berkeley's website several times between January and March 2007 with the purpose of finding information that would be useful in this process. We were interested in understanding (a) what a business person would learn about opening a small business, (b) support services that would be available to them, and (c) how the process of opening a business might unfold. To add depth to our analysis, we reviewed the websites of neighboring cities for comparative purposes. Table Eleven provides a comparative analysis of the website information for businesses in Berkeley, Oakland, and Richmond. The analysis reveals that the city of Berkeley's current website is poorly designed and organized to support individuals opening small green businesses in the city and, that this is an area in which the city could easily improve the services it provides to the owners of small green businesses in Berkeley.

Table Fifteen
**Website Information for Small Businesses - Berkeley,
Oakland and Richmond**

Type of Information Supplied	Berkeley	Oakland	Richmond
Is there a dedicated business development website?	No	Yes	Yes
Are business development information pages easy to locate?	No	Yes	Yes
Is basic information regarding the requirements and process of starting a business is available?	Yes	Yes	Yes
Is information about assistance and other resources to help start a business is provided?	Some	Yes	Some
Is there necessary information from disparate departments aggregated and presented cohesively?	No	Yes	Somewhat
Is promotional information describing the benefits of doing business in the city is included?	No	Yes	Yes
Is information up to date, i.e. the web pages were recently updated?	Somewhat	Yes	Yes
Are websites aesthetically pleasing, well-constructed, and easy to navigate.	No	Yes	Somewhat
Overall, does the website gives the impression that the city is interested in attracting new businesses and helping existing businesses grow?	No	Yes	Yes

Berkeley

- Business development information web pages were extremely difficult to locate, with links going to misnamed pages and information scattered throughout various departments' pages.
- A useful Resource Guide is available but only accessible through a link obscurely located in a Letter from the Director of Finance.
- Although basic information about starting a business is available, little guidance is provided to aid an applicant through this process.
- Overall, business-related content is extremely disorganized, difficult to locate, and not especially helpful for the potential new business owner.

Oakland

- A “Doing Business in Oakland” website is entirely dedicated to attracting and providing useful information for new businesses in Oakland.
- Extensive information about the positive attributes of Oakland’s markets, target industries, and business assistance programs is provided.

Richmond

- Like Oakland, Richmond maintains a separate website devoted to attracting and providing information for potential new businesses.
- Extensive promotional material is provided.
- Basic information about the requirements and process of starting a business is provided, although little supplementary advice or guidance is included.
- A “Get Started” link brings up a web form with options to request information about opening specific types of business in Richmond. A helpful City Representative responded by telephone to a test query within two business days.

The Wooden Duck

From its two locations in West Berkeley, The Wooden Duck (TWD) has been manufacturing and selling fine furniture made of recovered old growth lumber for over 10 years. Its environmentally conscious business continues to thrive and provides better than average wages and benefits to its approximately 25 employees. Wooden Duck's work starts with locating and acquiring reusable timber from old buildings and scrapped furniture from around the world. Once received in Berkeley, the timber is stripped down and converted into new furniture pieces that retain the unmistakable look, feel and character that can only come with time. TWD's carpenters receive training in all phases of the construction process, with the most junior apprentices starting with sanding and assembling while more skilled workers take on more complicated tasks such as finishing and lathe. A small number of additional employees assume non-carpentry positions such as delivery driving and maintaining the warehouse.



The Wooden Duck provides well for both its workers and customers and its owner speaks highly of their location in Berkeley and would not want to live or work elsewhere. However, for TWD working in Berkeley has often meant following more strict policies and procedures than in working in nearby municipalities, some of which are likely necessary and warranted, while others appear to simply be cumbersome and frustrating.

The contrast in working in Berkeley versus its neighbors was recently emphasized in TWD's opening of a store location in Marin County. TWD's relationship with Berkeley appears to have been strained in the past over what some people in the company describe as freeway-front zoning issues, lengthy permitting processes, and what is sometimes perceived as an "air of suspicion" attitude or anti-business approach by city staff toward local Berkeley businesses. In stark contrast, the company's recent experience in Marin has been one characterized by a great deal of support and encouragement from city staff, streamlined permitting processes that took days instead of weeks, and concerns and disputes that were handled promptly and in person. One TWD employee stated, "it takes longer to park in Berkeley than it takes to get a business license and everything else done in Marin."



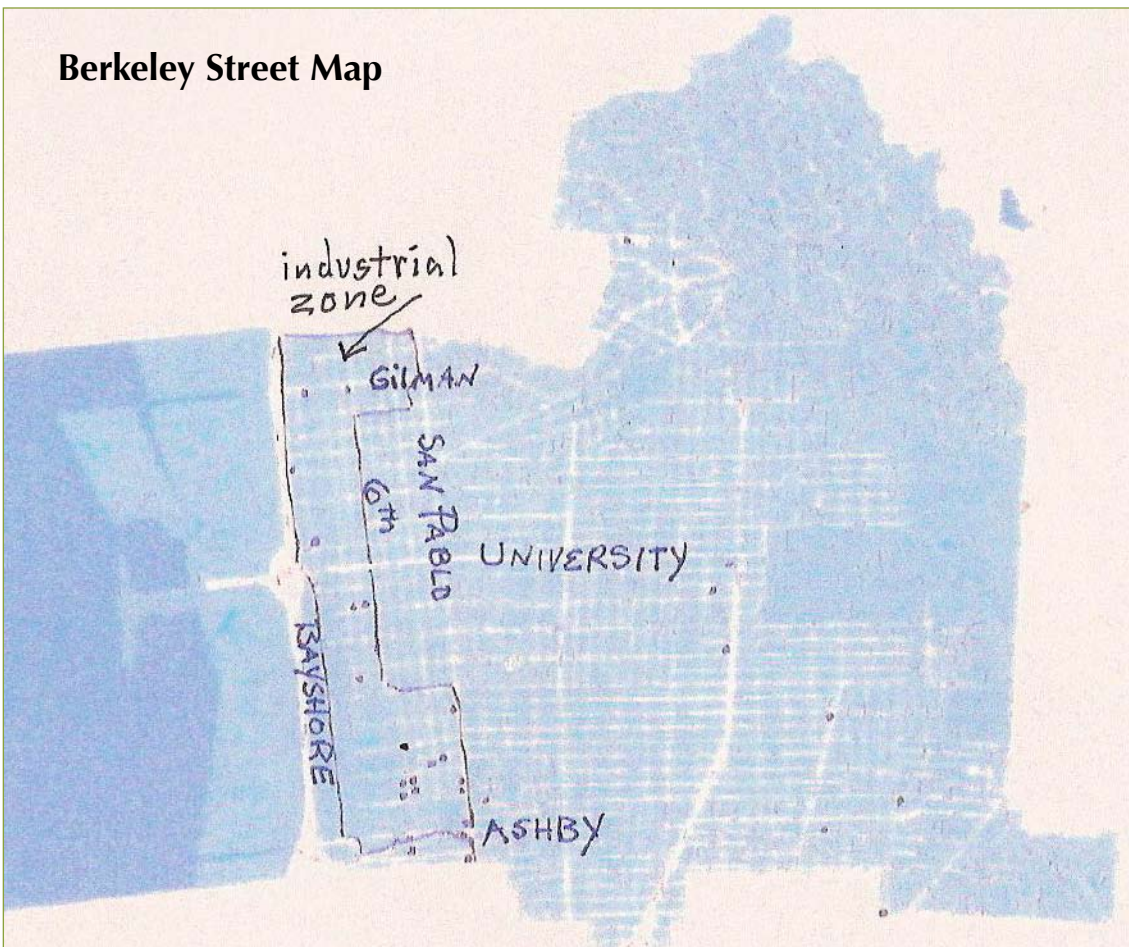
Another example of help TWD has received from other neighboring cities is the two low-cost loans that it has received from Oakland's Business Development Corporation to grow its business in the area. As a concerned businessman as well as personal citizen of Berkeley, TWD's owner worries that benefits such as these, combined with the greater difficulties of operating in Berkeley, might drive successful companies out of town and prevent new entrepreneurs from wanting to locate in the city. While TWD is committed to the city of Berkeley and has no plans to relocate, its owner appears to empathizes with companies that have chosen to leave Berkeley, and feels that the absence of these companies will ultimately negatively impact the balance and composition of the city of Berkeley's population-- that without the variety of innovative businesses and industry that made it was it is today, Berkeley will eventually become just another strip mall and condo inhabited town along the highway to San Francisco.

4. Importance of Industrial Zoning for Businesses that Provide Green Collar Jobs

Map One shows where green businesses that provide green collar jobs are located in the city Berkeley. The map reveals that the vast majority of these businesses are located in West Berkeley, the area of the city zoned for industrial and light manufacturing uses.

Map One

Most Green Businesses that Provide Green Collar Jobs are Located in Areas Zoned for Industrial and Light Manufacturing Uses



Although the green businesses included in this study do not use processes or products that are harmful to the environment or public health, almost all of them need to be located in areas that are zoned for industrial/ light manufacturing uses where the specific intent of this zoning separates them from incompatible uses (i.e. residential, office, and retail) so that they can successfully conduct their business operations and services. Industrially-zoned land is important to a wide range of businesses for many reasons (see Table Fifteen).¹⁰ Below, we discuss five of the essential reasons why green businesses that provide workers with green collar jobs benefit from being located in areas of the city zoned for industrial use.¹¹

(1) Land zoned for industrial uses provides space for activities which do not work well in proximity to housing – a typical “land use conflict” situation. Many businesses seek industrial locations because they use or produce noxious or hazardous materials, have late night or 24-hour shifts, produce noise (for instance from truck deliveries) and glare (lighted yards or late night building use), and may generate unpleasant odors. If the industrial zoning designation allows housing, or the area zoned as such is not sufficiently buffered, businesses that find themselves near newly developing residential neighborhoods may be forced out unless there are “coming to the nuisance” protections which limit the ability of new residents or even other businesses, to complain about pre-existing industrial uses.

(2) Industrial land is typically well located with respect to freeways or facilities and this is an important factor for many industrial businesses, especially those whose activities are related to distribution and warehousing. Furthermore, the streets and rights-of way in such areas are often designed to accommodate trucks, forklifts, and the movement of goods generally and, as such, may not include sidewalks or crosswalks.

(3) Similar to other commercial activities, industrial businesses experience advantages from being located near similar and related firms and sufficient amounts of industrial land allows for clustering of businesses. In Berkeley, this web of connections may be vital to the survival of small green businesses. Networks of companies purchase various materials and unfinished products from local suppliers and, in turn, make them into semi-finished and finished products that sometimes then go to other businesses for a final treatment for end users. Green businesses use each other services in order to support one another.

(4) To function properly, small green businesses need not only space, but also appropriate building stock. Location and building type are closely related. The buildings found on industrial land provide a number of features that are important to many businesses, including: flexible floor plates that allow firms to grow and change as their business evolves; tall first stories (15+ feet) or clerestories; loading docks and roll-up doors; and in multi-story structures, floors that may support heavy machinery. Open yards for equipment storage, inventory, and certain kind of goods handling and manipulation are also important.

(5) Industrially zoned land and the buildings it contains provide another essential benefit to many businesses – affordability. Existing building stock is far more affordable than new construction. Most businesses that choose to locate in industrial areas do so because their rent thresholds are about \$.75 - \$1.25 per square foot maximum, with many businesses only able to afford <\$1.00 per square foot WEBAIC, personal communication, June 2007). This is a fraction of what other uses, such as office and housing, can pay. Therefore, industrial land provides protection for an important segment of the economy, as long as the zoning disallows activities that are able to out-compete the typical user of industrial land.

¹¹ In 2007, there were approximately 375-400 industrial and artisan businesses located in the West Berkeley area zoned for artisan, industrial, and light manufacturing uses in the city of Berkeley (WEBAIC, personal communication, June 2007). Together, these businesses employ approximately 7,000 workers in manufacturing, warehousing and distribution, construction, artisan, building and industrial supply, auto related, and laboratory uses.

Table Sixteen
Structural Needs of Businesses that Provide Green Collar Jobs

1. NOISE: Noise and vibration levels above residential decibels and beyond daytime hours.
2. HOURS: Extended hours of operation including around the clock in some cases.
3. ODORS: Emitting non-toxic odors that might be offensive or threatening to nearby non-industrial (residential) neighbors.
4. DUST: Emitting small amounts of non-toxic dust or other particulates into the air.
5. PARKING: On street parking regulations that allow large trucks and equipment to block traffic for some period of time.
6. LOADING: Space for large trucks to load and unload and space for large equipment to be used and accommodate big turning radius.
7. LOCATION NEAR FREEWAY: Location near freeway and other major traffic arteries to accommodate truck deliveries. Traffic congestion from gridlocked (overcrowded) retail zones in proximity to industrial zones leads to supplier and delivery backups and operating inefficiencies with paternally sever economic consequences.
8. PHYSICAL SPACE: Physical space - Most manufacturing needs large, open, single story floor plans for the produce assembly process flow and movement with forklifts, etc. very few manufacturing facilities are 2 stories or they have their offices on the second floor. They also need high ceiling for machine and process clearances. Many businesses require large, flexible floor-plate buildings, clerestories, loading docks with roll up doors, outside areas for storing parts and materials (i.e. yards) which, (because they may be lit up at night) produce light and glare that is inappropriate in or near residential areas. ¹²
9. COST: Paying lower costs for space per square foot than in other areas based on the fact that these areas are zoned industrial (\$.65 to \$1.15 sq. ft. for light industrial space (depending on size/condition) versus \$1.45 to \$3.50 sq. ft. for office, residential, live/work, and retail. On 4 th Street retail can go for as much or than \$10.00-\$20.00 a square foot.

- “We need a lot of light industrial zoning nearby because as we move to zero waste we’re getting 200 – 400 tons a day into the transfer stations. If we want to convert the resources back into products, we have to reindustrialize by developing green businesses that see those resources as resources and develop them into products. So we have to have the handling system at the transfer station, we have to have receiving and processing at the transfer station that will treat them as resources and not destroy them. Garbage is a manufactured product that is manufactured by handling methods. We have to change the handling methods so that they retain the resources we can use. And then we have to have places nearby – not distant because the value of the resources is not high enough to pay for that transport and multiple handlings – so we have to have nearby light industrial properties that are available for reuse and recycling based businesses to transfer those resources back into products.”

¹² The term “clerestories” refers to that part of a building rising clear of the roofs or other parts whose walls contain windows for lighting the interior. It is a feature of many industrial buildings, especially warehouses, that expands the usable interior height of the building and allows natural lighting.

5. Importance of Social Networks for Workers Seeking Green Collar Jobs

Figure Seventeen shows that job seekers learn about green collar job openings primarily through their social networks. Most employers reported that they hired most of their employees through word of mouth.

Figure Seventeen
Social Networks are the Primary Way Job Seekers Learn about Green Collar Job Openings

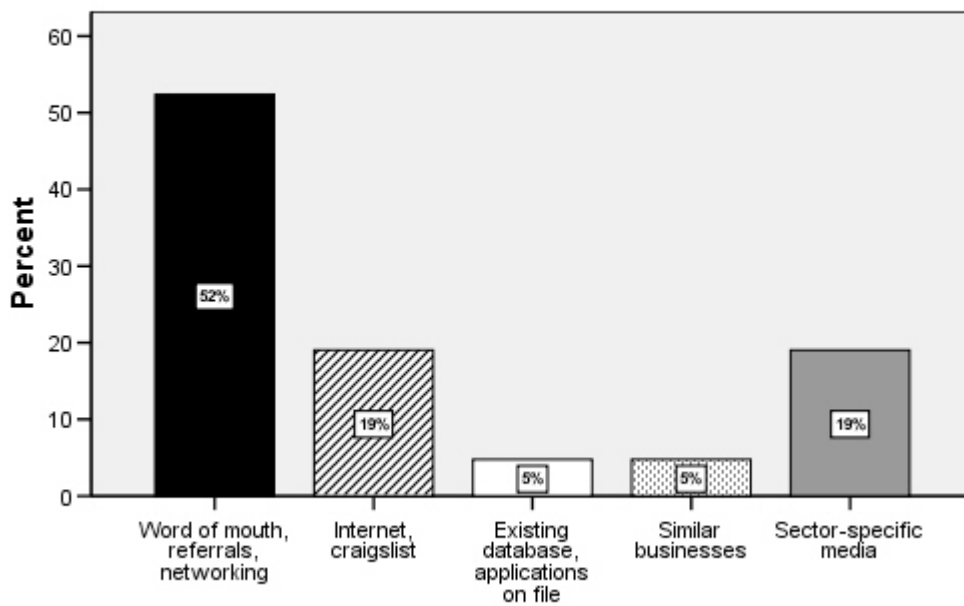


Fig. 17 How do workers hear about jobs in your sector?

- Word of mouth is by far the most important way in which job seekers learn about green collar job openings.
- Employers post information about green collar job openings on the internet, particularly on the popular site Craigslist.
- Employers keep resumes on file and use existing employee databases when seeking to fill a job opening.
- Employers contact other similar businesses in their sector to notify them of openings and to identify potential applicants.
- Employers post information about green collar job openings in local newspapers and sector-specific media.

Figure Eighteen shows that there is a shortage of skilled/qualified workers in most green collar job sectors. Combined with interview data, overall the findings reveal that there is enormous potential to bring in a new pool of applicants as existing green collar jobs need to be filled and as new green collar jobs are created.

Figure Eighteen There is a Shortage of Workers for Skilled Green Collar Jobs

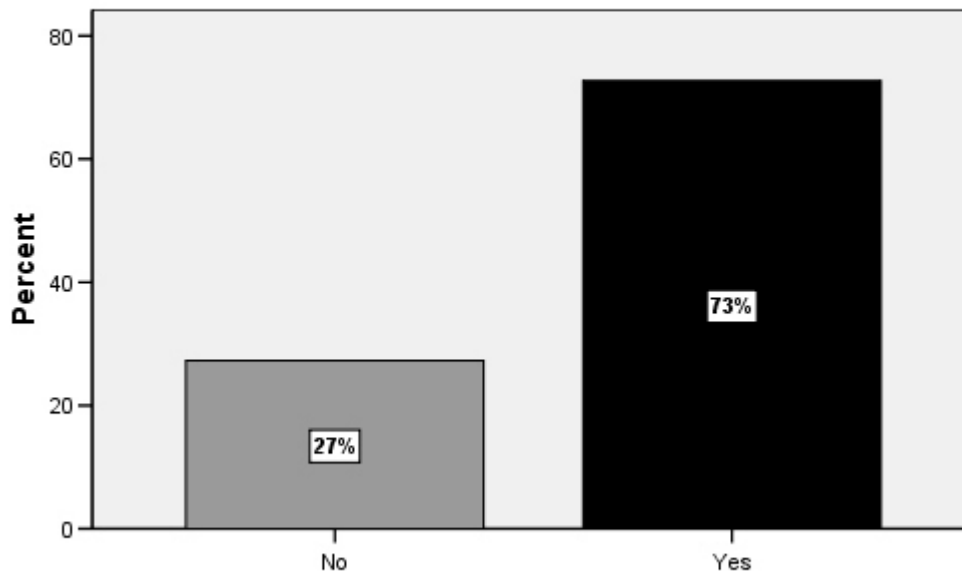


Fig. 18 Is there a shortage of skilled or qualified workers in your industry?

- 73% of owners and managers of Berkeley green businesses providing green collar jobs report a shortage of skilled/qualified workers for their sector.
- The sectors with the greatest need for skilled workers are: energy, green building; and mechanics.
- Specific positions for which there is a need include:
 - Skilled carpenters and finishers
 - Certified solar electric installers and journeyman electricians
 - Bike mechanics
 - Qualified and responsible drivers and mechanics (across all sectors)
- The extent of these shortage ranges from slight, as in the case of finishers and sanders, to significant, as with skilled carpenters and bike repair.
- Some employers report that there is a need for an emergency, for an “on-demand” labor pool to fill occasional urgent staffing needs.
- In sectors where employers are experiencing a shortage of qualified and skilled workers for more advanced green collar jobs, most employers stated that they are willing to train entry level workers for these more advanced jobs almost immediately upon their being hired.
- Bicycle repair shop employers stated that there is a shortage of qualified bicycle mechanics due to limited places to train for bike repair work and insufficient number of people entering the field.

Missing Link Bicycle Co-op



Missing Link Bicycle Co-op was started in 1971 when a group of former Berkeley High School students attending UC Berkeley formed three collectively run businesses – a record store, an art supply store, and a bicycle shop. In 1973 Missing Link, which was located in the University's Student Union building, incorporated as a non-profit mutual benefit corporation. In 1994 they became a California cooperative corporation.

Missing Link operates two stores – its main store sells bikes and bike paraphernalia. Its repair shop, located across the street from the retail store, is where workers engage in green collar work, performing every type of bike repair imaginable with the exception of

welding and painting. The business leases both of these buildings and is vulnerable to increased rents over time in an area of the city where space is at a premium.

In addition to retail and bike repair services, Missing Link offers free classes that focus on repair and use of bicycles; two public work bench spaces where the public has access to free tools during business hours; and works with a number of local organizations including the SF Bike Coalition, East Bay Bike Coalition, and the Berkeley High School Mountain Bike team.

Part of the Bay Area's vibrant cooperative movement, Missing Link is collectively run as a worker co-op, where employment at the store is a condition of membership in the co-op and members hold equal shares in the cooperation and are paid an hour wage starting off at \$12 plus benefits. In addition to hourly wages and benefits, workers receive a patronage refund at the end of a fiscal period based on the number of hours they worked in that period. Average annual earnings for full-time work (which is 32 hours/week) ranges from \$30,000-\$35,000/year.

The co-op currently includes 22+ members, all of whom are members of the Board of Directors and are responsible for the operations of the two stores. As there are few places to formally get an education in bike repair, most members of the collective came to this work through personal and professional experiences in cycling, bike delivery, and working in smaller bike rental shops. One path of entry is bike assembly which is a simpler mechanical bike job. From here a person could move to a full-time position which would include more general bike repair work as well as working in the retail part of the shop.



6. Developing Green Collar Jobs for Men and Women with Barriers to Employment

Figure Nineteen shows that most employers are open to the idea of bringing in workers with barriers to employment to fill green collar jobs in their firms. Minimally two conditions would need to be in place in order for this to happen. First, there would need to be job openings. Second, applicants would need to be “job ready”. For these employers, characteristics include: a sense of responsibility, ability to consistently arrive to work on time, a positive attitude towards work and colleagues, ability to work both independently and as part of a team, basic presentation, listening and communication skills, and a strong work ethic.

Figure Nineteen
Employers are Willing to Hire Workers with Barriers to Employment for Green Collar Jobs

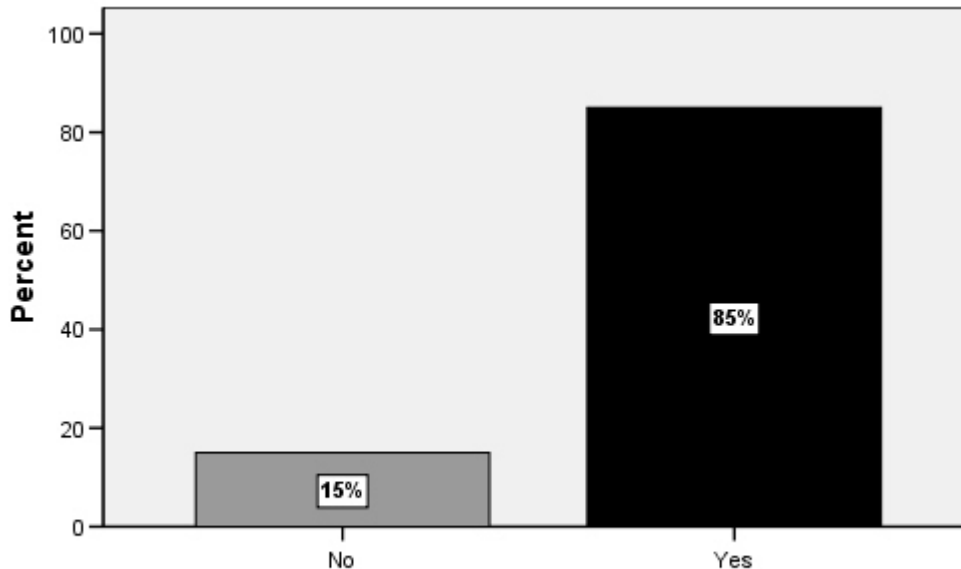


Fig. 19 Would it be possible for a low-skilled worker with minimal experience to get a job with your company?

- 85% of owners and managers of Berkeley green businesses reported that it would be possible for a low-skilled worker with minimal job experience to get a green collar job with their business and that they would be willing to hire low-income, job ready residents with barriers to employment for green collar jobs in their firm.
- The vast majority of owners and managers expressed enthusiasm about the opportunity to provide low-income, job ready residents with opportunities to train for, and obtain, green collar jobs in their firms.

Figure Twenty shows that employers are willing to work with work force development programs to bring job seekers with barriers to employment into their firms.

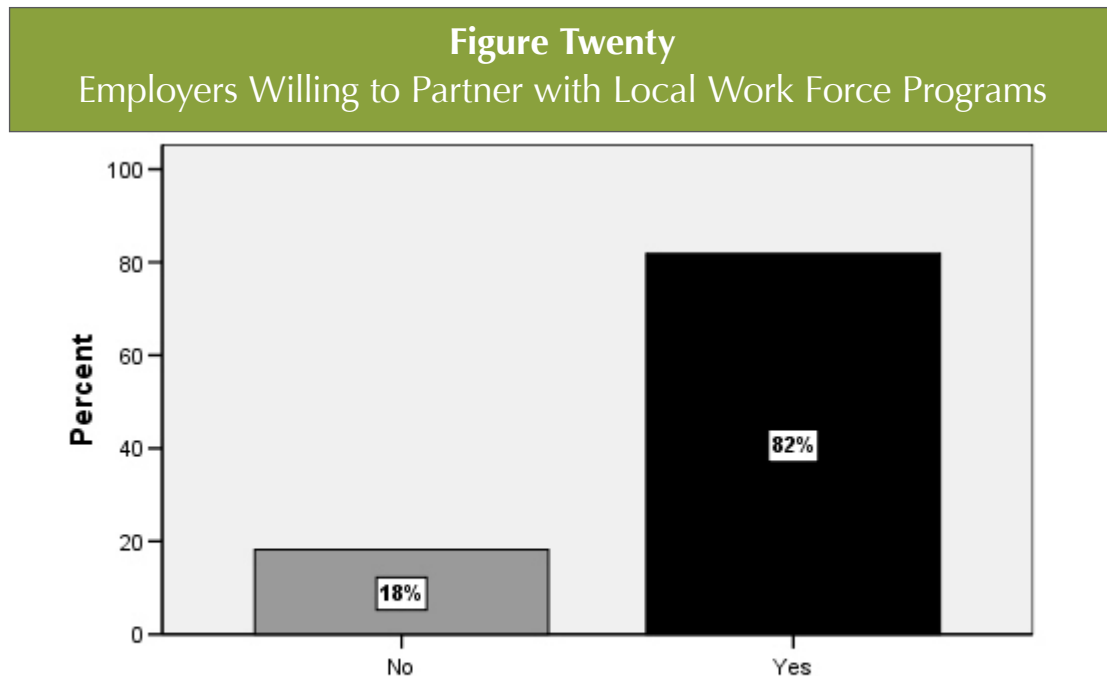


Fig. 20 Would you be willing to have a formal relationship with a work force development organization that could help you identify potential employees?

- 82% of Berkeley employers reported that they would be willing to have a formal relationship with a work force development organization that could help them to identify potential employees to be trained for green collar jobs within their businesses.

Summary

The research findings reveal that there is a shortage of skilled workers for most green collar jobs in Berkeley and that green business employers are willing to hire job ready residents with barriers to employment for entry level green collar jobs in their firms and provide them with on the job training. The only requirement is that the workers be job ready.¹³ For these employers, “job ready” attributes include: a sense of responsibility, ability to consistently arrive to work on time, a positive attitude towards the work and colleagues, ability to work both independently and as part of a team, basic presentation, listening and communication skills, and a strong work ethic. The research also reveals that green business employers are willing to partner with public officials and workforce development programs to prepare and place workers with barriers to employment in green collar jobs, but that these programs need to be well-organized and sensitive to the needs of employers.

With its existing base of green businesses, and its existing plans to grow its green economic sector, Berkeley is well positioned to be a leader in attracting and supporting green businesses that provide workers with high quality living wage, community serving green collar jobs. The potential of green collar jobs to provide good jobs for Berkeley residents with barriers to employment is significant, but it will not happen without careful planning, investment, and a strong partnership between employers, government, workforce development organizations, and the community. In addition, it will require a workforce development program specifically designed to (1) prepare residents with barriers to employment to enter the labor market and (2) place them in green collar jobs. In the next section, we present a model for how such a program might be developed.

¹³ Bike repair and furniture making are exceptions to this, wherein employers typically require previous work experience.

Rising Sun Energy Center

Rising Sun Energy Center provides Bay Area residents with 3 primary services:

- (1) On-site energy and water conservation services and environmental education through a program called *California Youth Energy Services (CYES)*. This green collar job training program trains and employs hundreds of high school students and young adults to provide direct install measures. These measures include: screw-in Compact Fluorescent Lamps, efficient-flow showerheads (both energy and water savings), efficient-flow kitchen and bathroom aerators, retractable clotheslines, Halogen torchiere lamp swaps to replace CFL technology, and subsidized attic insulation.
- (2) On-site energy and water conservation and weatherization services to low-income residents through a program called *Energy Partners (EPP)*. This program trains and certifies workers to provide low-income households with free energy conservation weatherization services, including energy education, new appliances, minor home repair and hardware installation.
- (3) Environmental education programs for youth and adults. For example, school based programs that assist teachers to provide curriculum and in-class education on resource conservation and renewable energy and provide high school students with an opportunity to gain hands-on experience in renewable energy technologies. Assistance for teachers has occurred through one-day workshops designed to teach 4th to 12th grade teachers how to lead conservation and renewable energy projects for their students. The workshops covered energy efficient home design, home energy conservation, solar electricity, and solar water pumping. Teachers received a teacher guidebook with grade specific curriculum and projects. They also learned how to use solar energy technology and receive background information on the global, national and state energy situation.



III. Preparing People with Barriers to Employment for Green Collar Jobs

Providing people with barriers to employment with access to green collar jobs will require a strong partnership between green business employers and job training programs that prepare people with barriers to employment to enter the labor market. These two entities must work closely together to support training and placement. Employers should be convened by the Chamber of Commerce under the umbrella of a *Green Business Council* which would meet to inform job training program staff about the needs of their firms and identify placement opportunities in their firms as they emerge.

Below we provide a model for how to proceed. This model is what the architect Christopher Alexander calls a “reference design”; rather than being the final product, the model is created in order to demonstrate that a particular design problem can in fact be solved and to provide a starting point for people to think about the actual design that they would want to put in place.

Green Collar Jobs Training and Placement Program Model¹⁴

Purpose of the Program: To prepare men and women with barriers to employment to enter the labor market and obtain entry-level green collar jobs

Types of Jobs: This program targets existing bay are green collar jobs related to:

1. bicycle repair
2. bike delivery services
3. energy retrofits to increase energy efficiency and conservation
4. food production using organic and/or sustainably grown agricultural products
5. green furniture (using environmentally certified and recycled wood and other materials)
6. green building
7. green composting on a large scale
8. hauling and reuse of construction and demotion materials and debris (C&D)
9. green (sustainable) landscaping
10. materials reuse (i.e. producing products made from recycled, non-toxic materials)
11. parks and open space maintenance and expansion
12. green printing (using non-toxic inks and dyes, recycled paper, etc.)
13. recycling
14. solar installation and maintenance
15. tree cutting and pruning
16. water retrofits to increase water efficiency and conservation
17. whole home performance (i.e. HVAC, attic insulation, weatherization, etc.)



Preparing men and women with barriers to employment for green collar jobs will require: (a) support for local green businesses; (b) support for effective work force development and job placement programs; and (c) a Green Business Council (convened by the Chamber of Commerce) composed of the owners of local green businesses who provide information about the needs of employers and identify placement opportunities as they arise.

¹⁴ This model was used to develop the Oakland Green Jobs Corp Program championed by the Ella Baker Center and the Oakland Apollo Alliance.

Target population: 18-35 year old men and women with barriers to employment. This population includes people who do not have a high school degree, have been out of the labor market for a long time, were formally incarcerated, and/or have limited labor market skills and experience.

Training: This is an approximately 3-6 month training program that utilizes both training in the classroom and on-the-job training to provide clients with the following direct services: (1) assessment; (2) basic literacy skills (math, English, writing, computer, oral presentation, basic communication skills, etc.); (3) life skills and soft skills training; (4) financial management skills; (5) OSHA Safety Training Certification; (6) an environmental educational component; (7) basic vocational skills relevant to green collar work force opportunities; and (8) an Internship component that utilizes employers in the *Green Business Council* to identify green collar placement opportunities for job ready clients in green businesses.

Case Management and Follow Up: Each client will have access to case management and follow up services during the period in which they work as interns and for up to 12 months after they start their first employment opportunity in a green business. These case management and follow up services are designed to help both the client and the employer.

Pathways to Employment & Educational and Occupational Mobility: Graduates of Green Collar Job Training Programs will have access to multiple pathways to employment as well as to educational and occupational mobility. These pathways include: (1) ongoing on-the-job training opportunities in green businesses; (2) access to union apprenticeship programs, particularly electrical and construction; (3) access to higher education through adult schools, community colleges, and four year institutions; and (4) ongoing job placement services through employers in the *Green Business Council*.

Employers: To succeed the program must have an involved, supportive, and enthusiastic group of green business employers who regularly communicate with the job training staff preparing program participants to enter the labor market. These employers will (a) identify growing green economic sectors and opportunities, (b) identify training standards for specific green-collar jobs, (c) identify placement opportunities; (d) create internship opportunities for program participants; and (e) hire job ready applicants for entry level green collar jobs when there are job openings in their firms. They may also refer job ready applicants to firms outside of Berkeley.

Green Business Council: To develop and nurture relationships with employers, the Chamber of Commerce should convene a *Green Business Council* composed of the owners and managers of local green businesses in the private, non-profit, and public sectors that provide workers with green collar jobs.

Local Government: It is essential that government staff working on issues related to economic development, work force development, and improvements in environmental quality provide ongoing, concrete support to the green businesses that provide workers with living wage, community serving green collar jobs. This can be accomplished in many ways, including: streamlining permitting processes for green businesses that provide green collar jobs in the city; utilizing procurement dollars and city contracts to support local green businesses; creating incentives for working with “first source” hiring policies; helping green businesses access tax credits; and working with regional organizations such as the WIB; etc.¹⁵

Community Involvement: The program should involve members of Berkeley’s low income communities in assisting with recruitment and retention of program applicants as well as in supporting public and private sector initiatives to improve urban environmental quality and will simultaneously create green collar jobs.

¹⁵ Examples of how the city of Berkeley is currently supporting green businesses that provide workers with high quality local green collar jobs include awarding its recycling contract to the Ecology Center, providing affordable office space to Rising Sun Energy Services, contracting with Pedal Express bike delivery service to deliver city packets, and the School District’s (BUSD) contracting with Vital Vittles Bakery to provide healthy baked goods made for students in the Berkeley public schools.

Conclusion

In this section we address each of the seven research questions posed at the beginning of this report in more detail.

1. To what extent are green collar jobs “good jobs”?

The research unequivocally shows that green collar jobs are “good jobs,” in terms of five critical attributes of job quality: wages, health insurance, other benefits, meaningful work, and job satisfaction.

Green collar jobs provide workers with living wages. The average hourly wage for a green collar worker in Berkeley is \$15.80 (plus benefits). This is \$4.00 an hour higher than Berkeley’s current “living wage” of \$11.39 per hour, with benefits. By comparison, minimum wage in San Francisco is \$9.14 an hour, and the California minimum wage is \$7.50. The importance of the wage differential for green collar jobs cannot be overemphasized in a region where the cost of living is very high, and where living wage jobs that don’t require advanced education are very scarce.

Green collar jobs provide workers with health benefits. Of the Berkeley businesses in this study, 90% offer healthcare coverage to their green collar employees. Of this 90%, most pay the full cost of insuring their workers, and many extend health care coverage to workers’ dependents. This is especially impressive considering that rising health care costs are especially burdensome for small businesses and especially significant considering the increasing proportion of Bay Area residents with inadequate health insurance or none at all.

Green collar jobs provide workers with many additional benefits. These include paid time off, financial incentives (i.e., IRA, 401-K plans, profit sharing), bonuses, service awards, mileage allowances, transit passes, trade relate benefits, flexible scheduling, employee assistance programs, and, in some cases, the benefits associated with union membership.

Green collar jobs provide meaningful work. By definition, green collar jobs contribute to improved environmental quality, typically in local communities in very visible and direct ways. Because of this, green collar jobs offer not only a paycheck and benefits, but community-serving work – an important feature that most types of jobs with low barriers to entry lack.

Green collar jobs provide workers with high levels of job satisfaction. The businesses studied have high levels of employee satisfaction, mainly attributed to good pay and benefits, good working conditions, shared values, job security, and advancement opportunities but also attributed to the fact that green collar jobs provide workers with meaningful community serving work that directly improves environmental quality.



Green collar jobs provide workers with an opportunity to engage in environmentally beneficial, community serving work and, to receive relatively high wages, on-the-job training, excellent benefits, and opportunities for occupational advancement for this work. Providing low-income men and women with access to green collar jobs will reduce poverty and extend the benefits of green economic development to low-income people and communities.

2. To what extent are green collar jobs suitable for workers with barriers to employment?

Green collar jobs provide excellent opportunities for workers with barriers to employment. There are three reasons for this:

First, green collar jobs have low barriers to entry. They don't require a college degree, or even a high school diploma. Employers regularly hire workers with little or no directly related work experience for entry level green collar jobs -- 86% of the Berkeley firms surveyed hire workers without previous experience or training for green collar jobs in their firms. According to owners and managers of green businesses that provide workers with green collar jobs, potential employees do not have to have experience either in the sector or with the particular type of job in question in order to be hired for entry level positions.

What potential employees do need to have are what employers call "job ready" skills. For these employers this means that workers should have a sense of responsibility, the ability to consistently arrive to work on time, a positive attitude towards the work and colleagues, the ability to work both independently and as part of a team, basic presentation, listening and communication skills, and a strong work ethic.

Second, green businesses provide on the job training for green collar jobs. Of the businesses surveyed, 94% provide on the job training for workers in entry-level positions. This means that workers with barriers to employment not only get good jobs, but also the opportunity to upgrade their skills and improve their long term employment and career prospects. Assistance provided to green collar workers by Berkeley green businesses includes training and assistance to obtain a truck-driving license, forklift operator certification, green building certification, and certifications to become a journeyman, solar electrician or general contractor.

Third, green collar jobs provide workers with opportunities for advancement and occupational mobility. One of the problematic aspects of most jobs available to people with barriers to employment -- as problematic as low wages and lack of benefits -- is that they are "dead-end" jobs. In contrast, Berkeley's green businesses provide workers in green collar jobs with opportunities to gain experience and develop skills that can lead to occupational mobility within the firm or in another firm in a related field. Businesses surveyed report that after departing from a particular business, most workers continue to work for similar businesses or perform similar work in another field -- including workers who leave in order to go back to school or start their own businesses.

3. Are men and women with barriers to employment interested in green collar jobs?

Bay Area men and women with barriers to employment who are currently unemployed or underemployed are extremely interested in green collar work force opportunities.

Green collar jobs are appealing to them for various reasons. Some people are interested in particular green collar jobs because they would allow them to work outdoors (i.e. tree cutting, solar installation, landscaping, bike delivery). Others are interested in green collar work because the jobs involve manual labor and they enjoy working with their hands. Still others like the fact that this kind of work is good for local communities as well as the environment.

Many men and women with barriers to employment already have labor market experience that is directly related to green collar work. The most common areas of work experience are in construction, landscaping, and bike repair. Transferable labor market skills combined with a high level of interest in work that involves manual labor and improves environmental quality make living wage green collar work force opportunities appealing to residents with barriers to employment who seek to lift themselves and their families out of poverty.

4. To what extent are green business employers willing to hire workers with barriers to employment for green collar jobs in their firms?

Green business employers are willing to hire workers with barriers to employment if they are job ready. Eighty five percent of the owners and managers of Berkeley green businesses reported that it would be possible for a low-skilled worker with minimal job experience to get a green collar job with their business and that they would be willing to hire low-income, job ready residents with barriers to employment for green collar jobs in their firm. The vast majority of owners and managers expressed enthusiasm about the opportunity to provide low-income, job ready residents with opportunities to train for, and obtain, green collar jobs in their firms.

Employers are also willing to partner with public officials and workforce development programs to prepare and place workers with barriers to employment in their firms but, these programs need to be well-organized and sensitive to the needs of employers in order to be effective.

In order for employers to offer men and women with barriers to employment entry level green collar jobs in their firms and provide them with on the job training these workers must be job ready.¹⁶ For these employers, “job ready” skills include: a sense of responsibility, ability to consistently arrive at work on time, a positive attitude towards the work and colleagues, ability to work both independently and as part of a team, basic presentation, listening and communication skills, and a strong work ethic.

5. Are the sectors and businesses that provide workers with green collar jobs growing?

Berkeley has 22 sectors of businesses that provide green collar jobs (see Table Two). Every one of these sectors is expected to grow in the next decades, which means that the number of manual labor jobs they depend upon to provide their goods and services will grow as well. Of the Berkeley green business owners and managers in this study, most reported that their business is growing and that they are expanding the number of green collar jobs in their firms - 73% of the businesses surveyed cited a shortage of skilled/qualified workers for their sector, with the greatest needs in energy, green building and mechanics.

In addition, over the next decade, the green economy in the Bay Area is poised to expand significantly. As it expands there will be huge increases in green collar work force opportunities in areas such as alternative energy, bicycle transit, energy and water conservation and efficiency, green building, materials reuse, organic food, public transit, and recycling.

Government policies to reduce waste and greenhouse gas emissions are expected to stimulate dramatic growth in green business and green collar jobs. Throughout the United States over 56,000 recycling facilities, both private and public are creating more than 1.1 million jobs. A study conducted by the Apollo Alliance concluded that major national investments in energy efficiency, renewable energy, and renewable fuels could result in nearly three and a half million new jobs in the United States. At the same time, venture capital investment in the green economy is increasing dramatically, Bay Area consumers are making major shifts toward “green” products and services, and local governments are beginning to actively nurture the growth of green businesses. All these factors working together are creating the conditions for the dramatic growth of green business and green collar jobs in the Bay Area.

¹⁶ Bike repair and furniture making are exceptions to this, wherein employers typically require previous work experience.

6. What strategies and programs would be needed for Berkeley to grow its green business sector and increase green collar jobs?

Most green businesses in the Bay Area are small businesses that do not own their property or buildings; have leases that will expire in the next few years; are growing and are very concerned about lack of needed space to accommodate growth; would like to stay in the same location; are very concerned about maintaining affordable space; are located in areas of the city zoned for industrial/light manufacturing uses; and need to be supported by city government. Such support would include: using procurement dollars and contracts to purchase the goods and services that local green businesses provide, assistance with marketing, access to capital, technical assistance, and access to affordable sites on industrially zoned land.

The most critical need of Berkeley businesses that provide green collar jobs is for adequate, appropriate, affordable space. Almost all green businesses providing workers with green collar jobs require industrial space because of facilities requirements, truck access, noise, odors, and many other operational reasons. Because of this, most of them are located in the industrial/light manufacturing zoned area of the city. In addition, almost all of these businesses lease their property or buildings, with leases that expire in the next few years, and employers are very concerned about finding adequate, appropriate, and affordable space if they can't continue in their present location. City planning policies can do a great deal to help meet this critical need – especially by preserving industrial land.

In terms of green business development strategy in general, Berkeley should continue to follow the recommendations in the Sustainable Business Action Plan, which was approved by the City Council in 2004. Although it makes no reference to green collar jobs, the Plan is an excellent source of well-grounded strategies for developing green businesses in Berkeley. Specifically, it recommends short-term and long-term actions in four critical areas:

- Building the demand for green products and services
- Nurturing existing green businesses
- Fostering Environmental Innovation and Entrepreneurship in the city
- Branding and Communication

Taken together, these strategies can enable Berkeley to substantially grow its green business sector, along with green collar jobs. But that alone will not ensure that substantial numbers of the jobs go to the residents who need them most.

7. What strategies and programs would be needed for Berkeley to ensure that workers with barriers to employment gain access to green collar jobs?

Providing low income men and women with barriers to employment with access to green collar jobs will require a partnership between multiple stakeholders -- city staff, green business employers, the Chamber of Commerce, work force development programs, unions, educational institutions, job seekers, and community organizations – working together to support a training and placement program tailored both to the needs of Berkeley's green businesses and also to the needs of local residents with barriers to employment.

In order to succeed, the program must have an involved, supportive, and enthusiastic group of green business employers who regularly communicate with the staff preparing program participants to enter the labor market. To develop and nurture relationships with these employers, the Chamber of Commerce should convene a *Green Business Council* composed of the owners and managers of local green businesses in the private, non-profit, and public sectors that provide workers with green collar jobs. In Berkeley, members of the *Green Business Council* would include representatives from all of the small green businesses and non-profits included in this study as well as members from UC Berkeley, Lawrence Berkeley Lab, PG&E, EBMUD, Berkeley Unified School District, Sustainable Berkeley, and others.

Summary

Green collar jobs are high quality jobs, with low barriers to entry, in sectors that are growing. Because of this, green collar jobs provide policy makers and businesses owners with a unique opportunity to simultaneously improve environmental quality, develop the local economy, and reduce poverty and social inequality by providing good jobs to residents with barriers to employment.

To realize this opportunity, public officials will have to do two things. First, they will have to create and maintain the conditions necessary to attract, create, expand and retain the types of green businesses that provide green collar jobs. Second, they will have to create workforce development programs that can prepare residents with barriers to employment to enter the labor market and place them in green collar jobs.

Fortunately, the knowledge and capability to accomplish these goals is readily available. Carrying out these strategies is simply a matter of political will. In an era that combines the danger of heightened environmental crisis and increasing social inequality with the opportunity of the emerging green economy, there is no reason not to act.

Bibliography

- Anonymous. *Not Enough*. tufts.edu/tuftsrecycles/notenough.htm, May 2007.
- Apollo Alliance and Urban Habitat. Community Jobs in the New Economy, May 2007.
- Apollo Alliance. The Apollo Project: A Bold Ten-Point Plan for Achieving America's Energy Independence, 2006.
- Apollo Alliance. New Energy for Cities: Energy-Saving & Job Creation Policies for Local Governments. 2006.
- Applied Composting Consulting, Berkeley Solid Waste Management Plan Update: Achieving 75% Diversion on the Road to Zero Waste, Oakland, June 2005.
- Association of Bay Area Governments (ABAG). *What is a Green Business?* July 1996.
- California Legislative Black Caucus. The State of Black California, Southern California Edison, 2006.
- Bronstein, Zelda. *The Public Eye: Big-Box Shopping Center on Fourth Street?* Berkeley Daily Planet, May 15, 2007.
- California Clean Tech Open: 2006 Competition Report. 2006.
- California Legislative Black Caucus, State of Black California, 2007.
- Connelly, Joseph. *GREEN: The Green Economy is today's hot business trend*. SFGATE.com, October 27, 2004.
- Dauncey, Guy. Beyond the Wasteland. Earthfuture.com, accessed May 10, 2007.
- Durning, Alan. Green Collar Jobs: Working in the New Northwest. Northwest Environmental Watch, 1999.
- DeBell, Jack. GreenYes Archives, (greenyes.grrn.org/2005/01/msg00034, January 11, 2005.
- Fitzgerald, Joan. Moving Up in the New Economy: Career Ladders for U.S. Workers, The Century Foundation, 2006.
- Friend, G., Cattrell, P, and Johnston, D. Towards Sustainable Berkeley. Office of Energy and Sustainable Development, City of Berkeley, 2006.
- Gallagher, Mari. Good Food: Examining the Impact of Food Deserts on Public Health in Chicago. Mari Gallagher Research and Consulting Group, Chicago, 2006.

Harris, Linda. What's a Youngster to Do? The Education and Labor Market Plight of Youth in High-Poverty Communities. Clearinghouse Review Journal of Poverty Law and Policy, July-August 2005.

Jobs from Waste. The Jobs Letter, Letter No 116, February 18, 2000.

Mark, Jason and Danaher, Kevin. *Can We Buy Change?* Global Exchange, December 15, 2006.

Maus, Jonathan. Business leaders hear from cycling industry. Bike Portland, April 5, 2007.

Melendez, Edwin. Working on Jobs: The Center for Employment Training. Mauricio Gaston Institute for Latino Community Development and Public Policy, Boston, 1996.

Muller, Mike. *Residential RE Squeezes Industrial Nabes*. Brownstoner: Brooklyn Inside and Out, July 25, 2006.

Pernick, R. Makower, J., de Cordova, A. Harnessing San Francisco's Clean Tech Future. Clean Edge, 2004.

Pernick, R., Makower, J., and Wilder, C. Clean Energy Trends. Clean Edge, 2007.

Pinderhughes, Raquel. *Green Collar Jobs: Work Force Opportunities in the Growing Green Economy, Race, Poverty & the Environment*. Volume 13, No 1, Summer 2006.

Pinderhughes, Raquel. Alternative Urban Futures: Planning for Sustainable Development in Cities throughout the World. Rowman & Littlefield, 2004.

U.S. Dept. of Energy/EERE, *Weatherization Assistance Program: Improving the Economies of Low-Income Communities* (last update August 2006), www.eere.energy.gov/weatherization/improving.html.

Williams, Taffy Lee. *Recycling Industry Support 1.1 Million American Jobs*. The Viking News, February 11, 2004, Volume 73, No. 2.

Jobs From Waste

Building an effective infrastructure for the re-use, repair and redistribution of collected material resources, including: building and demolition materials, paper and cardboard, organic materials and garden wastes, naturally excavated soils, hard and soft plastics, glass and textiles, will generate tens of thousands of high quality jobs.

California's 1989 Integrated Waste Management Act, which required cities to divert 50% of their solid waste from landfills by 2000, generated enormous activity in the recovered materials sector. Millions of dollars were invested in the businesses needed to collect and process millions of tons of recovered materials. Existing businesses expanded, new businesses were formed, and out of state business relocated to California in response to the market demand for their services. Local officials called the recycling trend the "new gold rush" describing the new processing firms "...coming to the state to mine California's newest natural resource-garbage" (Waste Not Limited, letter No 118, www.jobsletter.org.nz/jb111800, October 27, 2005).

As the infrastructure grows to support recycling as an alternative technology to land filling, the labor intensive recycling and re-use industries that rely on commercial and residential consumers to supply an army of workers to collect and organize multiple streams of waste so that they can be fed back into the economy as a resource will expand exponentially.

A London report, entitled **Creating Wealth from Waste**, concluded that an intensive recycling program in England would provide 15,000 jobs in collection and sorting and 25,000-40,000 jobs in manufacturing and reprocessing. One report pointed out that within the existing recycling industry there were more women employed and that women played a leading role in composting and the management of recycling programs in London.

A study in New Zealand predicted that at least 40,000 new jobs would result from Zero Waste policies and strategies. A survey of recycling businesses in the city of Auckland showed that on average, each business in the reuse and recycling industry directly employs 18 people and that the potential of the sector to generate manual labor work force opportunities is spectacular.

Studies in Germany estimated that the national waste and recycling industry had more than 1000 firms employing an average of 150 people each. This was larger than employment in either steel or telecommunications' in Germany. Out of 150,000 jobs, 17,000 were created through packing recycling alone. In 1996, Germany had 360 sorting stations, which rely on low skilled workers to sort mixed packaging waste, employing 17,000 workers mainly on manual sorting form conveyor belts. According to California based Materials for the Future Foundation, businesses that use recycled materials have incentives to locate in urban areas near both the material supply and the labor supply – helping to address problems of urban unemployment. They point out that new jobs in the recovered materials industry will probably come through the development of small businesses because the recycling and reuse industry tends to be diverse and labor intensive.

Studies show that the value added to the economy from recycling can be in the hundreds of millions of dollars just from manufacturers using recycled feedstock. A local economy based upon materials reuse can also create many types of other jobs. At the front end, research and development efforts provide employment to engineers, chemists and other material specialists. At the back end, construction workers, articles and engineers are needed to design and construct the facilities to handle the new supply of discarded materials.

Source: Waste Not Limited Jobs, Letter No 118, www.jobsletter.org.nz/jb111800, October 27, 2005

Appendix

Methods: Data Collection and Analysis

The study on which this report is based was designed by Professor Raquel Pinderhughes to determine the capacity of green businesses and green collar jobs to provide high quality work force opportunities to men and women with barriers to employment. This population includes youth and adults who do not have a high school degree, have been out of the labor market for a long time, were formerly incarcerated, and/or have limited labor market skills.

This study addresses seven major questions:

1. To what extent are green collar jobs “good jobs”?
2. To what extent are green collar jobs suitable for workers with barriers to employment?
3. To what extent are green business owners able and willing to hire workers with barriers to employment for green collar jobs in their firms?
4. Are men and women with barriers to employment interested in green collar jobs?
5. Are the sectors and businesses that provide workers with green collar jobs growing?
6. What strategies and programs would be needed for Berkeley to grow its green business sector and increase green collar jobs?
7. What strategies and programs would be needed for Berkeley to ensure that workers with barriers to employment gain access to green collar jobs?

Data Collection

Data for the study was compiled using both quantitative (survey) and qualitative (interview and archival) methods. Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS). Qualitative data were analyzed using content analysis.

We collected and developed primary data on green businesses and green-collar jobs through in-depth interviews and surveys with employers. Employer interviews were typically two to three hours in length and included administering a survey composed of 31 open and closed ended questions designed to provide detailed information about green businesses, green collar jobs in these businesses, factors that contribute to the success of green businesses, and the willingness of employers to hire workers with barriers to employment.

Questions related to the businesses:

- the work of the firm;
- the clients served;
- conditions under which local green businesses are most likely to succeed and thrive;
- factors that contribute to growth of the sectors;
- infrastructure and location issues affecting green business development and growth - i.e. information related to ownership/leasing of buildings and property, square footage for industrial, office, and retail space, expansion plans, etc.

Questions related to green collar jobs:

- the range of white collar and green collar employment opportunities in the firm;
- detailed characteristics of all green-collar jobs in the firm;
- the range, number, and type of green collar jobs;
- wages, benefits, and working conditions;
- specific training, qualifications, skill sets, certification, equipment, etc. that potential employees must possess in order to apply for particular green jobs;
- how jobs are posted;
- the networks workers use to find out about employment opportunities in the sector;
- how workers are hired;
- the potential for occupational mobility.

Questions related to the factors that contributed to the success of green businesses:

- Policies, plans, subsidies, incentives and/or programs that stimulate or limit growth of the firm and sector;
- Benefits and/or incentives businesses receive through participation in a green business program.

Questions related to employer attitudes:

- employers' attitudes about workforce training programs and workers with barriers to employment;
- employers' interest in employing residents with barriers to employment in green-collar jobs;
- under what conditions employers would hire workers with barriers to employment for green collar jobs.

The sample of Berkeley green businesses that provide workers with green collar jobs was developed using a registry of green businesses maintained by the city of Berkeley's Office of Energy and Sustainability through its Green Business Program. In 2006, there were 218 green businesses registered with the City of Berkeley's Green Business Program (see Table Four). We used this registry to establish our universe of green businesses in the city of Berkeley. From this universe of 218 businesses, we identified 31 businesses that were providing workers with green collar (manual labor) jobs (see Table Five). We contacted each of these 31 businesses by phone and were able to conduct in-depth interviews and surveys with the owners or managers of 21 of these businesses. Thus, our sample includes 68% of the total number of green businesses in Berkeley that provided workers with green collar jobs in 2006. It is important to note that this figure represents a sample that includes almost 70% of the businesses providing workers with green collar jobs in Berkeley

and that every sector of the city's green economy is growing which means that there will be an expansion in green collar jobs across multiple sectors over the next decade(s). Together, these 31 Berkeley based businesses provide workers with high quality, family supporting, community-serving, environmentally improving, green collar jobs.

In addition to in-depth interviews and surveys with employers, we conducted informational interviews with staff working in city government and workforce development programs in Berkeley and Oakland in order to understand: local environmental policies, programs, and plans; economic development policies and strategies; green economic development strategies; labor policies; and the structure of workforce development programs.

We analyzed Census data in order to reveal the depth of poverty, unemployment and racial inequality in Berkeley, Oakland, San Francisco and the state of California and, to establish the need to address these problems by deliberately cultivating green collar jobs as a new source of living wage, community serving jobs for low income residents in the city and the region.

Finally, we interviewed and surveyed 36 men and women in Berkeley, Oakland, and San Francisco, who have barriers to employment and were unemployed or underemployed at the time they participated in the study, in order to gauge their level of preparation for, and interest in, green collar jobs. The survey was composed of 21 questions designed to identify the level of interest these people have in green collar jobs.

Summary Analysis of Data on Level of Interest in Green Collar Jobs

In spring 2007 36 men and women in Berkeley, Oakland and San Francisco who have barriers to employment and were unemployed or underemployed were surveyed to identify the level of interest these people have in green collar jobs. The survey was comprised of 21 questions that, together, generated data on: (1) demographic characteristics of the population surveyed, (2) their current employment situation, (3) their labor market experience and skills, (4) their level of interest in green collar work force opportunities and (5) the reasons they might be interested in gaining being employed in green collar jobs.

Of the respondents, 44% were African-American, 28% were White, 17% were Latino, 8% percent were Asian, and 3% provided no racial or ethnic identification. Seventy-five percent were male; 25% were female; all had barriers to employment. When asked why they were not currently working, they cited previous work injuries, a disability, drug or alcohol addiction, lack of a high school education and lack of skills as reasons why it was hard for them to find regular work. In terms of seeking work specifically, the most often stated reasons for not being able to follow through on possible work opportunities were lack of access to a telephone and insufficient funds for public transportation.

A preliminary analysis of the data reveals that there is an extremely high level of interest in green collar jobs. Eighty-nine percent of those interviewed expressed a desire to learn more about green collar jobs. Sixty-one percent expressed a desire to be contacted in the future so that they could receive training to work in a green collar job. Green collar jobs were appealing to these men and women for various reasons. Some people expressed an interest in particular green collar jobs because they would allow them to work outdoors (i.e. tree cutting, solar installation, landscaping, bike delivery). Others were interested because the jobs involve manual labor and they enjoy working with their hands. Some liked the fact that these jobs are good for local communities as well as the environment.

One of the most significant findings is that a high percentage of men and women with barriers to employment already have labor market experience working in green collar work particularly related to construction, landscaping, and bike repair. Thus, they have skills and experience that are directly related to green collar work force opportunities.

Overall, an analysis of the data shows that Bay Area residents facing barriers to employment are extremely interested in learning more about, and possibly pursuing, green collar jobs. Not only are they interested in these jobs, but they also have transferable skills, as well as a high level of motivation and enthusiasm in work that involves manual labor and allows them to directly improve environmental quality.

Research Team

Raquel Pinderhughes, Ph.D. is Professor of Urban Studies at San Francisco State University. Over the past three decades her teaching, research and community activism have focused on improving quality of life for people living and working in cities. Her areas of expertise include sustainable urban development, urban infrastructures, environmental justice, urban agriculture, local food systems, appropriate technologies, and green collar jobs. In addition to her work in the United States, she has conducted research and guest lectured in Havana, Cuba, Curitiba, Brazil, and Rajasthan, India. Her most recent book, *Alternative Urban Futures: Planning for Sustainable Development in Cities throughout the World*, focuses on planning and policy approaches and appropriate technologies that can be used to minimize a city's impact on the environment while providing urban residents with the infrastructure and services they need to sustain a high quality of urban life. Professor Pinderhughes is Director of the SFSU/Delancey Street College Program, an innovative program that provides ex felons and drug addicts with an opportunity to pursue a college education on site at the Delancey Street Foundation facility. She is President of the Board of Directors of two Berkeley based organizations that provide workers with green collar jobs - the *Ecology Center*, which runs the city of Berkeley's recycling and farmers market programs and *Rising Sun Energy Services* which runs California Youth Energy Services and Energy Partners; both programs are designed to increase residential energy and water efficiency and conservation in the Bay Area. She is also a member of the board of directors of *Clean City* in San Francisco.

Michelle Jacques-Menegaz earned her BA in Urban Studies from San Francisco State University in May 2007. While pursuing her degree, Michelle gained experience working on a variety of urban livability and social justice issues and was part of a team that assisted the City of Richmond with its general plan update. An avid supporter of public education, Michelle is a member of the Parent Advisory Council to the Board of Education for the San Francisco Unified School District, where she represents parents' concerns and advocates for equitable quality public education.

David Schecter works in the Business Development unit of the City of Oakland's Community and Economic Development Agency, developing strategies to attract, retain and expand green businesses. He is a recent graduate of the Masters program in City and Regional Planning at UC Berkeley where he studied environmental planning with Professor Raquel Pinderhughes and become passionately interested in the development of green collar jobs.

Ed Dehaan C.P.A., graduated with a degree in Economics from U.C. Santa Cruz before taking work first as a public accountant and later as a consultant to philanthropic organizations. He is currently pursuing a Masters in Economics with a focus on healthcare at San Francisco State University. He intends to continue his career in philanthropy and developing world healthcare upon completion of his Masters degree.

Aly Pennucci is a graduate of the Urban Studies program at San Francisco State University and is currently pursuing a Masters degree in Urban and Regional Planning at the University of Minnesota. She is a research assistant on the Design for Health team, a project focusing on bridging the gap between the emerging research base on urban design and healthy living and the questions and priorities of local governments. After graduation she plans to pursue a career in environmental and land use planning.

Annie Pennucci is a Senior Research Associate at the Washington State Institute for Public Policy, which conducts research for the state legislature. For the past six years, she has specialized in education policy, producing reports on bilingual programs, deaf education, higher education, and K-12 student assessment. She received her Masters degree in Public Administration from New Mexico State University.

Ipeleng Kgositsile is an Urban Studies major at San Francisco State University. She is interested in making cities more livable places for low income residents, particularly as it relates to transportation and food security issues. Upon graduation, she plans to pursue a career in urban planning, policy and law.

Lana Chan earned her Bachelor of Arts degree in Industrial Design from San Francisco State University. As a graphic designer, she is interested in green practices and sustainability in the design community. She is a member of the American Institute of Graphic Arts (AIGA San Francisco chapter) and a member of the Society for Marketing Professional Services (SMPS Bay Area chapter).

Acknowledgements

I would like to acknowledge, and thank, the following people for their contributions to this report.

My extraordinary research team for their dedication to this project and their very high quality work: Michelle Jacques-Menegaz, who was principally responsible for data entry and analysis. David Schechter, who assisted with background research and report writing. Aly Pennucci and Annie Pennucci, who helped to design the SPSS component of the survey. Ed Dehaan, who assisted with data collection in Berkeley and the analysis of city web site information for small businesses. Ipeleng Kgositsile, who assisted with analysis of the data collected on the level of interest job seekers with barriers to employment have in green collar jobs. Lana Chan, who was principally responsible for layout and production of the executive summary and final report. I would also like to thank their family members for the support they provided, particularly Dean, Harriet, Ben and Jeremy.

Kate Squire who commissioned me to write a report on how the City of Berkeley's support for green economic development and green businesses could directly benefit low-income residents.

Jennifer Cogley and Billi Romani who helped me to learn more about green businesses in Berkeley and encouraged me to apply for a student intern through the Chancellor's Advisory Committee on Sustainability (CACS) program at UC Berkeley.

Colleagues at the Ella Baker Center for Human Rights and Oakland Apollo Alliance for path breaking work on a Green Jobs Corp in Oakland, particularly Van Jones, Ian Kim, John Brauer and Steve Lautze.

John Brauer and Delfina Geikin for helping me understand the complexities of work force development programs in the Bay Area.

Professor Jasper Rubin for helping me to understand the structural needs of industrial businesses in San Francisco.

Members of the West Berkeley Artisans and Industrial Companies (WBAIC) Steering Committee for helping me to understand more about artisan and industrial businesses in Berkeley and for reviewing the section of the report related to these businesses.

Gia Grant for her friendship and her leadership in linking efforts to improve urban environmental quality with efforts to provide low income residents with meaningful, community serving green collar work force opportunities through her work with SF CleanCity.

Dean Veronica Hunnicutt for her friendship and her leadership in supporting high quality, relevant, affordable, and accessible educational opportunities to men and women in the SF City College system.

Judy Chess and Maria Pilar Fong-Pedro for helping me to work with a UC Berkeley CACS intern.

Dean Joel Kassiola for providing funding to support the final stages of data collection and production of the Berkeley report.

Maria de la Cruz and Courtney Rump for helping me to manage the Urban Studies Program in my role as Program Director during the time I was working on this report.

Colleagues at the Ecology Center and Rising Sun Energy Services/CYES for the opportunity to serve as President of the Board of Directors of these two critical and extraordinary Berkeley based non-profit organizations, an opportunity to be directly involved in linking efforts to support urban environmental quality with efforts to provide local residents with high quality green collar jobs. The Ecology Center also provided vital administrative support.

Students in my spring 2007 SFSU *Environmental Justice* course for not shying away from the challenges that come with examining and confronting institutional racism and discrimination and for piloting the survey I designed to conduct interviews with job seekers with barriers to employment.

Students in the SFSU/Delancey Street College Program for welcoming me into their community and providing me with an opportunity to witness the transformative power of education.

On the home front: mil gracias to my family, for everything.

A special thank you to Melinda and Jenny for your love and support when I was literally working on the final stages of this report in bed with pneumonia. I treasure you and your families with all my heart.