

# Human Capital Investment: Growing Clean Tech in the Sacramento Region - Organizational Definitions -

<b>Research and Development</b>	<b>Manufacturing and Engineering</b>	<b>Energy Efficiency</b>	<b>Clean Energy Solutions</b>
Establishments that conduct research and experimental development focusing on clean energy technology or energy efficiency or consult on related design and research	Establishments that produce clean energy technology, energy-efficiency products, or related materials and vertically integrated establishments that, in addition to producing their own products and materials, provide a full spectrum of services including engineering design and installation for complex commercial facilities.	Establishments that deliver large reductions in building energy use through intensive energy efficiency upgrades and on-site generation, including building performance analysis and whole-house energy-efficiency upgrades on residences, both single-family and multifamily.	Establishments that provide technical services in the design, development and utilization of clean energy solutions and third-party products (as their primary business function) and/or install and repair related items.

Definitions of Clean Technology Sectors from Sacramento Area Commerce and Trade Organization (Research and Development, Manufacturing and Engineering, and Clean Energy Solutions)

Definition of Energy Efficiency/Building Science from Sacramento Municipal Utility District



# Human Capital Investment: Growing Clean Tech in the Sacramento Region

Research  
and  
Development

Research and Development  
Manufacturing and Engineering

Manufacturing  
and Engineering

## Regional Assets:

The Green Capital Alliance  
University of California, Davis  
Sacramento State University  
Los Rios Community College District  
Sierra College  
SARTA/CleanStart  
Sacramento Works/SETA  
Golden Sierra Job Training Agency  
LEED Sacramento

## Growing Occupations in Clean Technology Sectors:

Architect - Green Building and Design  
Architectural/Civil Drafter  
Biomass Plant Operations  
Biotechnology Plant Operations  
Civil Engineer/Civil Engineering Technician  
Electrical Engineer  
Electrical/Electronic Engineer/Technician  
Energy Engineer/Energy Infrastructure Engineer  
Engineer - Lighting and HVAC  
Environmental Engineer  
Environmental Engineering Technician  
Landscape Architect (Indoor and Outdoor)  
Industrial Engineer - Green Systems and Design  
Mechanical and Manufacturing Engineers  
Power System Operations  
PV Power Systems Engineer  
PV Solar Cell Designer  
Smartgrid Engineer  
Solar Energy Engineer and Systems Design  
Solar/PV Fabrication & Testing  
Solar Lab Plant Operations  
Water Systems Designer and Engineer

## Workforce Development Strategy:

1. Expand the clean energy industry cluster by strengthening entrepreneurial/business assistance support for clean energy start-ups and existing companies.
2. Focus Engineering efforts on power, civil, mechanical, electrical and environmental to meet needs of emerging solar, green building, utility/power, and manufacturing companies.
3. Develop high wage jobs to support clean energy manufacturing in the region.
4. Educate the public on new energy production systems and the range of job opportunities these new systems will grow, including:
  - ✓ Parents and students in secondary and post secondary education system
  - ✓ Executive/professional employees in declining sectors
  - ✓ Workers in skilled trades, both represented and unrepresented
  - ✓ Unemployed and low-wage workers seeking career ladders.

# Human Capital Investment: Growing Clean Tech in the Sacramento Region

Energy  
Efficiency

## Energy Efficiency/ Clean Energy Solutions

Clean Energy  
Solutions

### Regional Assets:

University of California, Davis  
Sacramento State University  
Los Rios Community College District  
Sierra College  
Apprenticeship Programs  
Sacramento Works/Sacramento Employment and Training  
Golden Sierra Job Training Agency

### Growing Occupations in Clean Technology Sectors :

Alternative Fuel and Hybrid Technician  
Building Maintenance/ Energy Management  
Clean Diesel Mechanic  
Electrician/Electrical Systems Installer  
Energy Auditing Services and Sales  
Energy Efficiency Sales and Consulting  
Energy Efficiency Finance Manager  
Energy Manager and Analyst  
Energy Management/Building Performance Analyst  
Energy Management/Building Performance Technician  
Environmental Compliance Specialist  
Green Building Construction and Design  
Green Carpenter  
Green Plumber and Pipefitter/Solar Thermal Installer  
Home Improvement Retrofit Trainee  
Heating, Ventilation, & Air Conditioning (HVAC)  
Insulation Installer  
Landscape and Water Systems Design  
Power Plant Operations  
Renewable Energy Consultant  
Residential Air Sealing Technician  
Roofer/Solar and PV Installation  
Solar Systems Installer  
Utility Technicians  
Water and Wastewater Management  
Weatherization Technician

### Workforce Development Strategy:

1. Prepare a workforce knowledgeable about alternative energy production systems to implement energy conservation and efficiency measures
2. Support, develop and Integrate efficient energy technologies and clean energy solutions for apprenticeship and technical training programs.
3. Recruit workers for a range of clean energy employment opportunities, including:
  - ✓ Students in secondary and post secondary education system
  - ✓ Workers in skilled trades, both represented and unrepresented
  - ✓ Unemployed and low-wage workers seeking career ladders.