



Green California Summit

California's Expanding Green Economy

F. Noel Perry

March 17, 2010




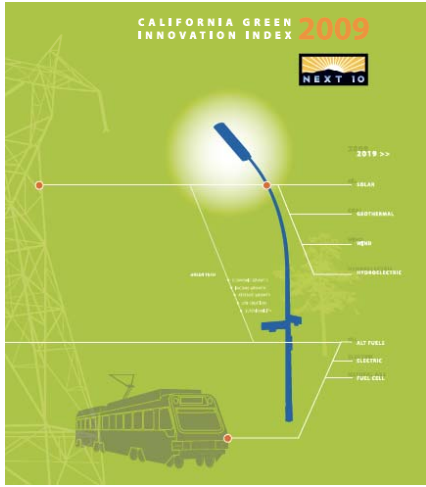
About Next 10

- Founded in 2003
- Independent, Nonpartisan, Nonprofit
- Focus: Green Economy, Budget, Governance
- Commissions expert research to educate, engage and empower Californians
- **Website: www.next10.org**

Budget Challenge

Expert Research

CoolCalifornia.org

CALIFORNIA GREEN INNOVATION INDEX 2009

The California Green Innovation Index tracks California's efforts to grow the economy while dramatically reducing greenhouse gas emissions as mandated by the California Global Warming Solutions Act (AB 32)

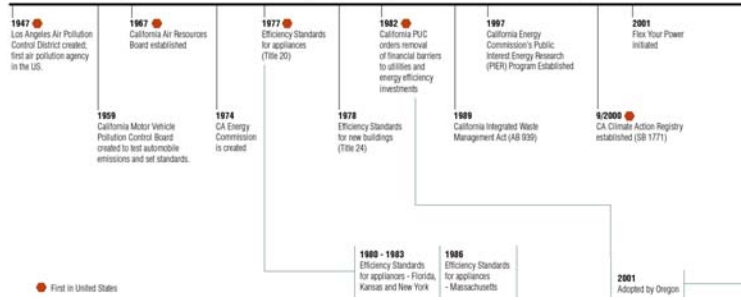


| | | |
|---------|-----------|--|
| Ralph | Cavanagh | Natural Resources Defense Council |
| Michael | Hanemann | CA Climate Change Center, UC Berkeley |
| Hal | Harvey | ClimateWorks |
| Elliot | Hoffman | New Voice of Business |
| Van | Jones | Ella Baker Center |
| Dan | Kammen | Renewable & App. Energy Lab, UC Berkeley |
| Bruce | Klafter | Applied Materials |
| Joel | Makower | Executive Editor, GreenBiz.com |
| Jason | Mark | The Energy Foundation |
| Walter | McGuire | McGuire & Co., Inc./ Flex Your Power |
| Joe | Nation | Former State Assemblyman, District 6 |
| Manuel | Pastor | Professor of US Studies & Ethnicity, USC |
| Fran | Pavley | Assemblymember (2000-2006), Author AB 32 |
| Wendy | Pulling | Pacific Gas & Electric Company |
| Carol | Whiteside | Great Valley Center |
| Tim | Woodward | Nth Power |



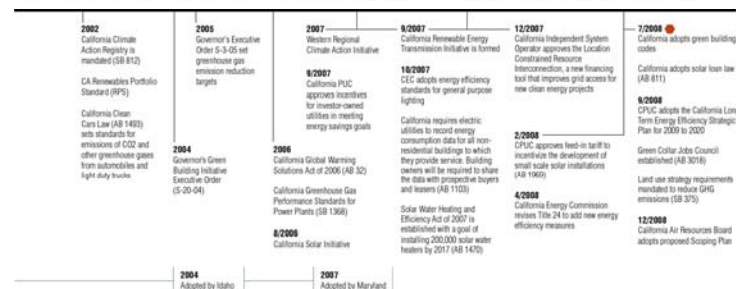
POLICY INNOVATIONS: 1947-2001

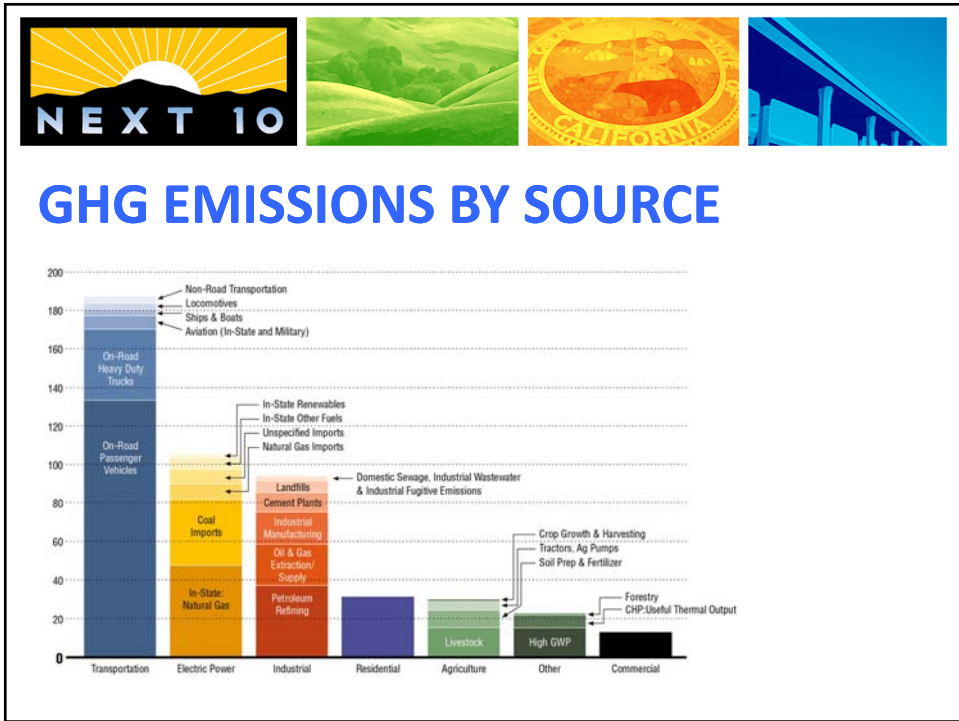
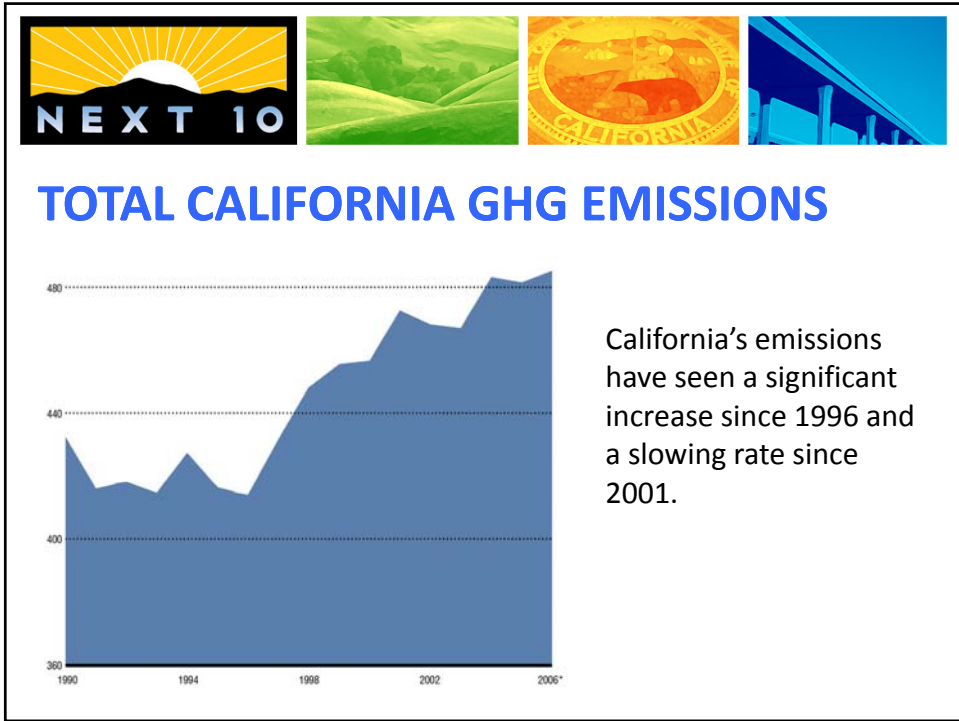
California Policy Innovations Over Time (Regulatory, Investment, Incentives)



POLICY INNOVATIONS: 2002-2008

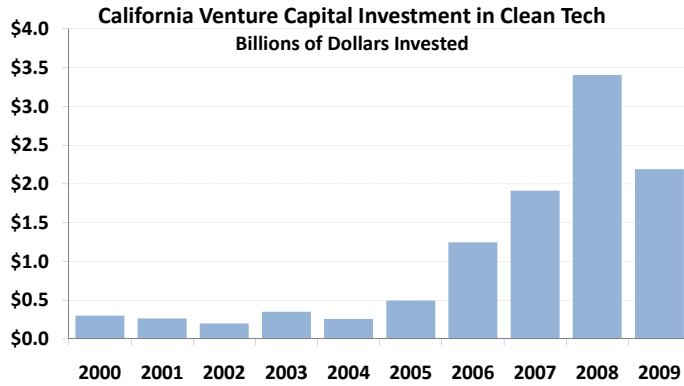
California Policy Innovations Over Time (Regulatory, Investment, Incentives)



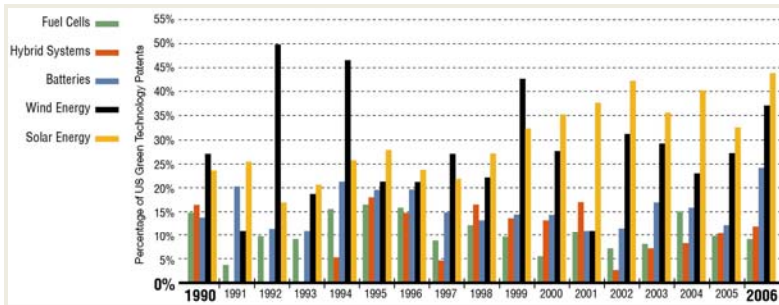




CA LEADS IN VC INVESTMENT



CA SHARE OF US GREEN TECH PATENTS



CA patents account for 44% of all U.S. patents in solar and 37% of all U.S. patents in wind technologies



CALIFORNIA LEADS IN PATENTS

| Total Green Tech Patents Top Ranking States in Patents Registered | | | |
|--|-------------------------|---------|-----------|
| | # of Patents Registered | Ranking | |
| | | 2002-07 | 1990-1995 |
| California | 607 | 1 | 1 |
| New York | 539 | 2 | 7 |
| Michigan | 444 | 3 | 7 |
| Connecticut | 273 | 4 | 10 |
| Massachusetts | 174 | 5 | 3 |
| Ohio | 143 | 6 | 2 |
| Texas | 126 | 7 | 12 |
| New Jersey | 118 | 8 | 6 |
| Illinois | 100 | 9 | 11 |
| Pennsylvania | 100 | 9 | 5 |

2002-2007 Patents

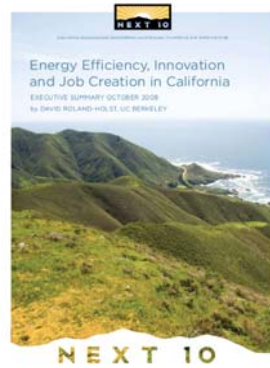
- #1 SOLAR: 148
- #1 BATTERY: 203
- #3 HYBRID SYSTEM: 31
- #3 FUEL CELL: 164
- #1 WIND: 61







ENERGY EFFICIENCY, INNOVATION & JOB CREATION

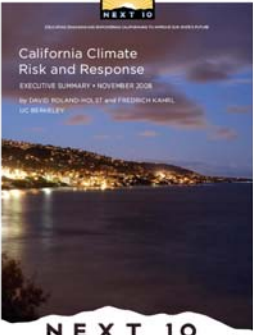
- **1972-2006:** Californians saved \$56 billion = 1.5 million jobs

| Job Creation from Household Energy Efficiency | 1972 | 1977 | 1982 | 1987 | 1992 | 1997 | 2002 | 2007 | Total |
|---|------|--------------|---------------|---------------|---------------|----------------|----------------|----------------|------------------|
| Agriculture | — | 16 | 12 | 204 | 295 | 0 | 919 | 859 | 2,807 |
| Electric | — | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) |
| Electric | — | (296) | (1,140) | (2,236) | (3,405) | (4,720) | (5,809) | (5,944) | (23,520) |
| Other | — | (0) | (0) | (0) | 18 | 31 | 77 | 79 | 148 |
| Construction | — | — | — | — | — | — | — | — | — |
| Light Industri | — | 82 | 2,688 | 4,993 | 6,099 | 8,392 | 9,247 | 9,483 | 45,300 |
| Other | — | (14) | (0) | (0) | (0) | (14) | (24) | (25) | (120) |
| Chemical | — | 48 | 190 | 448 | 764 | 555 | 2,254 | 2,287 | 6,526 |
| Cement | — | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) |
| Health | — | 3 | 4 | 5 | 10 | 16 | 19 | 20 | 68 |
| Machinery | — | 14 | 26 | 54 | 44 | (35) | (5) | (32) | (2) |
| Semicon | — | 0 | 0 | 3 | 8 | 19 | 28 | 32 | 83 |
| Vehicle | — | 20 | 38 | 133 | 13 | 240 | 427 | 437 | 1,428 |
| Other | — | 37 | 128 | 265 | 397 | 1,036 | 1,770 | 1,811 | 8,541 |
| Wholesale | — | 4,340 | 15,254 | 32,236 | 46,739 | 63,718 | 136,402 | 139,187 | 457,475 |
| Wholesale | — | — | — | — | — | 28 | 31 | 6 | 28 |
| Transport | — | 9 | 31 | (27) | 76 | 202 | 305 | 312 | 724 |
| Finance | — | 138 | 1,340 | 16,076 | 30,808 | 21,800 | 16,201 | 16,000 | 143,144 |
| Other | — | 1,063 | 11,456 | 21,848 | 41,096 | 64,397 | 96,332 | 98,603 | 343,373 |
| Public | — | 34 | 3,360 | 22,488 | 36,060 | 98,866 | 148,691 | 162,163 | 481,703 |
| Total | — | 8,764 | 27,726 | 76,864 | 94,877 | 224,702 | 468,762 | 470,696 | 1,483,320 |



CALIFORNIA CLIMATE RISK & RESPONSE



NEXT 10


| ECONOMIC DAMAGE AND ASSET RISK ESTIMATES FOR CALIFORNIA (2006 USD billions) | | | |
|---|------------------|-------------|-------------------------|
| | Damage Cost/Year | | Assets at Risk |
| | Low | High | |
| Water | NA | 0.6 | 5 |
| Energy | 2.7 | 6.3 | 21 |
| Tourism and Recreation | 0.2 | 7.5 | 98 |
| Real Estate | 0.2 | 1.4 | 900 Water 1,600 Fire |
| Agriculture, Forestry, Fisheries | 0.3 | 4.3 | 113 |
| Transportation | NA | NA | 500 |
| Public Health | 3.8 | 24.0 | NA |
| TOTAL | 7.3 | 46.6 | |

- AIR & ENVIRONMENT
- ENERGY GENERATION
- RECYCLING & WASTE
- ENERGY EFFICIENCY

MANY SHADES OF GREEN

DIVERSITY AND DISTRIBUTION OF CALIFORNIA'S GREEN JOBS

DEC. 09




- WATER & WASTEWATER
- GREEN BUILDING
- AGRICULTURE
- ENERGY STORAGE
- ENERGY INFRASTRUCTURE
- RESEARCH & ADVOCACY



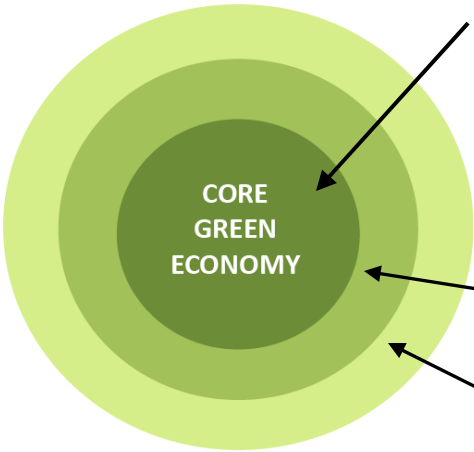
THE ECONOMY, CONSISTING OF A DIVERSE SET OF ACTORS, IS TRANSFORMING:



- Faced with volatile energy costs, California’s households and businesses are finding new ways to **save money and conserve resources**.
- As a result, our **innovative business community** is finding new opportunities in providing the products and services we need to accomplish these goals.



GREEN JOBS: OUR DEFINITION




Businesses providing products & services that:

- Conserve natural and energy resources
- Provide clean alternatives
- Reduce pollution and repurpose waste

Businesses founded on principles of sustainability

Businesses “greening” their products, production processes & supply chains



15 SEGMENTS OF THE CORE GREEN ECONOMY

| | |
|---|--|
| <ol style="list-style-type: none"> 1. Energy Generation 2. Energy Efficiency 3. Transportation 4. Energy Storage 5. Air & Environment 6. Recycling & Waste 7. Water & Wastewater 8. Agriculture | <ol style="list-style-type: none"> 9. Research & Advocacy 10. Business Services 11. Finance & Investment 12. Advanced Materials 13. Green Building 14. Manufacturing & Industrial 15. Energy Infrastructure |
|---|--|

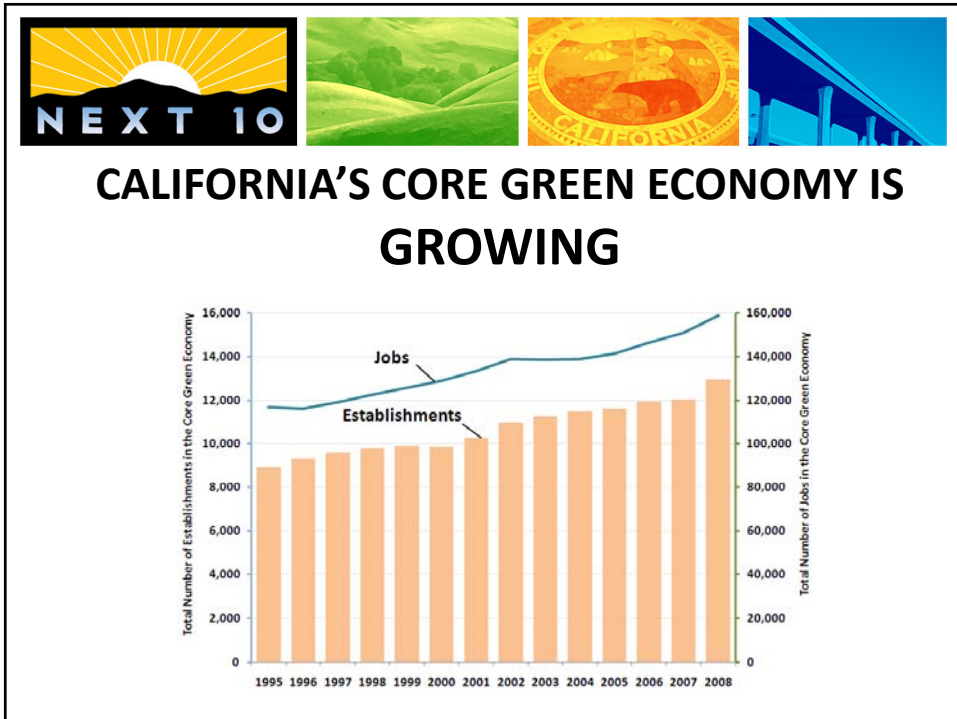
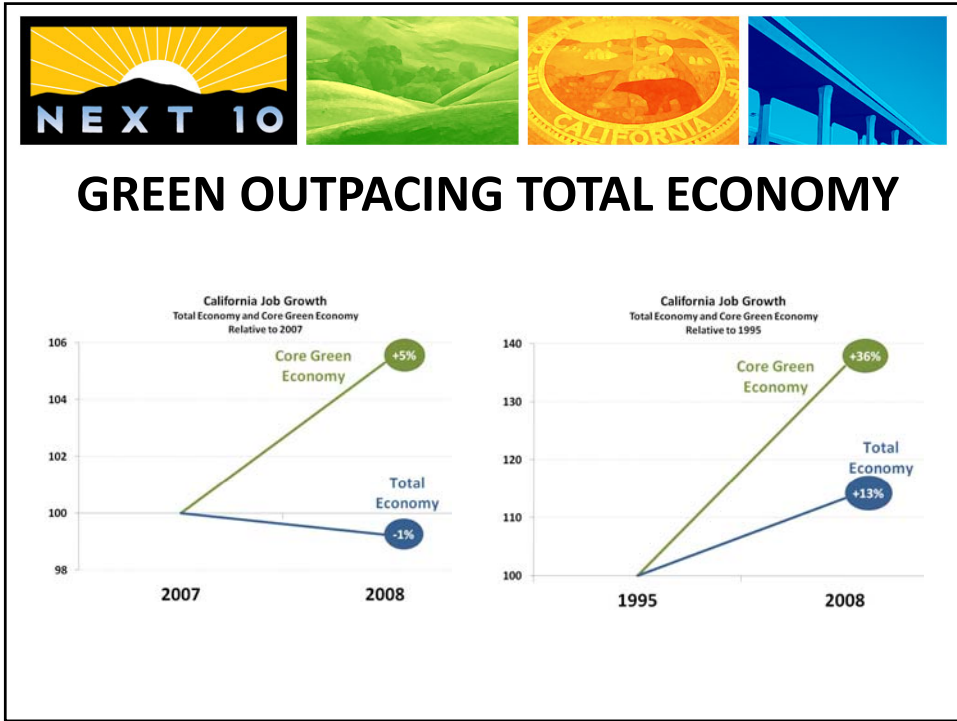


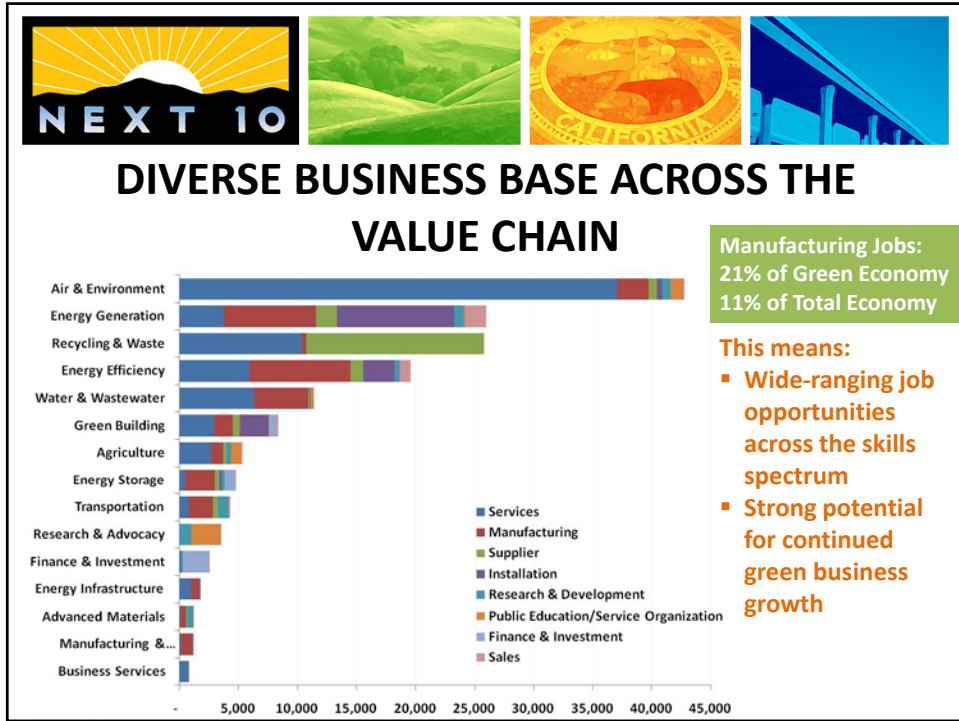
CALIFORNIA'S GREEN ECONOMY

- Diverse
- Located across the state
- Growing faster than total economy
- Offers broad occupational opportunities

While green jobs alone won't solve the state's unemployment challenges, over time these jobs could become a larger portion of total jobs.


As markets grow for green products and services, Californians will benefit from new job opportunities and energy savings.





GREEN INCREASED DEMAND OCCUPATIONS

| OCCUPATIONAL TITLE | ANNUAL EARNINGS | EDUCATION & TRAINING |
|---|-----------------|-----------------------------------|
| Electrical & Electronic Equipment Assemblers | \$27,210 | Short-Term On-The-Job Training |
| Computer-Controlled Machine Tool Operators, Metal & Plastic | \$31,030 | Moderate-Term On-The-Job Training |
| Insulation Workers | \$37,860 | Moderate-Term On-The-Job Training |
| Electricians | \$52,690 | Long-Term On-The-Job Training |
| Structural Iron and Steel Workers | \$55,190 | Long-Term On-The-Job Training |
| Commercial & Industrial Designers | \$66,220 | Bachelor's Degree |
| Occupational Health & Safety Specialists | \$70,930 | Bachelor's Degree |
| Computer Software Engineers, Systems Software | \$103,670 | Bachelor's Degree |

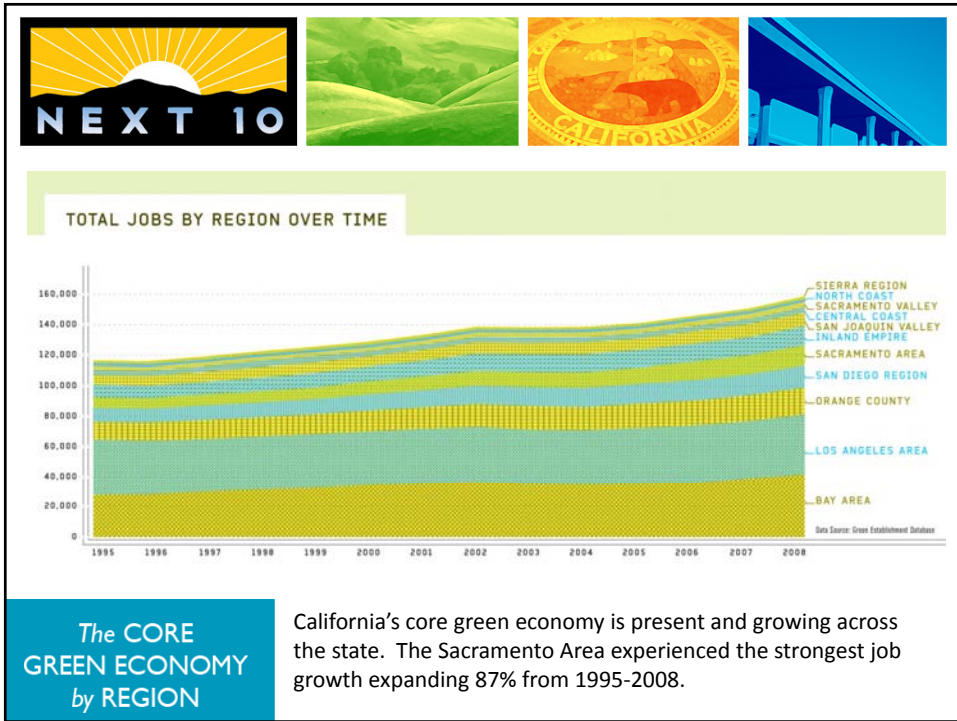


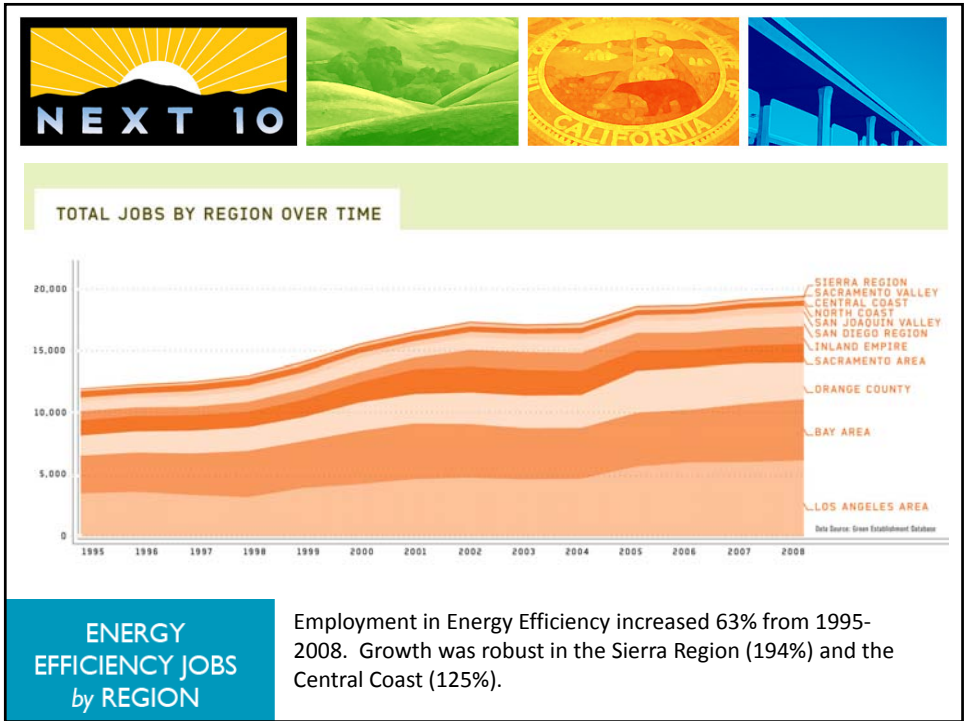
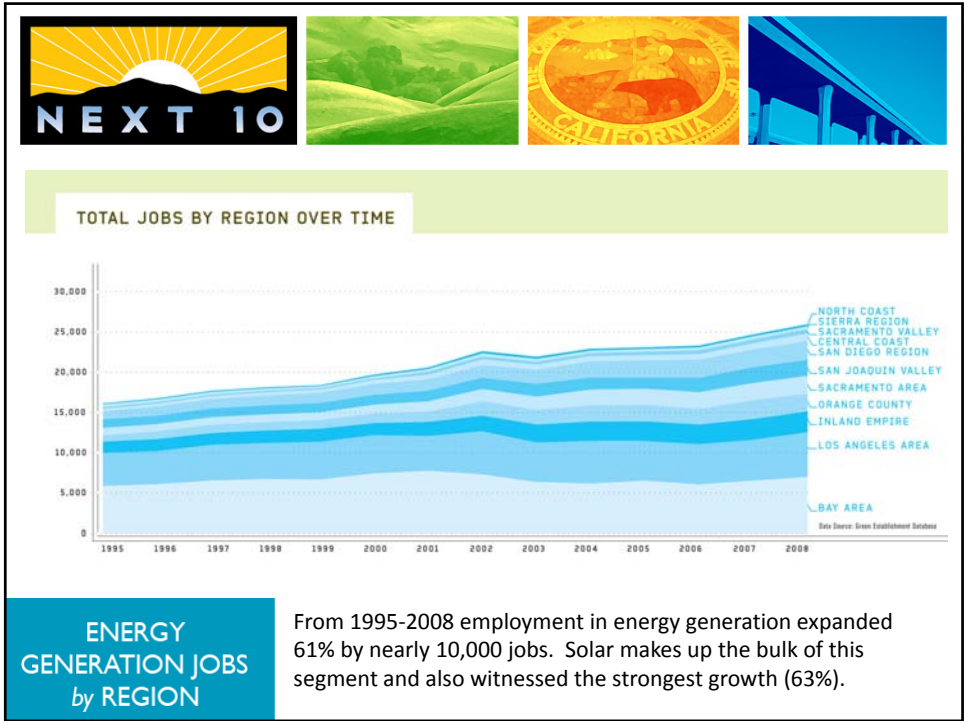
Green Enhanced Skills Occupations

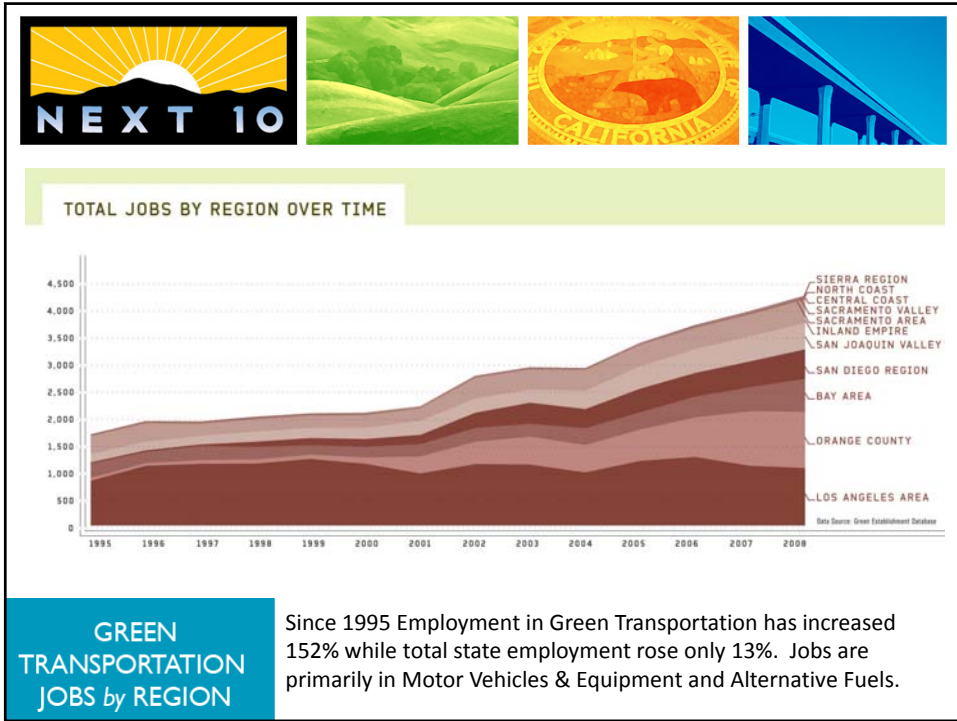
| OCCUPATIONAL TITLE | ANNUAL EARNINGS | EDUCATION & TRAINING |
|---------------------------------------|-----------------|----------------------|
| Electro-Mechanical Technicians | \$49,140 | Associate Degree |
| Environmental Engineering Technicians | \$51,100 | Associate Degree |
| Environmental Engineers | \$83,090 | Bachelor's Degree |
| Electrical Engineers | \$92,980 | Bachelor's Degree |
| Urban and Regional Planners | \$70,470 | Master's Degree |

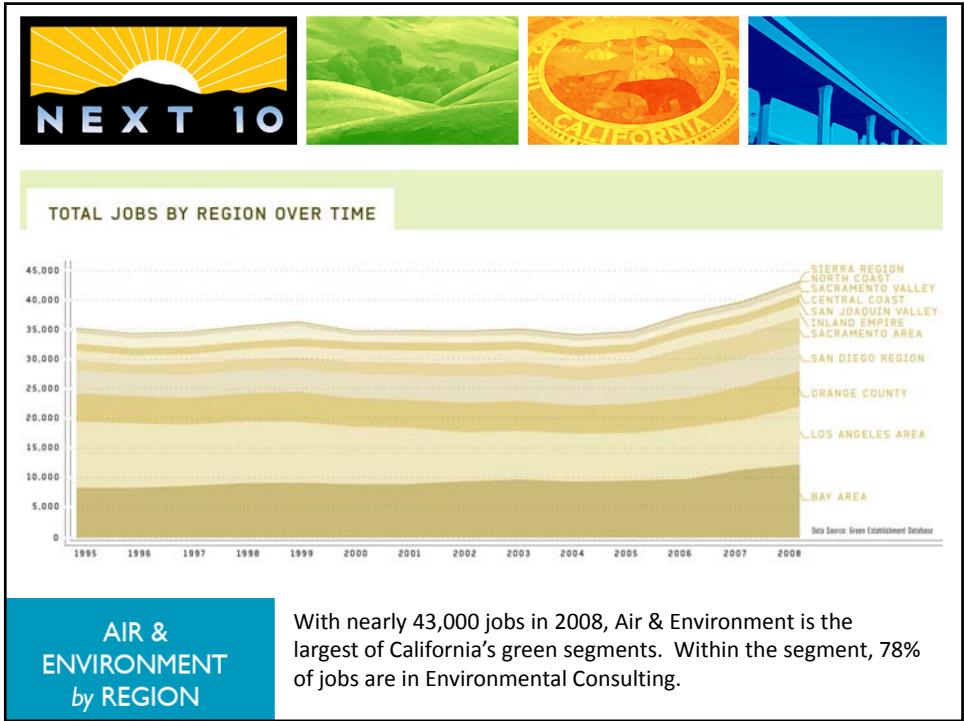
Examples of Other Occupations in Green Establishments

| OCCUPATIONAL TITLE | ANNUAL EARNINGS | EDUCATION & TRAINING |
|---------------------------------------|-----------------|----------------------|
| Electro-Mechanical Technicians | \$49,140 | Associate Degree |
| Environmental Engineering Technicians | \$51,100 | Associate Degree |
| Environmental Engineers | \$83,090 | Bachelor's Degree |
| Electrical Engineers | \$92,980 | Bachelor's Degree |
| Urban and Regional Planners | \$70,470 | Master's Degree |










-
- ## WHAT'S NEXT FROM NEXT 10?
- Cap-and-trade study
 - 2010 Green Innovation Index
 - Green Jobs Update
 - Other Research


California Budget Challenge
Contact

Start

- Home
- Survey
- Overview
- Features

Policy Options


- Spending
- K-12 Education
- Higher Education
- Health Care
- Human Services
- Environment
- Criminal Justice
- Jobs
- Retiree Health

Revenue

- Income Tax
- Sales Tax
- Car Tax
- Corporation Tax
- Tax Credits
- Property Tax
- Gas Tax
- Carbon Tax

Your Budget

- Summary
- Graphs
- Print/Share
- Feedback



Protecting the Environment

What steps should California take to reduce greenhouse gases?
(select one)

| | |
|---|-----------------------------------|
| <input type="radio"/> Status Quo: California should not take additional steps beyond those already underway to meet AB 32's goals . | <i>Budget Impact</i> No change |
| <input type="radio"/> Provide \$200 million in grants to California universities to accelerate the commercialization of renewable energy technologies. | ↓ \$0.2B |
| <input type="radio"/> Add an additional \$500 million to the \$1 billion per year that California utilities are now investing in cost-effective energy efficiency improvements. | ↓ \$0.5B |
| <input type="radio"/> Impose a surcharge or rebate of up to \$2,500 on new cars based on their GHG emissions. | No change |
| <input type="radio"/> Take all three actions: provide renewable energy technology grants, fund additional energy efficiency efforts and impose rebates or surcharges on new cars. | ↓ \$0.7B |

Budget Meter (5 year projection)

-\$27.6B

Status Quo

-\$27.6B

Your Budget

-\$27.6B


New Budget

TAKE ACTION!

← Back
Next →

Background

- In February 2007, an international network of climate scientists concluded that global warming is "unequivocal" and that human activity is the main cause. [\(Read More\)](#)
- A 2006 law (Assembly Bill 32) set the goal of lowering greenhouse gas (GHG) emissions that contribute to global warming by 25%, back down to 1990 levels, by the year 2020. [\(Read More\)](#)
- Although California produces fewer greenhouse gases per person than most states, total emissions are second only to Texas.
- Improving energy efficiency is one of the most cost-effective ways to address climate change.
- Some have suggested establishing a program of surcharges (for high-emission vehicles) and rebates (for low-emission vehicles) on new cars to encourage consumers to purchase low-emission vehicles.



▶ SUBSCRIBE

search

Home
About
Public Opinion
Reform Options
Ballot Measures
Blog
Resources
Events

California Choices, a collaborative effort by Next 10, the Bill Lane Center for the American West at Stanford University, the Institute of Governmental Studies at UC Berkeley, and the Center for California Studies at CSU Sacramento, has been designed to equip Californians with a better understanding of why our state has deep problems and what options we have to make it work again for a better future.

Why We Care About Reform

Californians want change. We know our system of government is broken and unable to address the increasing challenges facing our state.

- But what reforms will best help California get back on track?
- Who can be trusted to explain the issues and options?

Every route to meaningful reform ultimately will depend on informed and motivated voters like you agreeing to turn good ideas into reality at the ballot box. So here is a new website from a nonpartisan team of people who care about California as much as you do. Our goal is to provide you with an easy to use resource with clear and balanced information about government reform. We welcome your suggestions and feedback. Together, we can make more informed choices for a better future in California.

Videos

BLOG

Mar. 01, 2010

Get Your Act Together, California

Californians seem unable -- and unwilling -- to attempt major changes in the state's governing system, even though the system is hurting us, through university tuition hikes, teacher fringes, overcrowded prisons and big cuts in the social safety net. So if we won't take risks to save ourselves,...

[>> Read More](#)

NEW POLLING DATA

[Full Field Poll Results](#)

Analysis by Stanford University's Bill Lane Center for the American West

Analysis by Ethnicity: Latinos; African-Americans; Chinese-Americans; Vietnamese-Americans; Korean-Americans

CoolCalifornia.org
GOVERNMENT • UNIVERSITY • NGO PARTNERSHIP

Sign In | Sign up

Keyword Search:
[Advanced Search](#)

HOME | INDIVIDUALS | SMALL BUSINESS | LOCAL GOVERNMENT | YOUTH | COMMUNITY ORGANIZATIONS | SCHOOLS | ABOUT US

Most Popular

- Give us your Feedback [VIEW »](#)
- Reduce Your Climate Impact [CALCULATE NOW »](#)
- California Success Stories [VIEW »](#)
- Climate Awards [LEARN MORE »](#)
- Money to Get You Started [LEARN MORE »](#)
- Save Money & the Planet [LEARN MORE »](#)

Cool Tip
Practice "Eco-Driving", smart, smooth and safe

TAKE ACTION TO KEEP THE PLANET COOL

Make a Change Reduce your Carbon Footprint

Join millions of Californians already working to reduce Climate Change and keep California Cool.

See What We're Doing

Find us on **Facebook**

YouTube

Highlights

- What is Climate Change?
- How will California's climate

About CoolCalifornia.org
Our mission is to provide all Californians with the tools they need to voluntarily reduce greenhouse gas emissions. [More about us »](#)

Local Government Toolkit

Small Business Toolkit

"It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change."

-Charles Darwin

