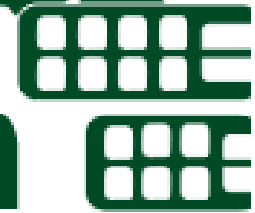


*Growing*



**Green  
Jobs**



June 30, 2009

Presented by Pamela Tate,  
President & CEO, CAEL



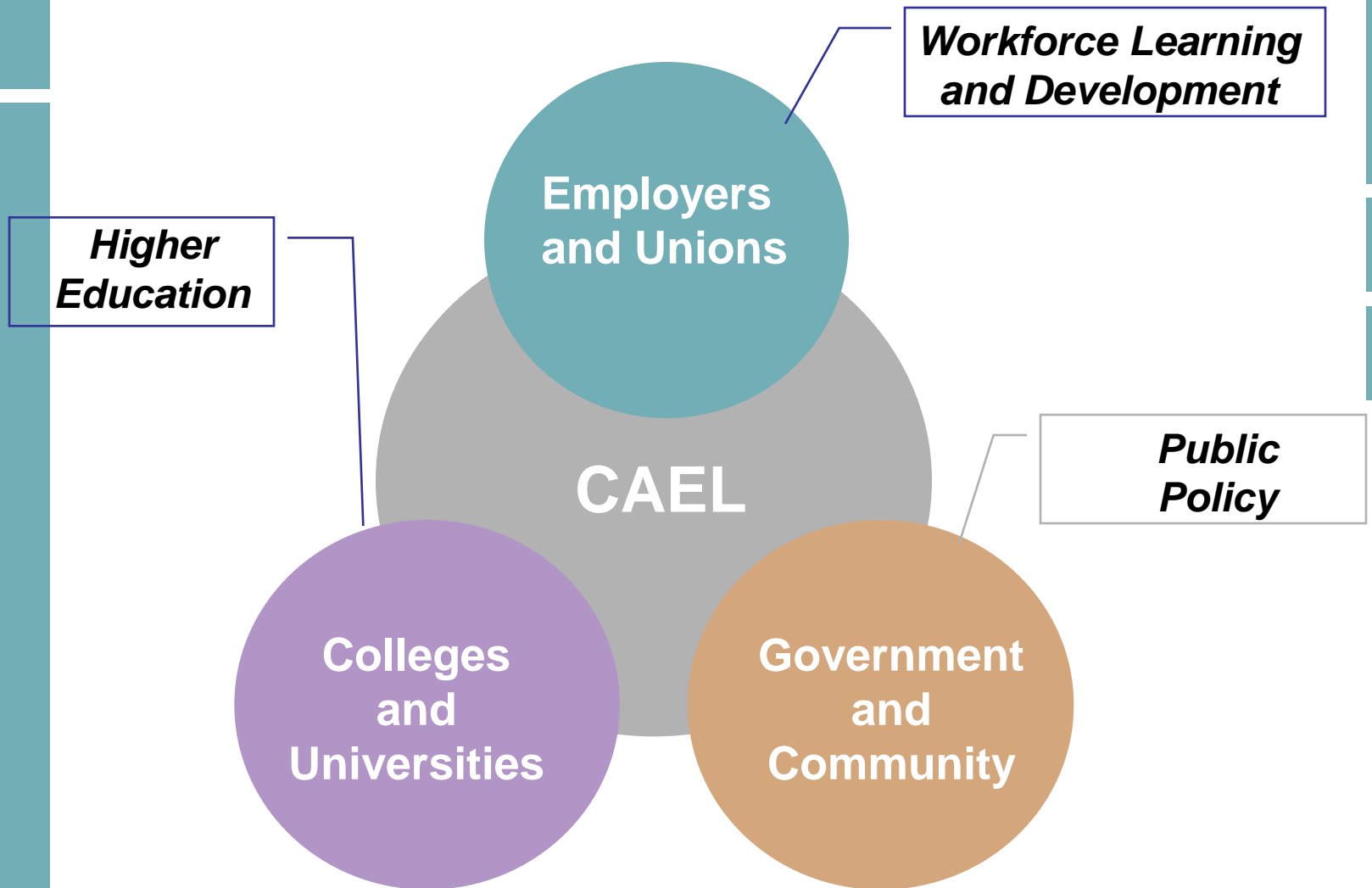
**CAEL**

The Council for Adult & Experiential Learning

# About CAEL

- CAEL is the Council for Adult and Experiential Learning
- A national 501(c)3 non-profit organization with 35 years of lifelong learning and workforce development experience
- Mission to remove barriers so that adult workers can be successful in postsecondary education, training and careers

# CAEL's Unique Integrator Role



# CAEL's Approach to Career Pathways and Talent Needs

- Identify and Prioritize Sectors
- Engage Employers in Target Sectors
- Understand Jobs and Skills Needs
- Inventory Education and Training Offerings
- Assess the Gap
- Leverage Resources and Assets

A stylized illustration of a person standing at a crossroads. The person is a simple silhouette, looking towards the right. A signpost stands in the center, with one arrow pointing left and another pointing right. The background is a bright, hazy landscape with a yellow sky and green ground. The overall style is minimalist and symbolic.

# Why Green, Why Now?

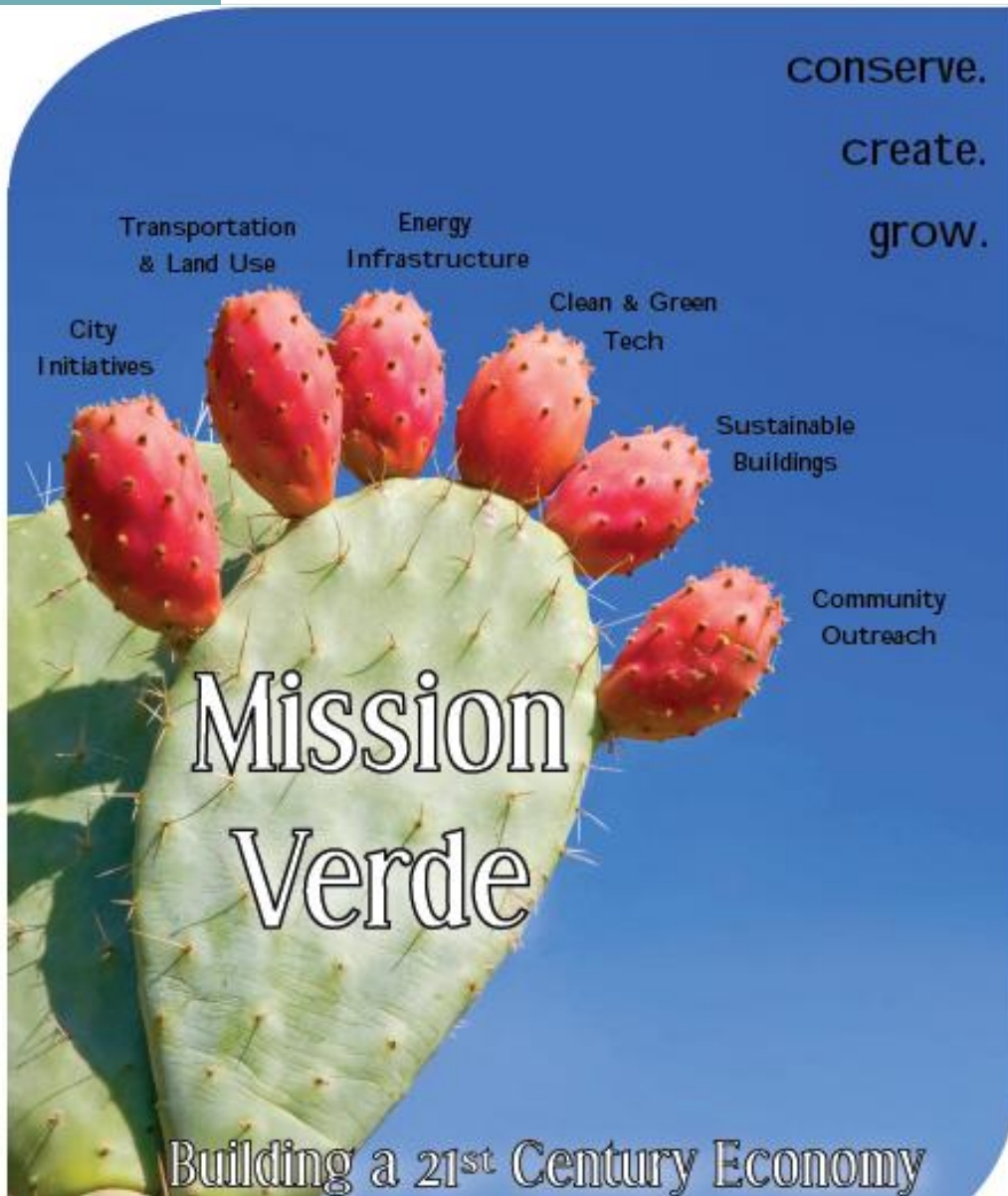
Lessons from an  
emerging  
Green Jobs Effort in  
San Antonio

# What is “Green”?

- Energy Efficiency
  - Transportation, Manufacturing, Heating/Cooling
- Air and Water Quality
- Renewable Energy Generation and Distribution – e.g. wind and solar
- Renewable Materials
- Resource Optimization
  - Water, Waste, Power
- Lean Manufacturing Processes

# Green Economies, Green Jobs

- Green jobs are dependent on specific focus of cities and regions as they embrace the Green Economy—what are the growth industries of Dallas and where will green skills be needed?
  - Weatherizing Homes?
  - Manufacturing Solar Panels?
  - Conserving Water?
  - Turning Manufacturing Waste to Profit?



...it is Energy that drives our economy, our foreign policy, or environmental future... It is why energy – how we create, move, manage and use it – is at the heart of Mission Verde.”

--Former Mayor Phil Hardberger,  
San Antonio, Texas

# Defining Demand

- Who are the employers needing green skills?
- What specific skills do they need their workers to have?
- What barriers stand in their way?
- What does this mean for job creation and job growth?

# Issues for Cities as They Try to Respond to Uncertain Demand

- Trying to train for Green Skills without knowing employers' needs
- Delivering green skills training may not immediately lead to Jobs—e.g, solar installation and maintenance
- Public policy can drive demand for green jobs, but policy is also needed to drive hiring locally

# One Career Path: What Jobs Need Green Skills for Retrofitting?

- Technician-Level Skills
  - Installation, Maintenance, Retrofit/weatherization
- Design and Planning Skills
  - HVAC and Energy Systems, Project Managers, Purchasing
- Communication Skills
  - Compliance and Permitting, Sales, Project Management
- Measurement Skills
  - Home Rating, Home Auditing, Compliance and Permitting
- Engineering Skills
  - Product Development, Utility Metering, Distributed Power Generation

# Technician Level Skills



Who:

- Equipment Installers, Maintenance People, Window, Door, Insulation Installers

Green Skills:

- Limited need for additional skills to accomplish Green goals. Use of computer controls, higher installation standards

# Design and Planning Skills



Who:

- Project Managers, Project Planners, System Designers

Green Skills:

- Building Science, Air Infiltration, Product Standards, Integration of Disciplines (i.e., Plumbing and Landscaping, or HVAC and Insulation)

# Measurement Skills



Who:

- Energy Raters, Energy Auditors, Permitting Agents

Green Skills:

- Use of diagnostic equipment and software, Knowledge of Efficiency Standards



# Communication Skills

## Who:

- Sales Staff, Project Managers, Public and Utility workers

## Green Skills:

- Communicating the value of Green improvements, Facilitating rebate and subsidy programs

# Another Career Path: Green Skills For Solar Panel Installation

- Technician-Level Skills
  - Installation and connection of solar panels
- Design and Planning Skills
  - Panel placement
- Communication Skills
  - Sales and explanation of solar PV equipment, usage.
  - Communication of permitting and regulatory issues

# Technician Level Skills



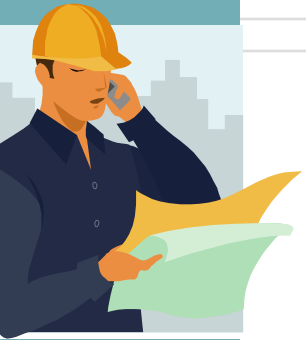
Who:

- Panel Installer, Master Solar Electrician

Green Skills:

- Mechanical/structural mounting of racking, collectors and plumbing equipment
- Experience with interconnection design, review with utility companies and instrumentation for data acquisition systems

# Design and Planning Skills



## Who:

- PV System Designer, Project Manager, Project Estimator

## Green Skills:

- Understanding of Solar equipment and standards, climatology, basics of electricity
- Visiting sites and potential partners prior to finalizing projects. May include both technical and socioeconomic assessments
- Supervising project installations and ensuring compliance with permitting process
- Use and modify spreadsheets for estimating costs and calculating long term economics

# Measurement Skills

Who:

- Photo-Voltaic Inspector



Green Skills:

- Inspects and ensures safety of Photo Voltaic equipment, interface with electrical grid
- Licensed electrician

# Communication Skills



## Who:

- Photo Voltaic Sales Staff, Project Estimator

## Green Skills:

- Knowledge of PV and Solar Systems, and associated material and labor costs.
- Ability to evaluate customer needs and viability of the project.
- Ability to communicate with engineers, architects, GC's, owners, electrical inspectors and utility engineers in a professional manner.

# Standards –

## Whose Skill Requirements?

- Solar:
  - North American Board of Certified Energy Professionals (NABCEP)
- HVAC:
  - Air Conditioning Contractors of America (ACCA)
  - National Comfort Institute (NCI)
- Energy Audits:
  - Residential Energy Services Network (RESNET)
- Landscaping and Irrigation:
  - Open Landscaper Certification

# Building on Traditional Skills

“Traditional” Training → “Green” Training

- Construction Management
  - Home Inspection
  - HVAC
  - Electrical
  - Insulation
  - Plumber
- Certified Green Building Professional (CGBP)
  - Energy Rating (HERS)
  - North American Board of Certified Energy Professionals (NABCEP)
  - Building Science, Air Infiltration
  - Green Plumber Certification

# Inventory Education and Training Programs

- Nationally Recognized Credentials
  - LEED, Energy Star, NABCEP, HERS, Green Plumbers, etc.
- Apprenticeship Programs
- Training Programs (formal and informal) provided 'in-house' by employers, especially those leading to certified skills

# Inventory Education and Training Programs (cont.)

- Water and Power Company training programs often address 'required' skills and certifications in the industry
- Municipal Compliance Training

# Inventory Education and Training Programs (cont.)

## Colleges and Universities

- Both for credit and non-credit
- Traditional Academic and Continuing Education
- Degrees and certificates
- High School Programs
- Provide required skills, mapped to desired certifications
- Articulate into Community College Programs (Career Academies)

# Lessons: Create Career Pathways for Green Skills

- Important to create career pathways for current and future green skills rather than just dead end jobs in retrofitting or weatherization
- Important to make these pathways clear to current and displaced workers
- Certificate and degree programs must recognize and accept college level learning from municipal/industry/employer training

# Lessons: Create Career Pathways for Green Skills (cont.)

- Energy efficiency and renewable energy are **Stage One** of green jobs—but important to consider the greening of manufacturing and service sectors as well

# Lessons: Create Outreach Plan

- Implement an 'outreach' plan to both recruit new workers and to enhance skills of current workers to fill green jobs
  - Important to create easy pathways into jobs
  - Important to make access to education and training easy
  - Important to provide career coaching and navigation and good information about pathways

# Lessons: Create Employer Network

- Establish employer network in “green” subsectors
- Assist employers in reaching skilled workforce
- Link employers to relevant education and training offerings

# Contact Us

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