California’s
Green Economy

Innovating the Green Economy

January 21, 2010

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Understanding the Green Economy

What is California LMI Doing/Planning?

- Collaborate to expand knowledge
  - with federal/state/local research partners to review existing research and identify information gaps
  - with state and local partners to define workforce needs and support workforce development
  - with control entities and utilities responsible for bringing about climate change

- Respond to state and national information needs
  - Share knowledge across agencies and geographic areas
  - Host a shared “green web page” that addresses existing research, survey methods and tools; national, state and local activities; legislation; See our page at http://www.labormarketinfo.edd.ca.gov/?pageid=1032

- Survey California businesses to establish baselines of green employment and green business practices

- Conduct and publish career research to support workforce development
Our Working Definition of Green

Green jobs produce ("supply") goods or services that result in:

- **G**enerating and storing renewable energy
- **R**ecycling existing materials
- **E**nergy efficient product manufacturing, distribution, construction, installation, and maintenance
- **E**ducation, compliance and awareness
- **N**atural and sustainable product manufacturing

For the complete definition see: [http://www.labormarketinfo.edd.ca.gov/contentpub/GreenDigest/Californias-Draft-Definition-Green-Industries.pdf](http://www.labormarketinfo.edd.ca.gov/contentpub/GreenDigest/Californias-Draft-Definition-Green-Industries.pdf)

Preliminary data as of October 8, 2009
Sustainable Practices Increase Demand

Important caveat…

- LMID’s definition focuses on the “supply” side
- Sustainable business practices (the “demand” side) are equally important to California’s green economy
- Demand leads to increased pressure for additional supply of products and services
- Survey covers “supply” and “demand” separately
Green Economy Survey Details

- First mailing in May 2009
- Over 50,000 businesses across the California economy; all industries, all sizes, all areas
- 5.2M employment in surveyed firms
- Goal is to create a baseline measure of
  - Number of workers in green or clean product manufacturing and/or services
  - Number of businesses that have adopted green practices
  - Emerging occupations for further study related to skills and workforce needs
- Partnering with Community Colleges, Air Resources Board, California Energy Commission, California Workforce Investment Board, Economic Strategy Panel, Employment Training Panel, and others
California’s Preliminary Survey Responses

- Over 15,000 employers have responded
- 9.2 percent of employers report employees working on green products and services
- About 3.7 percent of all workers are working on green products and services
- About two-thirds of green workers spend more than half time on green aspects of job
- 62 percent of employers report using at least one green business practice
- Almost 80% of current green workers were trained on the job
- About 8% of employers in our initial sample have gone out of business during this difficult time in our economy

Preliminary data as of October 8, 2009
Comparison to Other States’ Recent Green Workforce Surveys?

Green as a percent of total employment

- California: 3.7 % (Prelim)
- Washington: 1.6 %
- Oregon: 3.0 %
- Michigan: 3.0 %

- Caveat...Definitions vary somewhat between states...
- Renewable energy, recycling, and energy efficiency are in each state's definition

Preliminary data as of October 8, 2009
Green Workers Reported

Total Green Employment Reported by Category

- Natural and sustainable product manufacturing: 32%
- Recycling existing materials: 27%
- Energy efficient product manufacturing, distribution, construction, installation, and maintenance: 17%
- Education, compliance, and awareness: 12%
- Generating and storing renewable energy: 6%
- Other: 6%

Preliminary data as of October 8, 2009
Generating and storing renewable energy

- **Top industries**
  - Professional and Business Services
  - Utilities
  - Wholesale Electronic Markets and Agents

- **Top occupations**
  - Architects, Except Landscape
  - Alternative Energy Engineers
  - Electrical Engineers
  - Heating and Air Conditioning Technicians and Installers
  - Wastewater Technicians and Operators
  - Plumbers, Pipefitters, and Steamfitters
  - Solar Photovoltaic Panel Installers and Technicians
  - Air Quality Engineers; Air Pollution Specialists; Air Resources Engineers
  - Building Performance or Retro-Fitting Specialists
  - Electricians

Preliminary data as of October 8, 2009
Recycling existing materials

- **Top industries**
  - Merchant Wholesalers, Durable Goods
  - Waste Management and Remediation
  - Educational Services
  - Fabricated Metal Product Manufacturing
  - Professional and Technical Services

- **Top occupations**
  - Recycling Center Operators
  - Assemblers
  - Hazardous Materials Removal Workers
  - Heating and Air Conditioning Technicians and Installers
  - Wastewater Technicians and Operators
  - Construction Managers
  - Sustainable Farmers and Farm workers
  - Industrial Production Managers
  - Plumbers, Pipefitters, and Steamfitters
  - Air Quality Engineers; Air Pollution Specialist; Air Resource Engineers

Preliminary data as of October 8, 2009
Energy efficient product manufacturing

- **Top industries**
  - Specialty Trade Contractors
  - Computer and Electronic Product Manufacturing
  - Construction of Buildings
  - Professional and Technical Services
  - Management of Companies and Enterprises

- **Top occupations**
  - Assemblers
  - Heating and Air Conditioning Technicians and Installers
  - Electricians
  - Architects, Except Landscape
  - Carpenters
  - Construction Managers
  - Energy Auditors, Home and Commercial
  - Hazardous Materials Removal Workers
  - Building Performance or Retro-Fitting Specialists
  - Plumbers, Pipefitters, and Steamfitters

*Preliminary data as of October 8, 2009*
Education, compliance and awareness

- **Top industries**
  - Professional and Technical Services
  - Educational Services
  - Food Services and Drinking Places
  - Membership Associations and Organizations
  - Utilities

- **Top occupations**
  - Assemblers
  - Plumbers, Pipefitters, and Steamfitters
  - Heating and Air Conditioning Technicians and Installers
  - Architects, Except Landscape
  - Electricians
  - Construction Managers
  - Carpenters
  - Alternative Energy Engineers
  - Wastewater Technicians and Operators
  - Environmental Engineers

Preliminary data as of October 8, 2009
Natural and sustainable product mfg

- **Top industries**
  - Crop Production
  - Food Manufacturing
  - Paper Manufacturing
  - Fabricated Metal Product Manufacturing
  - Nonmetallic Mineral Product Manufacturing

- **Top occupations**
  - Sustainable Farmers and Farmworkers
  - Assemblers
  - Recycling Center Operators
  - Carpenters
  - Biomass Collectors
  - Industrial Production Managers
  - Biological Technicians
  - Construction Managers
  - Soil and Plant Scientists
  - Hazardous Materials Removal Workers

Preliminary data as of October 8, 2009
Preparation of Current Green Workers – OJT!

Training Methods Used by Employers to Prepare Current Workers for Green Jobs

- On-the-job training: 77.2%
- Vendor training: 18.9%
- In-house classroom training: 16.6%
- College Degree (AA, AS or above): 10.7%
- Apprenticeship programs: 8.0%
- Vocational training: 6.1%
- Hire only workers who are already trained: 3.3%
- Other: 3.1%
- Community College courses: 8.6%

Preliminary data as of October 8, 2009
Sustainable Practices – Current

If your business makes use of green practices, services or products, what does your firm currently USE on site

- Recycling: 59.9%
- Recycled Products: 37.9%
- Energy Efficiency: 27.4%
- Water Conservation: 24.9%
- Alternative Fuel: 7.6%
- Pollution Reduction: 7.2%
- Some Form of Renewable Energy: 3.9%
- Sustainable Farming: 3.2%
- Other: 1.8%
- None (This is a selection, not a null value): 8.3%

Preliminary data as of October 8, 2009
During the Next 12 Months, Do You Expect Your Firm's Green Practices to: Increase, Decrease, or Remain the Same?

- **Increase**: 73.5%
- **Decrease**: 1.3%
- **Remain the Same**: 25.2%

Preliminary data as of October 8, 2009
What new skills or knowledge will future employees need in order to perform green activities at your firm?

- Waste Minimization: 63.6%
- Principles of Energy Conservation: 40.3%
- Information Technology: 22.6%
- Pollution Reduction and Control: 20.4%
- Codes/Standards/Legislation: 18.5%
- Vehicle Technology and Maintenance: 12.3%
- Alternative Energy: 6.1%
- Other: 8.0%

Preliminary data as of October 8, 2009
**Sustainable Practices – Barriers**

What barriers, if any, stand in the way of implementing green practices at your firm?

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Percentage of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of Implementation</td>
<td>52.8%</td>
</tr>
<tr>
<td>Economic Conditions</td>
<td>49.4%</td>
</tr>
<tr>
<td>Lack of Information</td>
<td>31.8%</td>
</tr>
<tr>
<td>Government Policies</td>
<td>15.7%</td>
</tr>
<tr>
<td>Shortage of Workers</td>
<td>12.3%</td>
</tr>
<tr>
<td>Shortage of Available Training</td>
<td>7.3%</td>
</tr>
<tr>
<td>Training Classes Too Full</td>
<td>1.2%</td>
</tr>
<tr>
<td>Other</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

Preliminary data as of October 8, 2009
What do you view as the largest benefit to your business in taking steps to reduce greenhouse gas emissions?

- Environmentally beneficial: 39.8%
- Cost savings: 30.3%
- Competitive advantage/community recognition: 11.1%
- Advantageous position should some regulation...: 2.3%
- Other: 15.4%

Preliminary data as of October 8, 2009
Sustainable Practices – Resources

What resources would help reduce greenhouse gas emissions at your firm?

- Information about specific actions to take (50.2%)
- Success stories showing how similar businesses have reduced emissions (35.7%)
- Online Calculator for businesses to calculate their emissions (34.5%)
- Technical Support (26.6%)
- Statewide Award program to recognize businesses for reducing emissions (22.4%)
- Protocol for reporting greenhouse gas emissions (21.8%)
- Other resources (10.3%)
- Other resources (10.6%)

Preliminary data as of October 8, 2009
Preliminary Occupational Findings

- Employers categorized **127,800 green employees within the 34 green jobs** described on the survey. An additional 15,600 workers were reported under about 300 “Other Green Job Titles”

- **Write ins–include:**
  - Janitors and Cleaners,
  - Sustainability Assistants,
  - LEED Accredited Professionals,
  - Mobile Heavy Equipment Mechanics (maintaining electric forklifts),
  - Recyclers (reprocessing on site materials)

- **Greater detail will be collected in a subsequent occupational skills survey.**

Preliminary data as of October 8, 2009
Survey respondents’ top green jobs…
Farmers, Assemblers, Recyclers, Carpenters …

Top 10 Green Jobs Reported - Preliminary (Weighted Sample)

Employees (Weighted)
16000
14000
12000
10000
8000
6000
4000
2000
0

Top Occupations
Preliminary data as of October 8, 2009

- Sustainable Farmers and Farmworkers
- Assemblers
- Recycling Center Operators
- Carpenters
- Hazardous Materials Removal Workers
- Architects, Except Landscape
- Plumbers, Pipefitters, and Steamfitters
- Heating and Air Conditioning Technicians and Installers
- Construction Managers
- Electricians
Next Steps

- Analyze complete data
- Review findings with key players
- Prepare summary report, with regional distinctions as warranted by the data
- Prepare industry level reports
- Detailed occupational follow-up surveys and analysis
- Report on occupational skills and workforce development needs
Questions? Thank you!

Feel free to get in touch

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Top Surveyed Green Jobs
OES median wage* by training level

- **High skill—BA or higher**
  - Architect $81,105
  - Construction Manager $101,354

- **Skilled—2 years of education or training**
  - Carpenters $51,839
  - Electricians $53,314
  - *Farmers, Sustainable (emerging)* $94,164
  - Plumbers $50,643
  - HVAC Technicians $46,625

- **Up to one year training**
  - Assemblers $23,959
  - *Farm Workers, sustainable (emerging)* $23,476
  - HAZMAT workers $40,520
  - *Recycling Center Operators (emerging)* $39,678

*Source: 2009 Occupational Employment Statistics. Not a green survey wage*
National Workforce Information Council (WIC) Green Jobs Study Group

- WIC commissioned the Green Jobs Study Group to define and recommend methods for measuring green jobs
- Eight states including California, BLS, O*NET (briefly)
- (Not as easy as it sounds…)

See Study Group reports.

- Workforce Information Council web site “green jobs page”
  http://www.workforceinfocouncil.org/GreenJobs.asp
- Final report of the Workforce Information Council Green Jobs Study Group
Department of Labor Learning

- **Occupational Information Network (O*NET)**
  - “Green Economy Sector”
  - Green enhanced skills
  - Green increased demand
  - New and emerging green occupations
  - [http://online.onetcenter.org/find/green](http://online.onetcenter.org/find/green)

- **Bureau of Labor Statistics (BLS)** plans to study the green economy include
  - Industry survey adapted from Quarterly Census of Employment and Wages (QCEW) Annual Refile Survey
  - Occupational survey adapted from Occupational Employment Statistics (OES) survey
  - Develop career information materials
  - Beginning in 2010-2011
New Resources and Opportunities

Employment and Training Administration Green Economy LMI Improvement Grant Competition

- Notified in mid November 2009 that our state proposal would be funded. Planned activities include:
  - Analyzing and publishing the results of our green employer survey
  - Conducting green occupational skills research;
  - Improving skills transference by evaluating occupational skill assessment tools, defining the relationships between assessment results and occupational characteristics, and automating the connection of these results to available labor market information;
  - Creating an online statewide green training inventory; and
  - Improving electronic information delivery through enhancements to the Labor Market Information Division’s information technology infrastructure.