



# Understanding the Green Economy in California

**A Community College Perspective**

**June 29, 2009**



**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
*through the*  
CALIFORNIA  
COMMUNITY  
COLLEGES



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# Today's Presentation

**About the Centers of Excellence**

**Green Study Methodology**

**Overview of Framework**

**Connection to Colleges**

**Next Steps**

**Q & A**

**Wrap Up**



# Centers of Excellence

The Centers of Excellence, in partnership with business and industry, deliver regional workforce research customized for community college decision making and resource development.



# 10 Regional Centers of Excellence

- San Francisco Bay
- Greater Silicon Valley
- Los Angeles County (2)
- Orange County
- Inland Empire
- San Diego & Imperial
- Central Valley
- South Central
- Far North & Greater Sacramento





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# Background

## Public Policy Driving Green Job Growth

- California's Global Warming Solutions Act of 2006
- American Recovery and Reinvestment Act of 2009 (ARRA)

## The Challenge

- Ambiguous definitions of the green economy with varying scopes and purpose.

# Value to Colleges and Stakeholders

- Defines green industries and green jobs with a community college perspective
- Identifies the relationship between emerging green industry sectors, existing traditional industry sectors, and jobs within each of those sectors.
- Provides a common language and structure in which colleges can organize themselves.
- Generates broad awareness of community college programs.
- Provides an internal framework for future COE research.

# Research Objectives

- **Phase I:** Provide a research-based framework to assist community college administrators and faculty in studying what “green” means to industries, occupations, and educational programs.
- **Phase II:** Collect primary data to qualify existing and near-future labor market opportunities in green sectors and industries. Identify possible gaps between demand and supply of prepared workforce.

# Phase I Methodology

- Secondary literature review and analysis

Some of the reports:

- Green Jobs Guidebook (Environmental Defense Fund)
- Clean Technology and Green Economy (Collaborative Economics)
- Jobs in LA's Green Technology Sector (Milken Institute)

- Executive interviews with industry experts

- Coding the information using national classification systems

- North American Industry Classification System (NAICS)
- Standard Occupational Classification (SOC)

- Review of the draft by industry experts

## Some of the Experts:

Bill Buratto, VCEDA

Greg Freeman, LAEDC

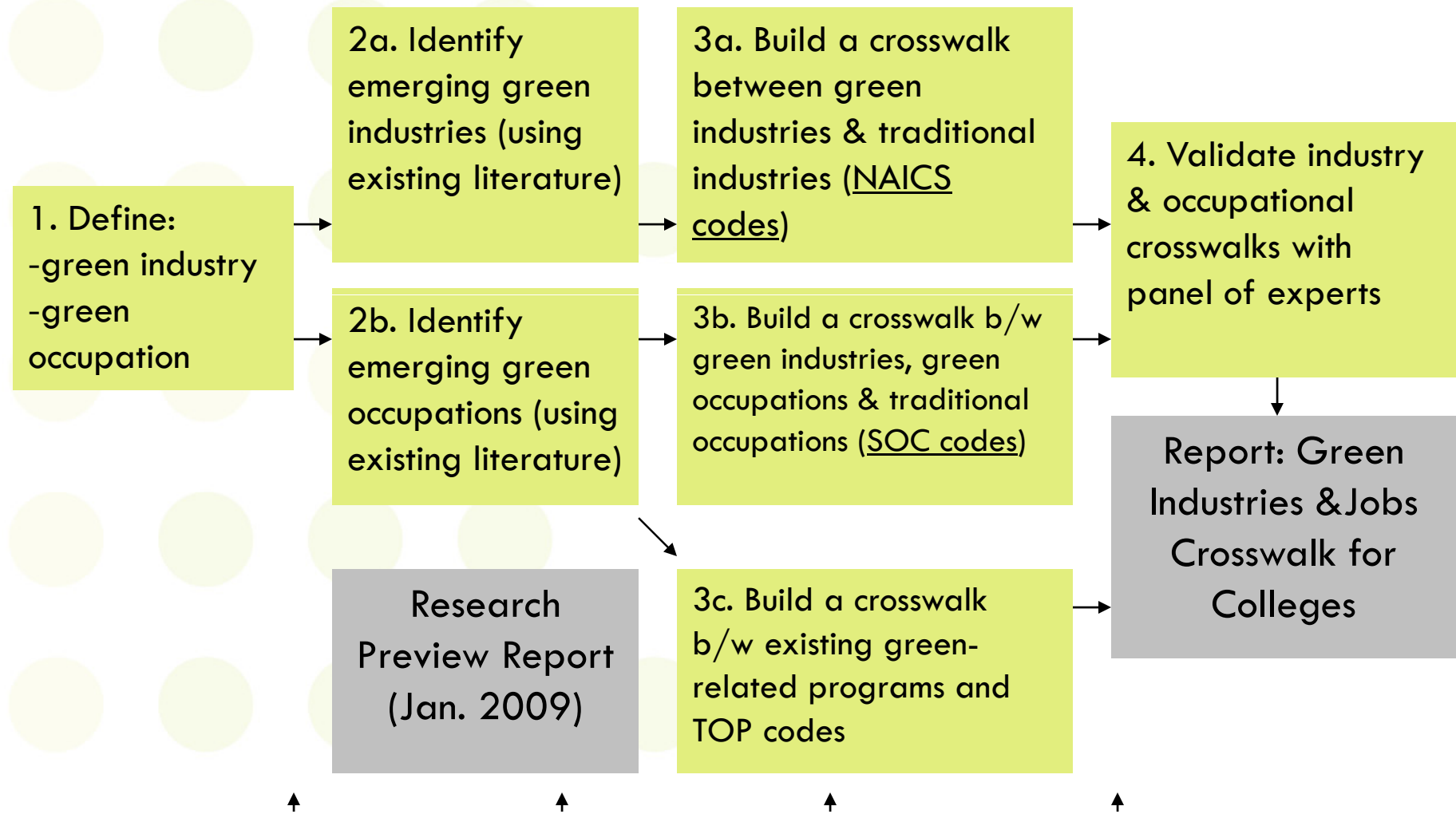
LMID Industry and  
Occupational Specialists

Greg Newhouse, ATTEi

Tim O'Connor, EDF

Linda Parker, Kern Wind  
Energy Association

# Phase I Process



Partnership with CA Labor Market Information Department (LMID)



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# Operational Definitions

## Green Firm

A **Green Firm** is an organization that provides products and/or services that are aimed at utilizing resources more efficiently, providing renewable sources of energy, lowering greenhouse gas emissions, or otherwise minimizing environmental impact.

## Green Job

A **Green Job** is an occupation that 1) directly works with policies, information, materials, and/or technologies that contribute to minimizing environmental impact, and 2) requires specialized knowledge, skills, training, or experience in these areas.

# Green Industry Clusters



# Green Industry Framework

## Example: Renewable Energy Area/Sector

California's Green Economy - Industry Overview			
Green Economy area/sector	Industry Sector (2-digit NAICS)	NAICS	Description [notes]
<b>Renewable Energy: Energy Generation, System Installation &amp; Storage</b>	22 – Utilities	221111	Hydroelectric Power Generation
		221119	Other Electric Power Generation
		221121	Electric Bulk Power Transmission and Control
		221122	Electric Power Distribution
		221330	Steam and Air-Conditioning Supply
	23 – Construction	237130	Power and Communication Line and Related Structures Construction
		238160	Roofing Contractors
		238210	Electrical Contractors and Other Wiring Installation Contractors
		238220	Plumbing, Heating, and Air-Conditioning Contractors
	31-33 – Manufacturing	325000	Chemical Manufacturing
		333295	Semiconductor Machinery Manufacturing [Machines to manufacture solar panels.]
		333611	Turbine and Turbine Generator Set Units
		334413	Semiconductor and Related Device Manufacturing [Solar panel and fuel cell manufacturing.]
		334512	Automatic Environmental Control Manufacturing
		335911	Storage Battery Manufacturing

# Green Jobs Framework

## Selection Criteria

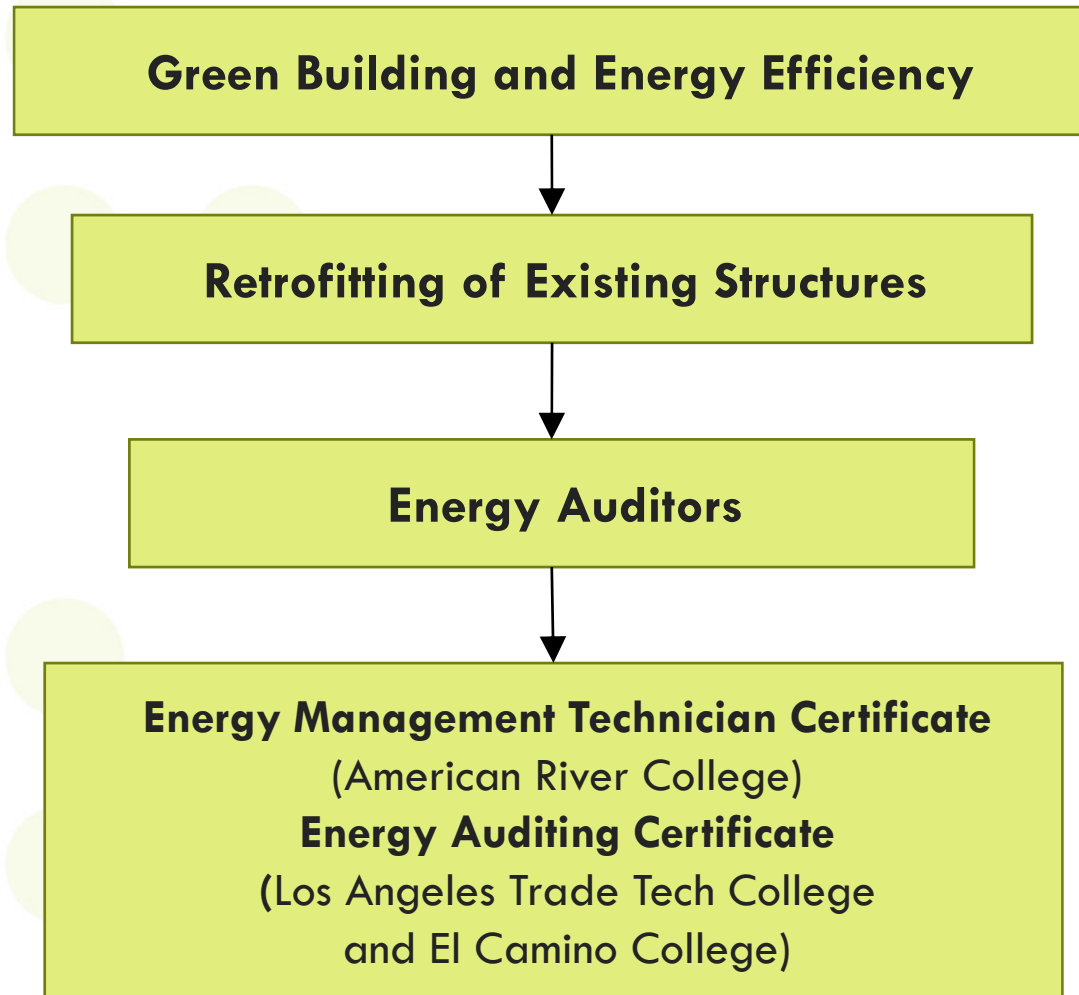
- Green clusters, sectors, and occupations align with the definitions identified in this report.
- Occupations requiring new or additional training in green technology are included.
- Training needs can be reasonably addressed by California Community Colleges and/or offer career pathway options.

# Green Jobs Framework

## Example: Renewable Energy Area/Sector

Green Economy area/sector	Green Industry Clusters	Emerging Green Occupations	Occupations with SOC Code
Renewable Energy: Energy Generation, System Installation & Storage	Solar thermal & photovoltaic (PV) systems	<b>Solar power &amp; PV systems:</b> Solar systems engineers	<b>Engineers (including civil and electrical engineers*):</b> 17-2041 Chemical Engineers 17-2051 Civil Engineers 17-2071 Electrical Engineers 17-2072 Electronics Engineers 17-2081 Environmental engineers 17-2112 Industrial Engineers 17-2131 Materials engineers 17-2141 Mechanical engineers <b>Mapping technicians (17-3031.02)</b> <b>Technicians/Electrical technicians:</b> 17-3023 Electrical & electronics engineering technicians
	Wind energy power	Solar systems engineering technicians Solar manufacturing technicians	
	Hydro-electric power	Solar sales estimators Solar thermoelectric plant managers	
	Geothermal power	Solar systems designers Solar commercial installation engineers	
	Smart grid	Solar installation electricians Solar installation electrician foremen	
	Hydrogen power	Solar thermal system installers Solar PV installers ( <i>Proposed SOC: 49-9022 Solar panel installers and repairers</i> )	

# Energy Efficiency Example



# Transportation Example



**Transportation and Alternative Fuels**

**Repair and Maintenance  
of Alternative Fuel Vehicles**

**Alternative Fuel Auto Technicians**

**Automotive Alternative Fuels**  
(College of the Desert)  
**Advanced Transportation Technology**  
(Long Beach City College)

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# TOP Code Crosswalk

## Occupations with SOC

- Referenced existing 3-step crosswalk (TOP – CIP – SOC)
- Filled in the gaps
- Links the 6 sectors, and 101 occupations, with core college programs
- Validated by California Community College Chancellor's Office (CCCCO)

# Next Steps

- **Phase II:** Qualify labor market opportunities by geography. Identify possible gaps between supply and demand.
  - Advanced Transportation
  - Smart Grid Technology
  - Water Efficiency
  - Geothermal
  - Biomass/Biofuels
- Foster strategic partnerships to support and strengthen research.

# Research and Industry Partners



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# Q & A

# Wrap Up

Coming this summer from the COE

- Energy Efficiency
  - California, Central Valley, Los Angeles, Greater Sacramento, Inland Empire, South Central Coast
- Wind Energy
  - California

Available now

- Solar, Water Efficiency Technology, Green Building and Construction, HVAC, and more!

**[www.coecc.net](http://www.coecc.net)**

# Thank You!

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