

# CO GREEN JOBS

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*Governor's*  
**Energy Office**



# DEFINING GREEN JOBS

Broadly defined, green jobs are jobs involved in economic activities that help protect or restore the environment or conserve natural resources.

- *BLS*

1. Renewable energy
2. Energy efficiency
3. GHG reduction
4. Pollution reduction & cleanup
5. Waste reduction
6. Ag & natural resource conservation
7. Education

*These activities produce goods & services*

# GREEN JOB FACTS

- Varied education & skill levels (engineers, plumbers, administrative assistants, construction workers, machine setters, marketing consultants, teachers)
- Annual incomes ranging from \$21,000 to \$111,000.
- Growing nearly 2.5 times as fast as traditional jobs

# CO NUMBERS & PROJECTIONS

## Pew Report:

- Clean Businesses (2007): 1,778
- Clean Jobs (2007): 17,008
- Clean Job Growth (1998-2007):  
8.2%

# DRIVING GREEN JOB GROWTH

## FEDERAL POLICY

- Federal energy & climate policy
- Federal Home Star Program (\$6 billion in incentives for residential energy efficiency)
- Department of Energy and Department of Labor ARRA funding

# DRIVING GREEN JOB GROWTH

## STATE POLICY

- Establishment of RPS of 30% by 2020
- Incentives, rebates, & financing
- \$ 25 million EECBG – retrofit ramp-up grant received by Boulder County to stimulate retrofit market in Boulder, Denver, and Garfield Counties.



# DRIVING GREEN JOB GROWTH: RPS LESSONS LEARNED

Solar Contractors in CO prior to Amendment 37 (10% by 2015)

- Companies- 46
- Employees- 50-75
- Manufacturers- 0

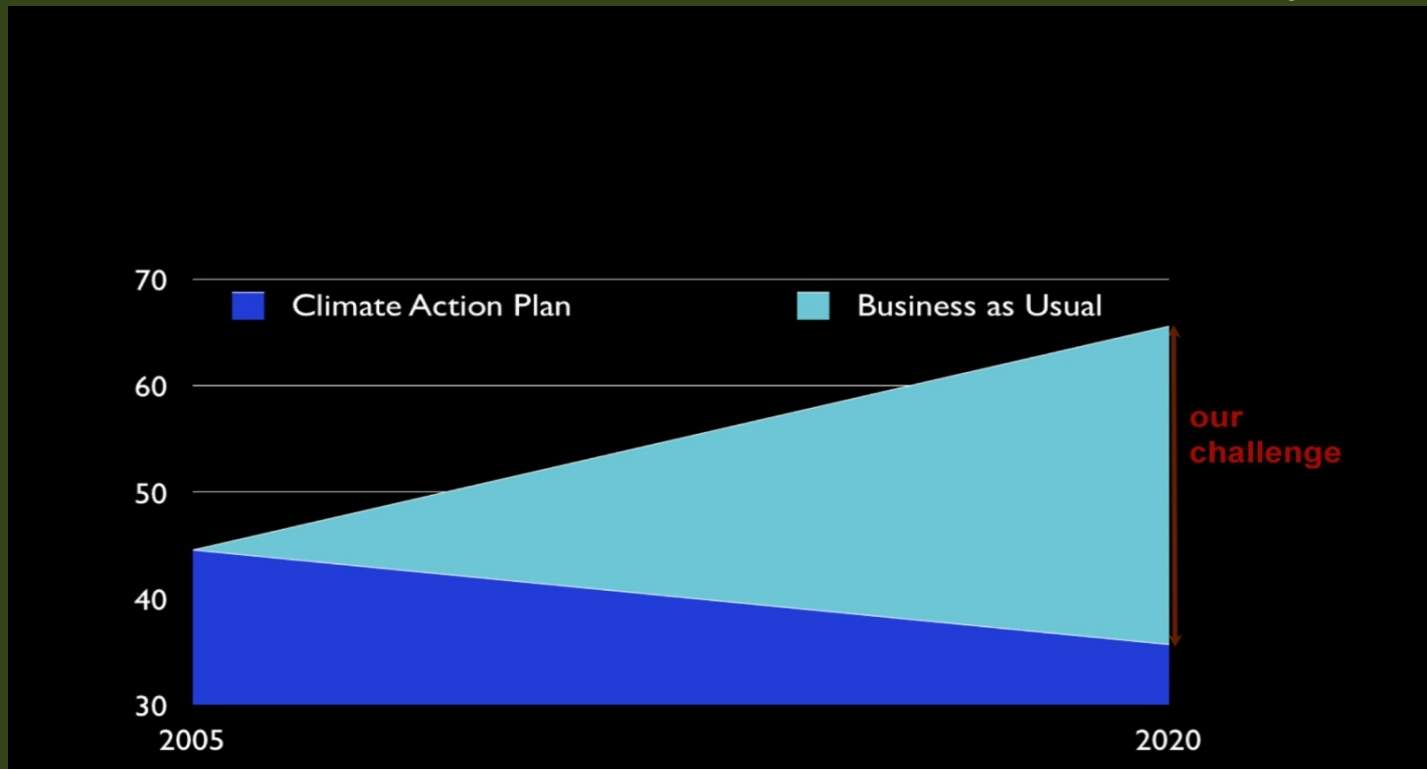
Growth from Nov 2004-Jan 2009

- Investment: 48M
- Solar companies: 180
- Manufacturers: 3
- Employees working in solar not including manufacture or R&D: 2,400
- Approaching 80 Megawatts of installed PV from less than one in 2004
- One Gigawatt of wind power installed in Colorado

# DRIVING GREEN JOB GROWTH

## COLORADO'S COMMITMENT:

Colorado Climate Action Plan Goal: 20% by 2020



# DRIVING GREEN JOB GROWTH

## VENTURE CAPITAL

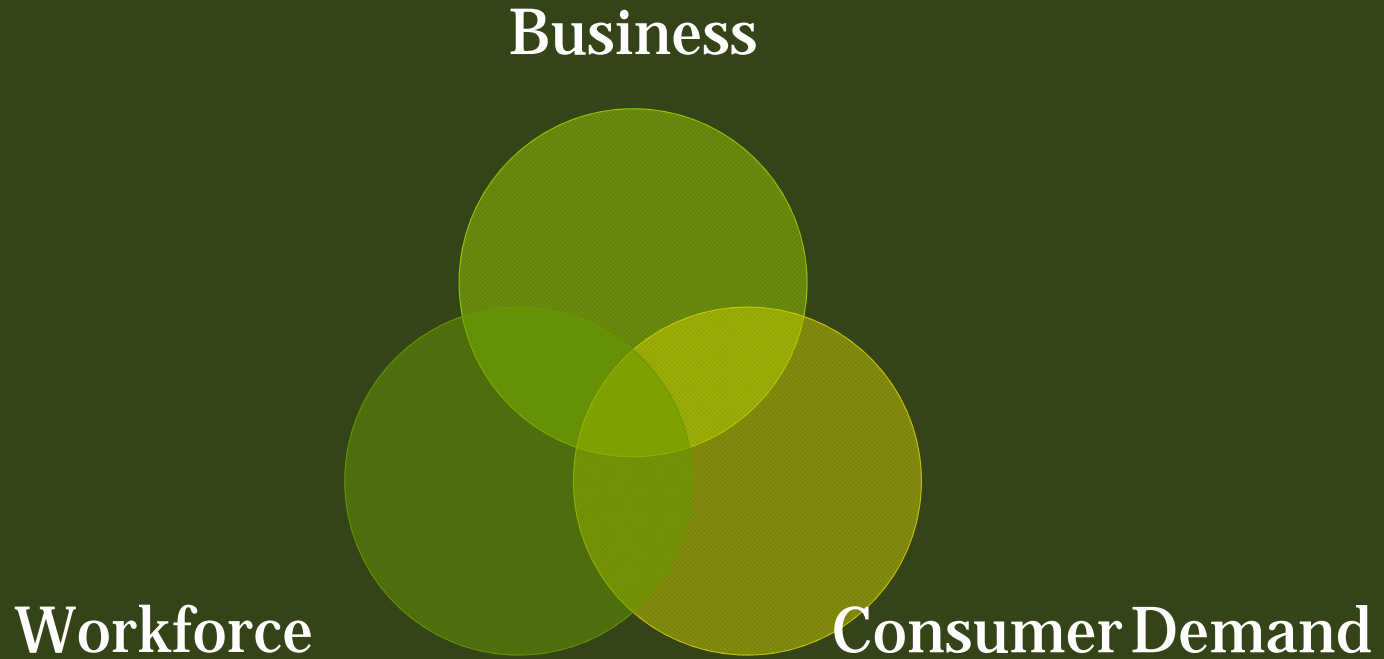
- CO among top three states in cleantech venture capital investment (300 cleantech companies)

## RESEARCH

- Universities & Educational Institutions
- NREL
- Colorado Renewable Energy Collaboratory

## Natural Resources

# Interrelated Drivers



# PREPARING THE WORKFORCE

*Large investment in green job training*

- Currently over \$19 million in green job training opportunities
  - CDLE Sector grants
  - DOL ARRA grants
  - Other DOL grants

# PREPARING THE WORKFORCE

## HB 1333- Green Jobs Colorado Training Program

1. Creates green jobs CO training program- 2 year pilot
2. Creates green jobs CO advisory council

# GREEN JOB WORKFORCE COLLABORATIVE

Coordination across all green job related efforts:

- Business
- Marketing/ outreach
- Referral between grants
- Research information

# THANK YOU!

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# ASES Number of Green Jobs, 2007

Industry	Revenues (millions)	Direct Jobs	Total (direct & indirect) Jobs
Renewable Energy	\$1,082	4,415	10,075
Energy Efficiency	\$9129	35,470	81,210
Total	\$10,211	39,885	91,285

THE NUMBERS &  
PROJECTIONS

# GREEN BUILDING JOBS

Occupational Title	Average Salary	Minimum Education
Field Energy Consultant	\$60,076	HSD/GED
Water Systems Designer	\$36,984	Apprenticeship/TS
Lighting/HVAC Engineer	\$77,280	Bachelor's (Engineer)
Residential Air Sealing Technician	\$31,372	HSD/GED
Structural Design Engineer	\$74,980	Master's (Engineer)
Insulation Installer	\$20,332	HSD/GED
Architect	\$90,620	Bachelor's (Architect)
Welder	\$29,532	Apprenticeship/TS
Auditing Services Sales Consultant	\$59,800	Bachelor's (Business)
Energy Field Auditor	\$24,012	Associate's
Electrical System Installer	\$44,344	Apprenticeship/TS

# ENERGY EFFICIENCY JOBS

Title	Education	Salary	Description
HVAC Technician	HS Diploma, Apprenticeship	\$32,000	Install and maintain HVAC equipment
Energy Auditor	Associate's in Building Materials, Energy Mgmt	\$24,000	Conducts energy analysis in buildings to identify improvement areas
Sales Consultant	Bachelor's in Marketing, Sales, Sciences	\$60,000	Establish sales plans, prepares proposals, and close clients deals
Green Architect	Bachelor's in Architecture	\$91,000	Design buildings that meet LEED qualifications
Green Builder	Apprenticeship or Trade School	\$40,000	Assembly and installation
Civil Engineer	Bachelor's Civil Engineering	\$72,000	Overall design, construction, and maintenance of green buildings

# RENEWABLE ENERGY JOBS

Title	Education	Salary	Description
Solar Electrician	HS Diploma	\$44,000	Hardwires the PV energy system to the power grid
Solar Installation: Roofer	HS Diploma	\$14-\$25/hour	Installs solar systems on roofs
Biomass Collectors	HS Diploma	\$21,000	Collects, hauls, sorts, and processes biomass waste for distribution
Biomass Plant Operators	Bachelor's in Engineering	\$69,000	Designs, constructs, operates and/or maintain plants that generate electricity from the combustion of biomass
Geothermal Sheetmetal worker	Apprenticeship or Trade School	\$33,000	Perform all operations necessary to make, install, and repair geothermal power generators
Geothermal Engineer	Bachelor's in Mechanical Engineer	\$87,000	Designs, develops, and tests of all aspects of geothermal projects

# ASES Projection of Green Jobs in 2030

Colorado 2030	Base Case	Moderate	Advanced
RE	17,370	29,400	113,375
EE	174,810	208,620	499,550
Total	192,181	238,020	612,925

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PROJECTIONS