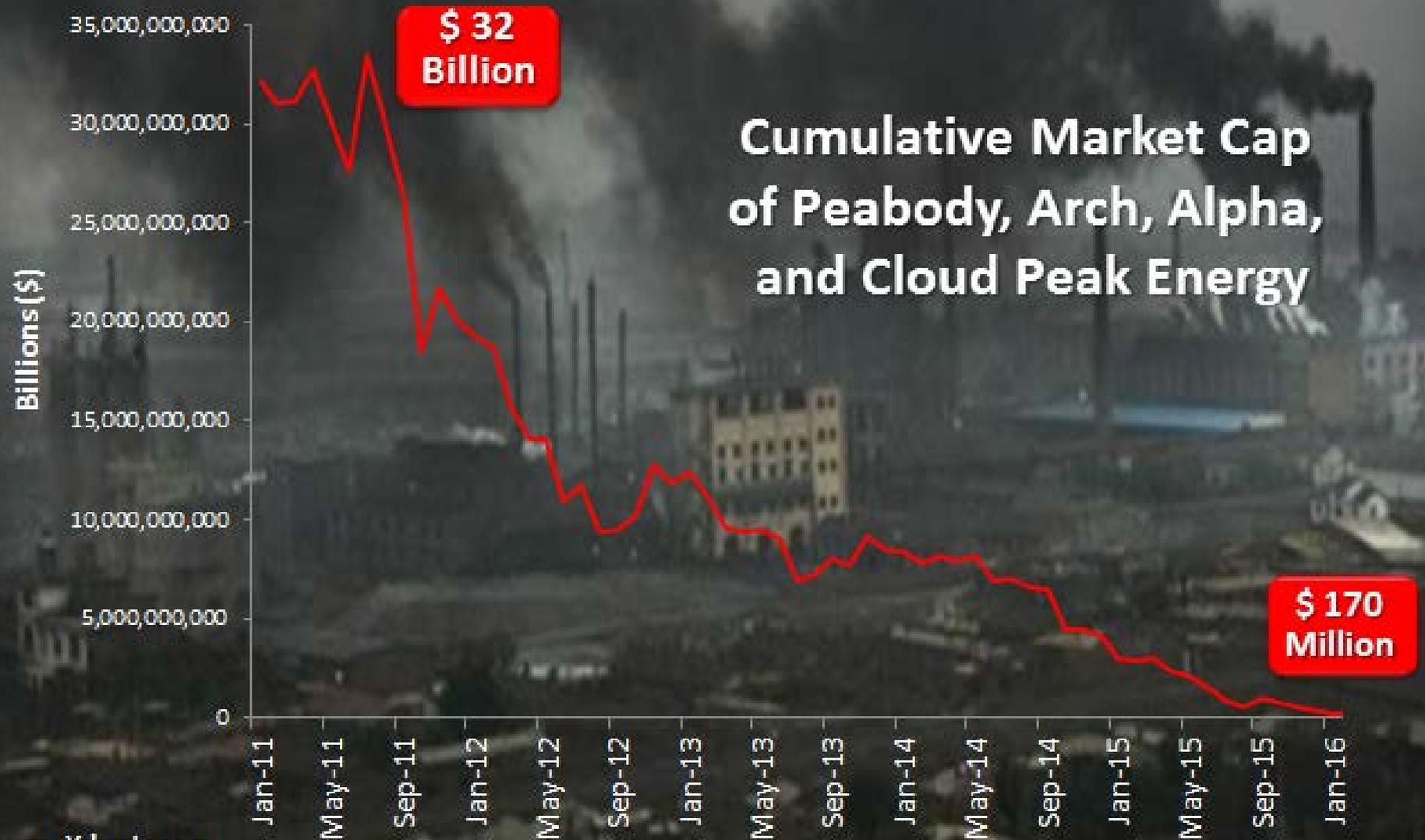


SUNRISE FROM THE WEST: THE DAWN OF THE CLEAN ENERGY ERA



David Hochschild
Commissioner
California Energy Commission

Value of Top 4 US Coal Companies Has Declined 99% Since 2011

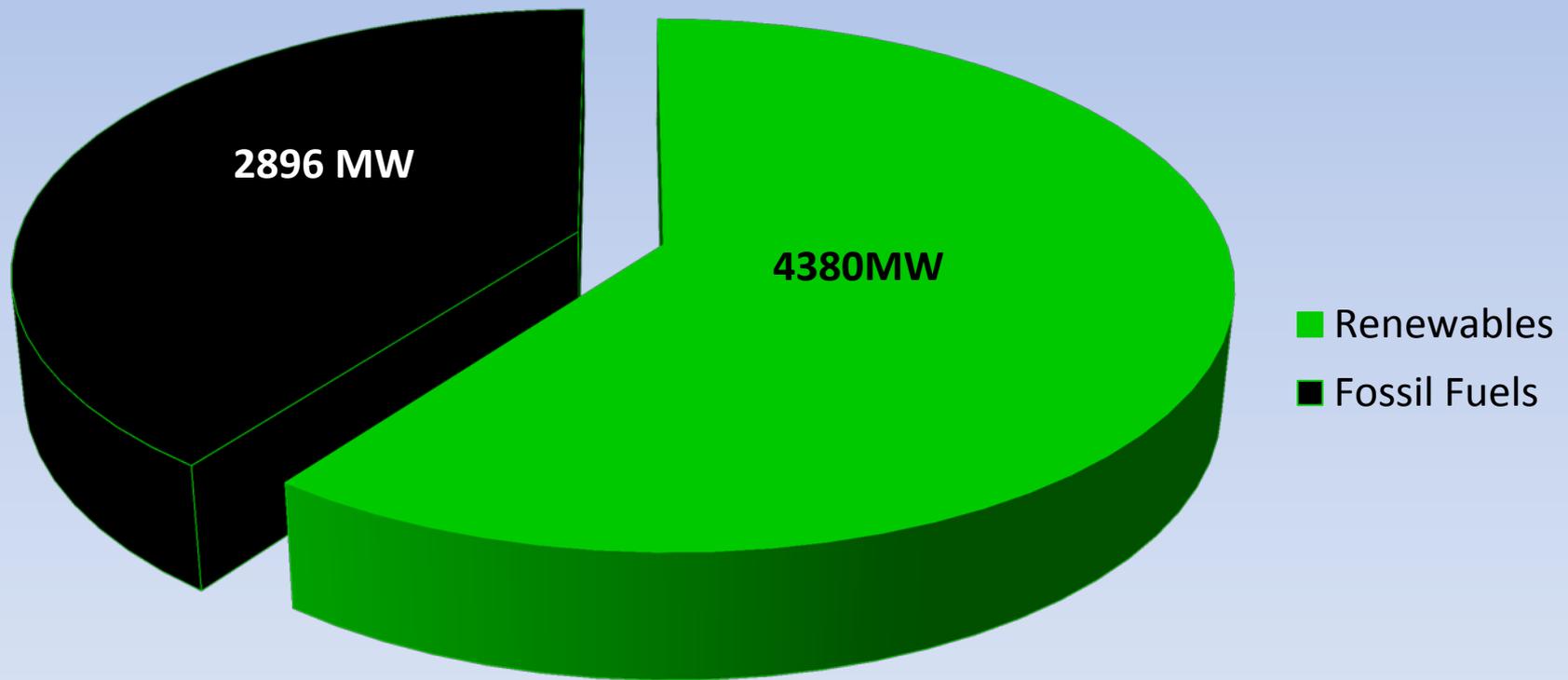


**\$ 32
Billion**

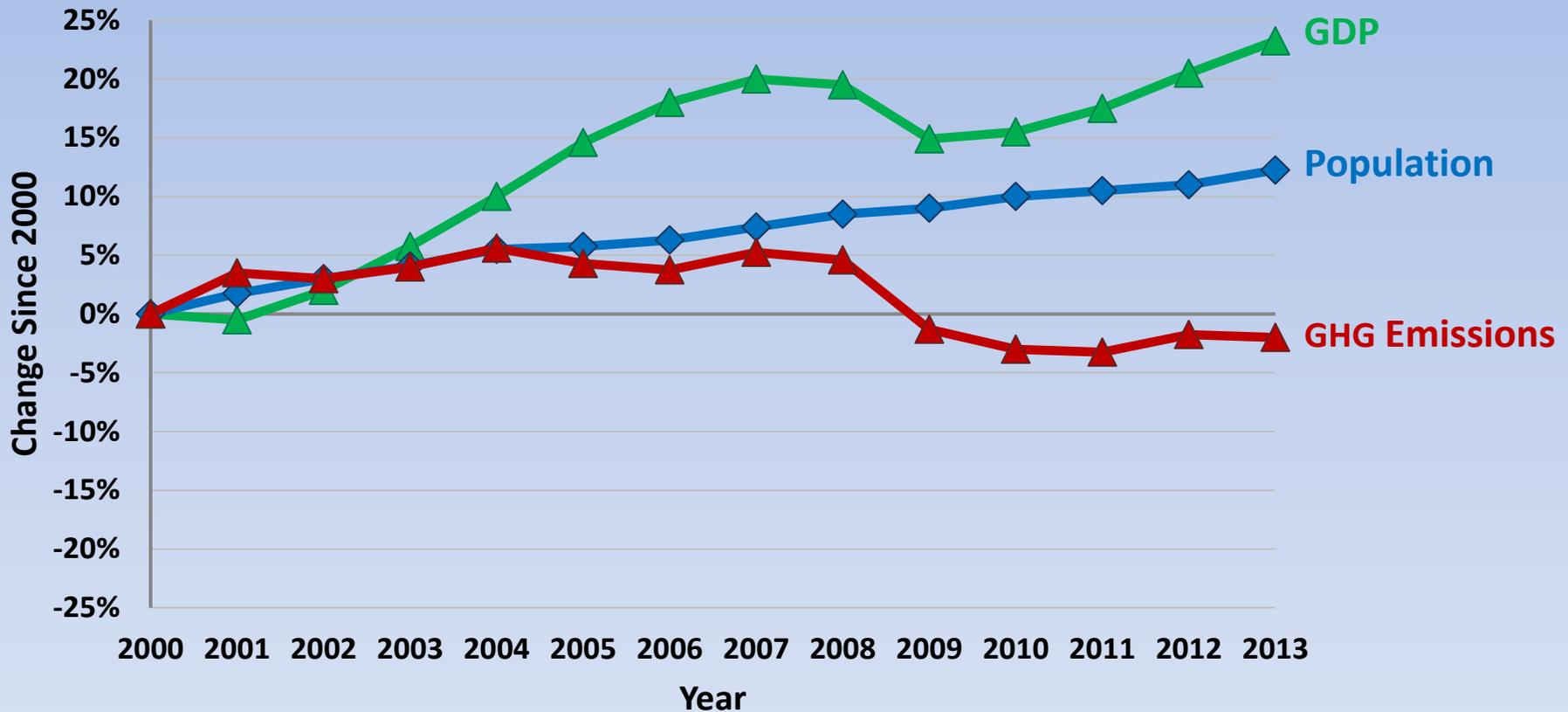
**Cumulative Market Cap
of Peabody, Arch, Alpha,
and Cloud Peak Energy**

**\$ 170
Million**

Renewable Energy Represented 60% of New Electric Generation Capacity Additions in the US in 2015



Change in California GDP, Population and GHG Emissions since 2000



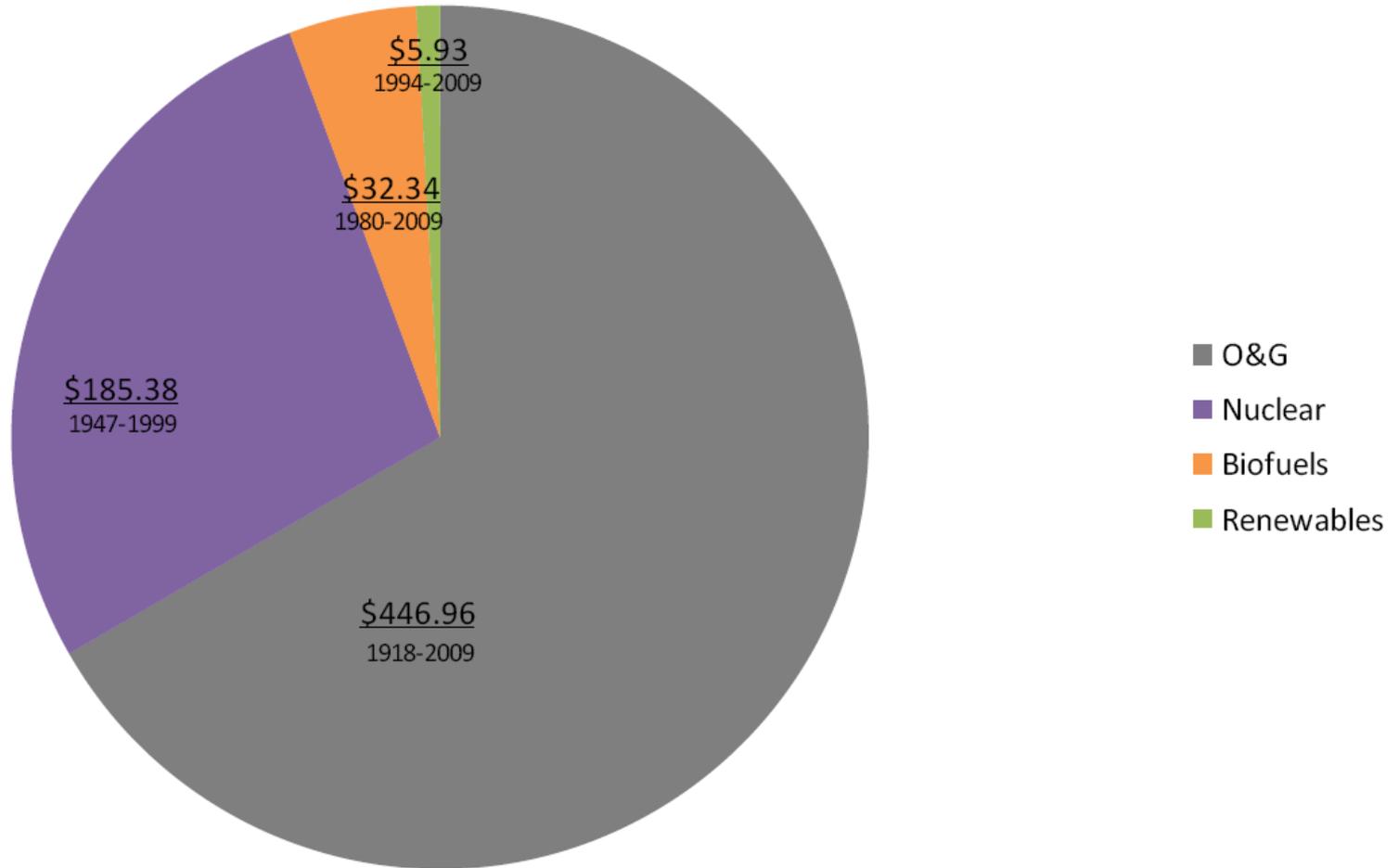
<u>Metric</u>	<u>Associated 2013 Value</u>
GDP	2.05 trillion (2009 \$)
Population	38.2 million
GHG Emissions	459.3 MMTCO ₂ e

*Source: CA Air Resources Board

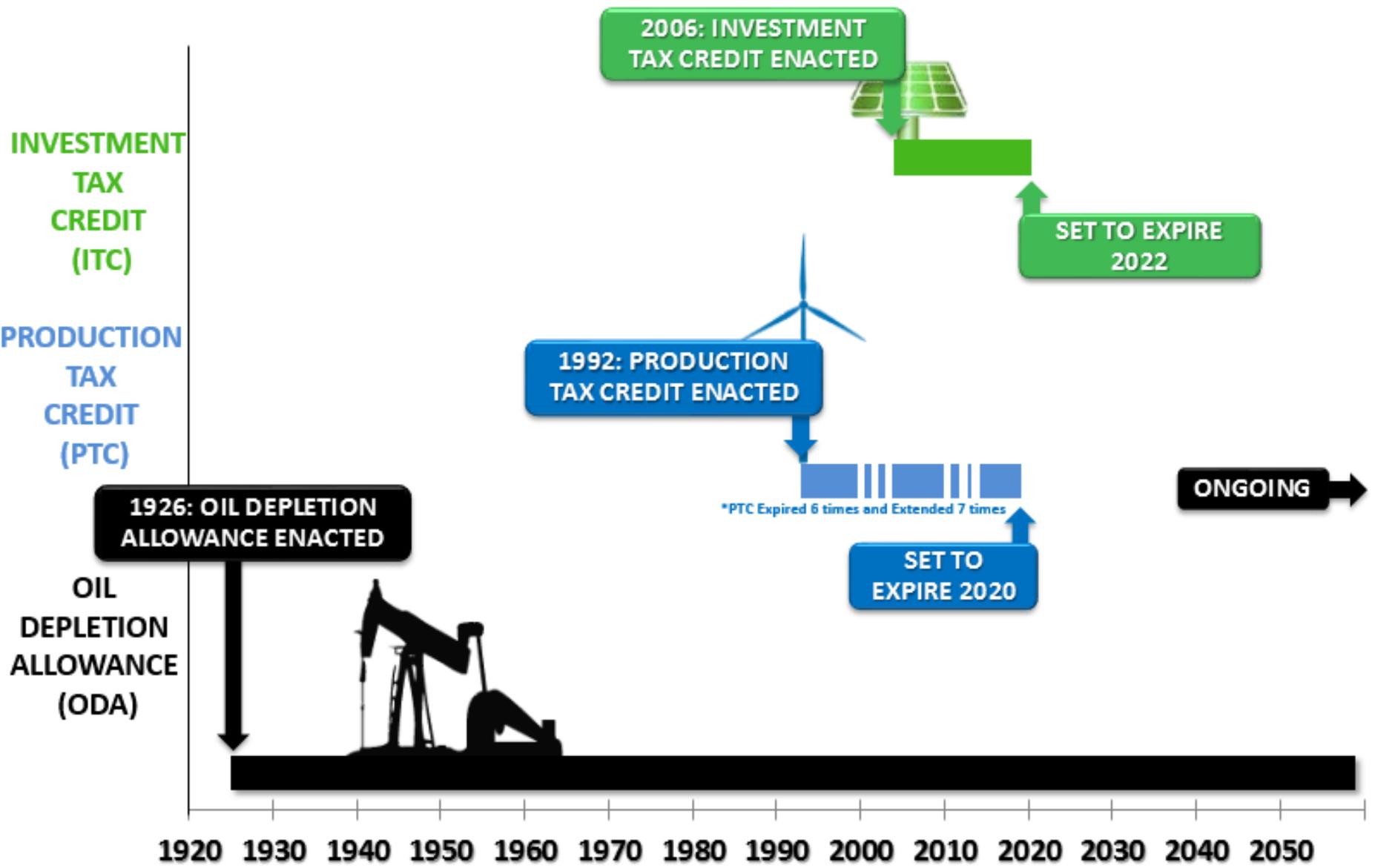
Federal Subsidies Have Favored Fossil Fuels

Cumulative Historical Federal Subsidies

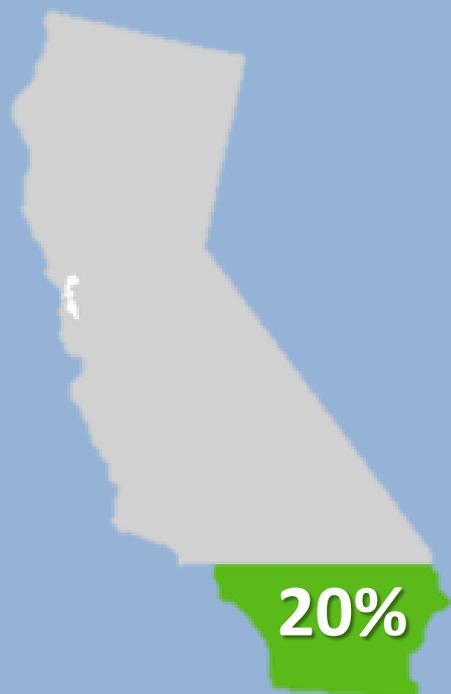
2010\$, billions



Federal Energy Subsidies



California Moves to 50% Renewables



2013



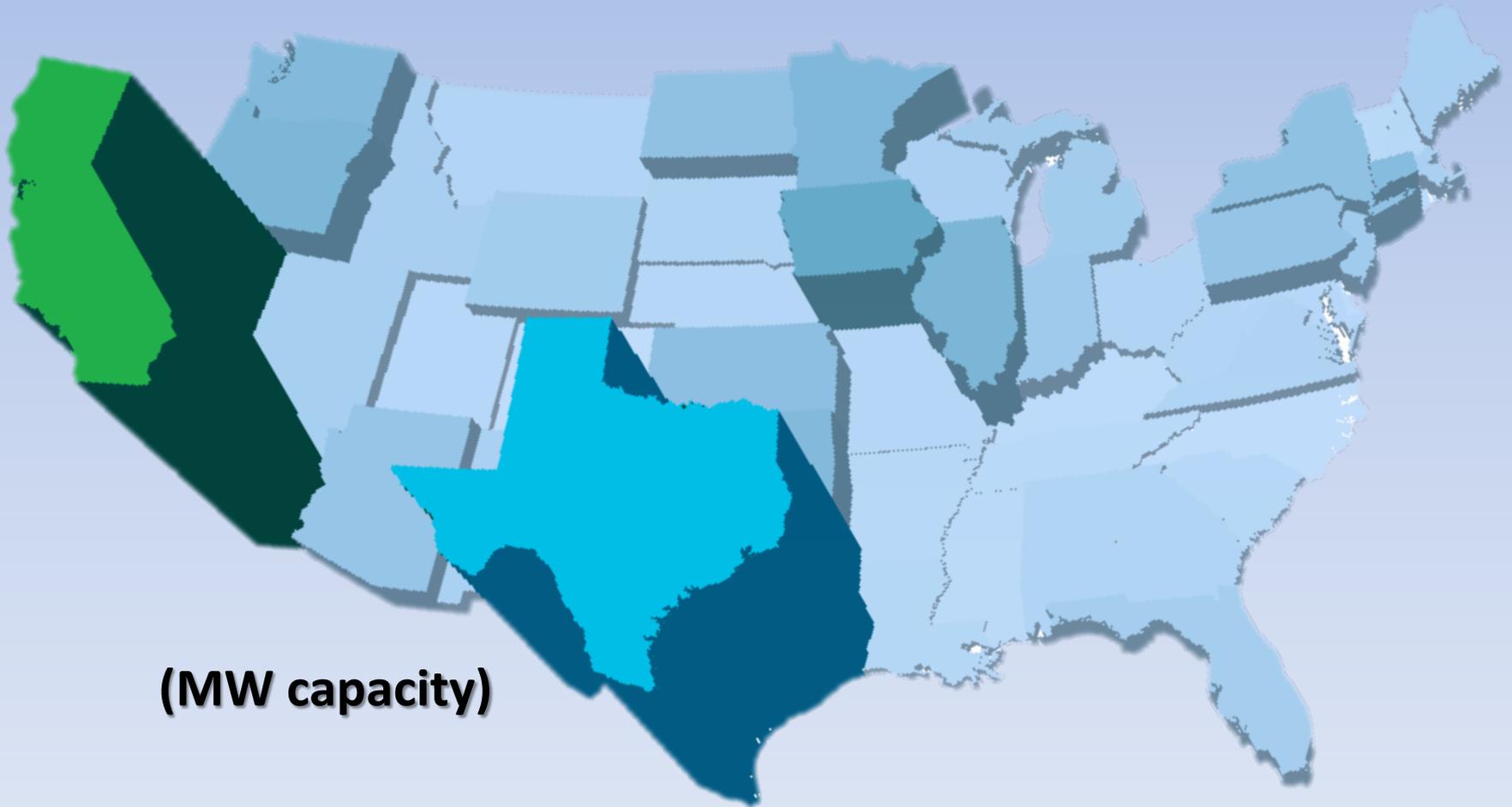
2020



2030

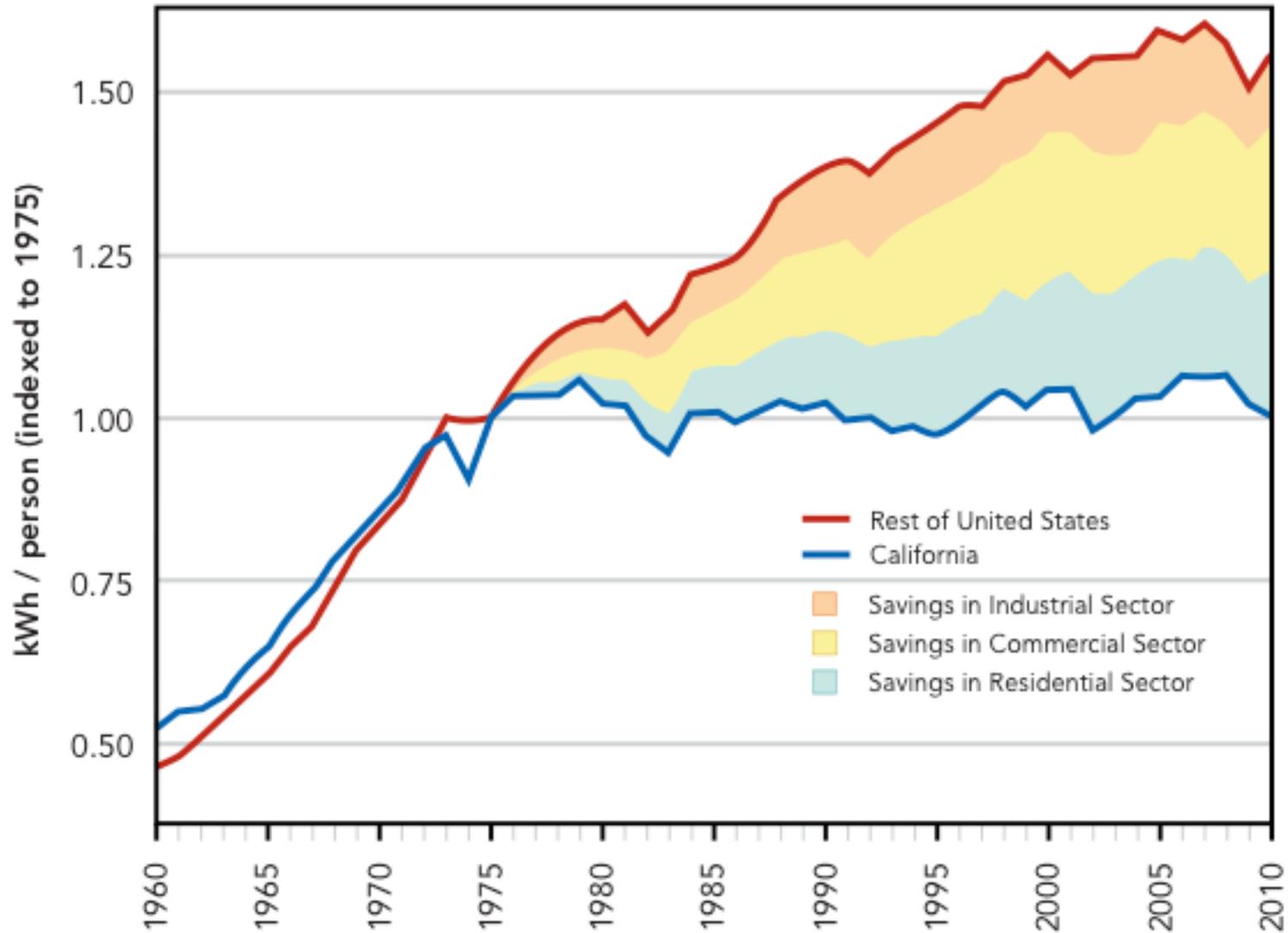
California Leads the US in Renewables Installed.

What Happens in a State With High Penetration of Renewables & Efficiency?



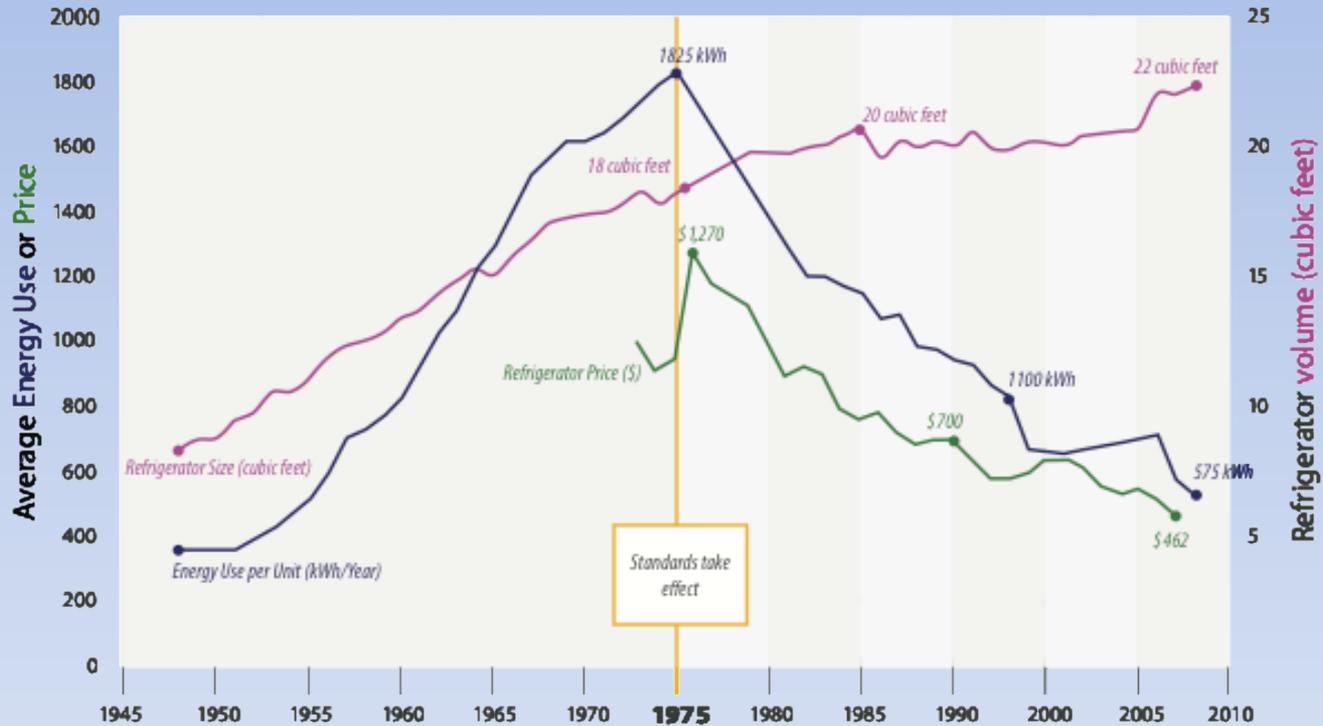
Source: Graphics based on data from the American Council On Renewable Energy (ACORE)
Renewable Energy in the 50 States (2013/2014 Editions)
<http://www.acore.org/publications/50states/>

California Advancing Energy Efficiency



California Advancing Energy Efficiency

New Refrigerator Use v. Time and Retail Prices



2009: The Energy Commission's
TV efficiency standards
take effect, saving Californians
\$1 billion / year

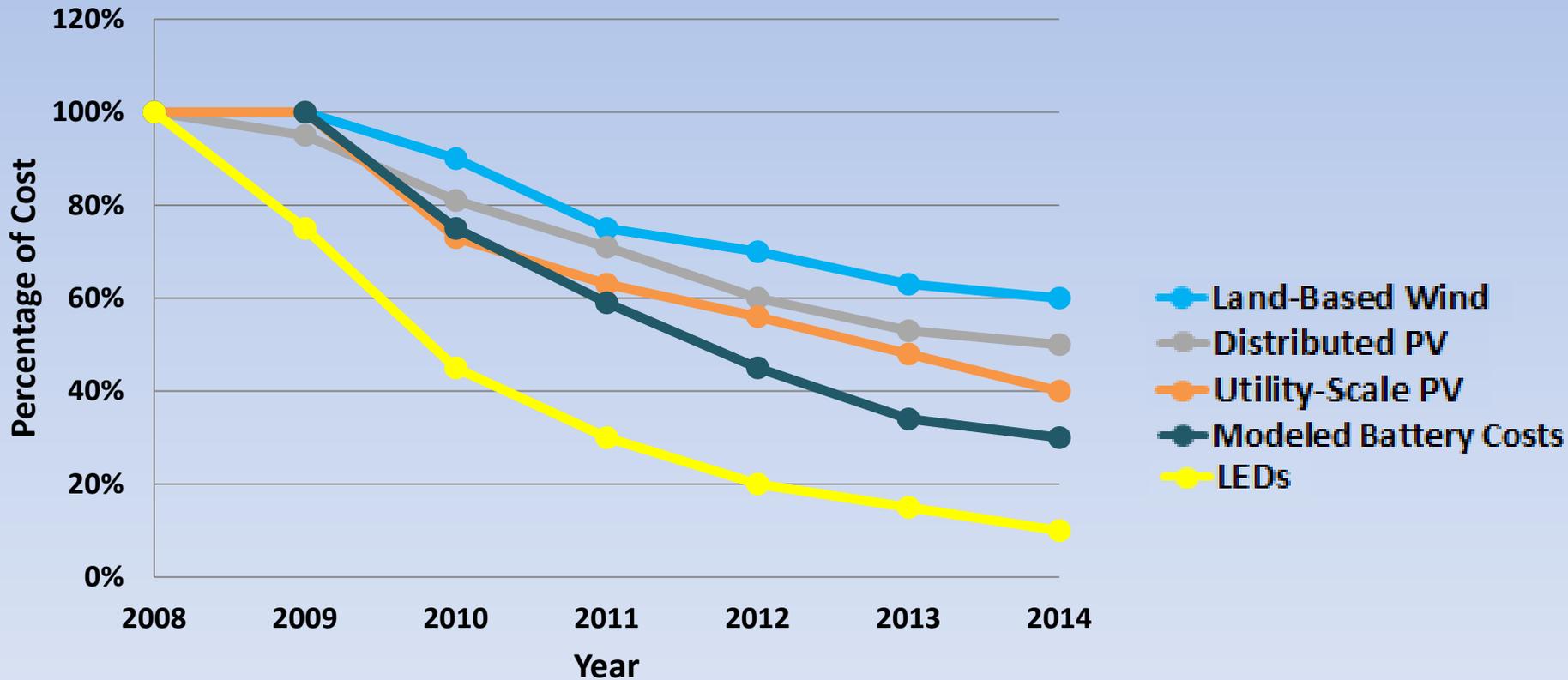


2012: The Commission's
plug-in charger
efficiency standards begin
saving Californians **\$300M / year**



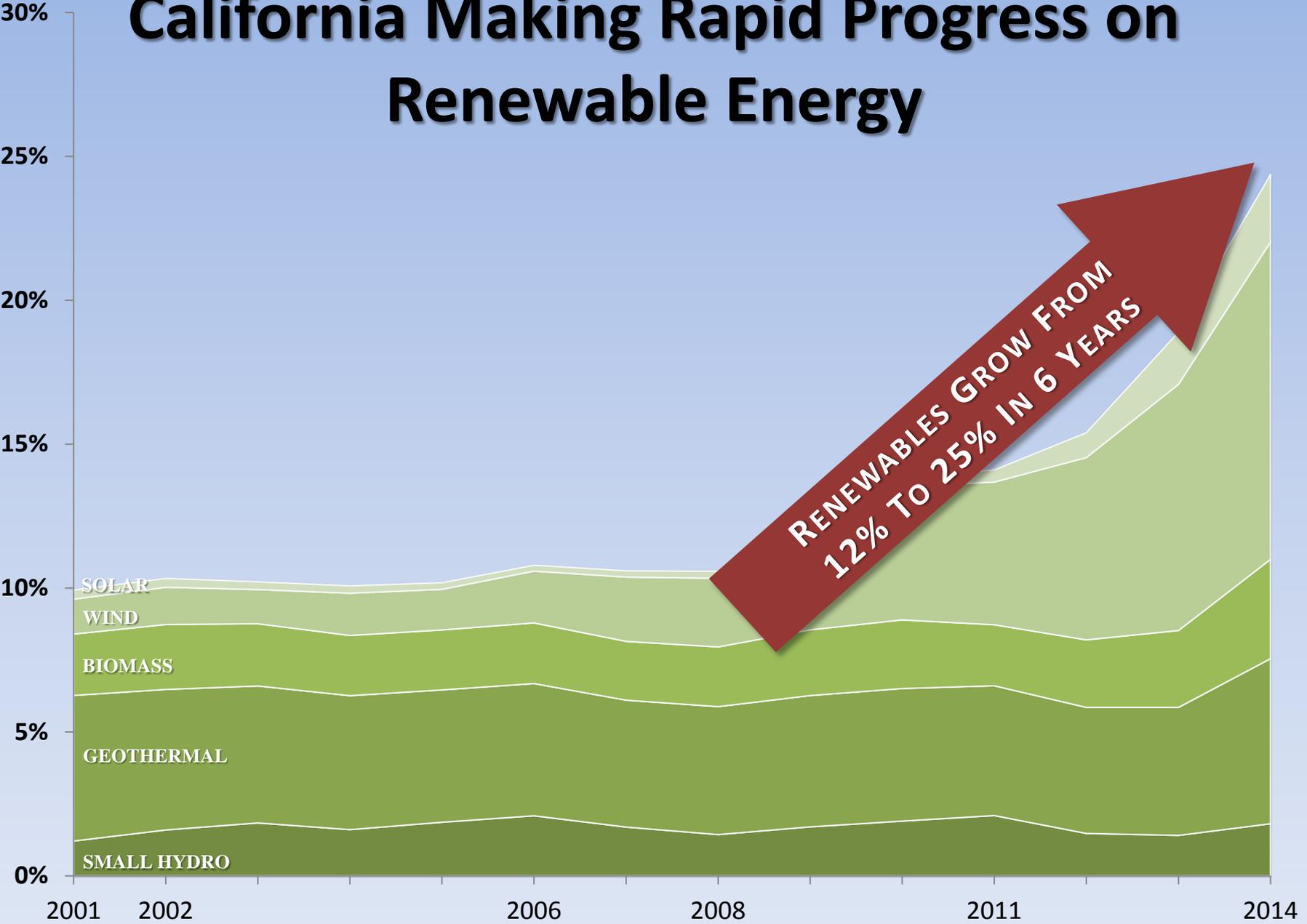
The Falling Cost of Clean Energy Technologies

Indexed Cost Reductions Since 2008



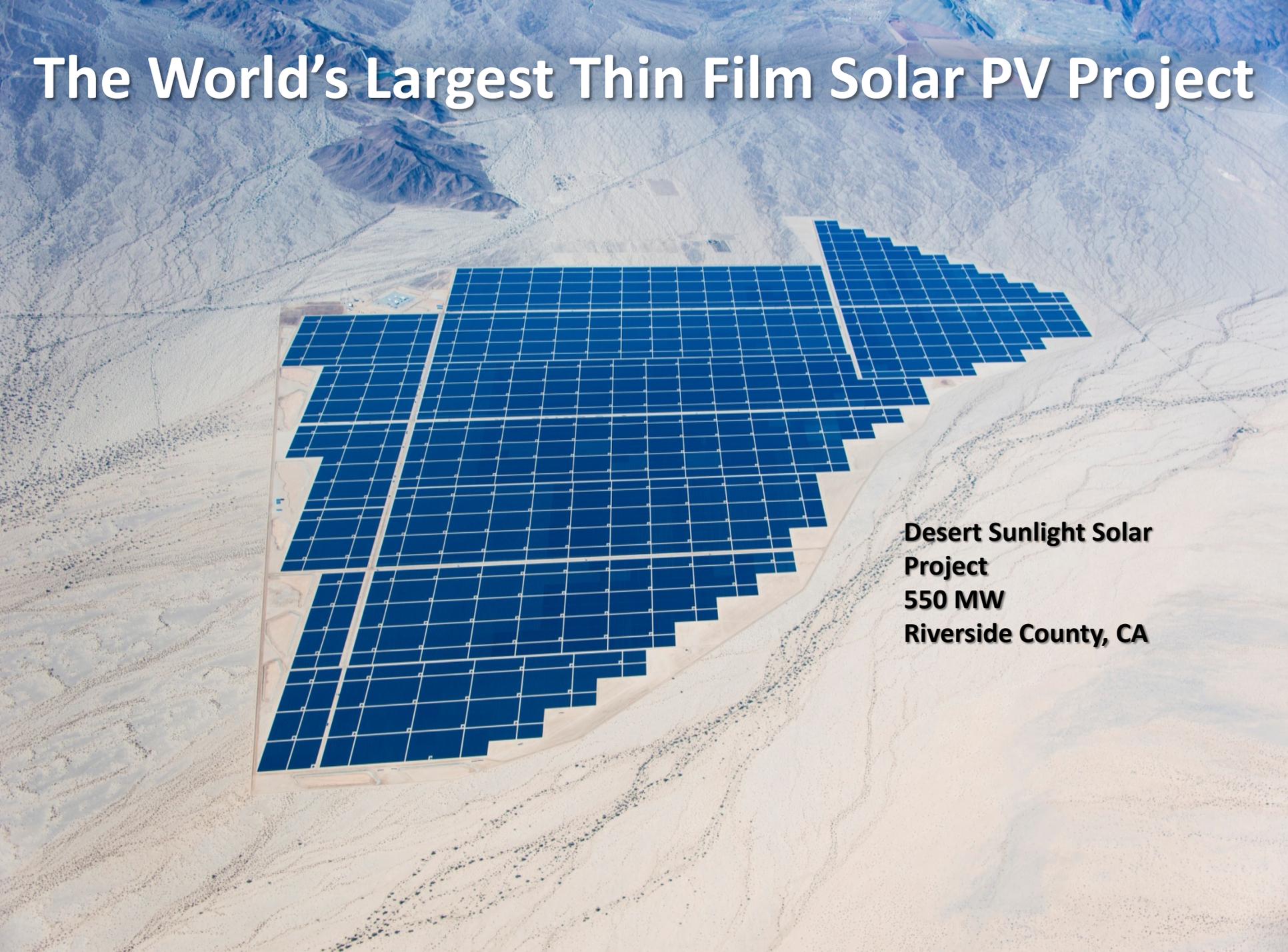
Source: DOE Report, Revolution Now, The Future Arrives for Five Clean Energy Technologies, 2015

California Making Rapid Progress on Renewable Energy



Source: California Energy Commission, Tracking Progress Report

The World's Largest Thin Film Solar PV Project

An aerial photograph showing a vast, rectangular solar farm in a desert. The solar panels are arranged in a dense grid, with a central access road. The surrounding terrain is arid and hilly, with some sparse vegetation and a few small structures near the solar farm's perimeter.

**Desert Sunlight Solar
Project
550 MW
Riverside County, CA**

The World's 3rd Largest Silicon PV Project

Solar Star Project
579 MW
Kern County, CA



The World's Largest Silicon PV Project: 1.2 GW

Qing Hai Province, Western China



The World's Largest Solar Thermal Power Plant (Tower)

Ivanpah Solar Thermal Project
393 MW
San Bernardino County, CA



The World's Largest Solar Thermal Power Plant (Trough)

Solar Energy Generating System (SEGS)

354 MW

San Bernardino County, CA



The World's Largest Geothermal Power Plant

Geysers Geothermal Power Plant
955 MW
Lake County, CA

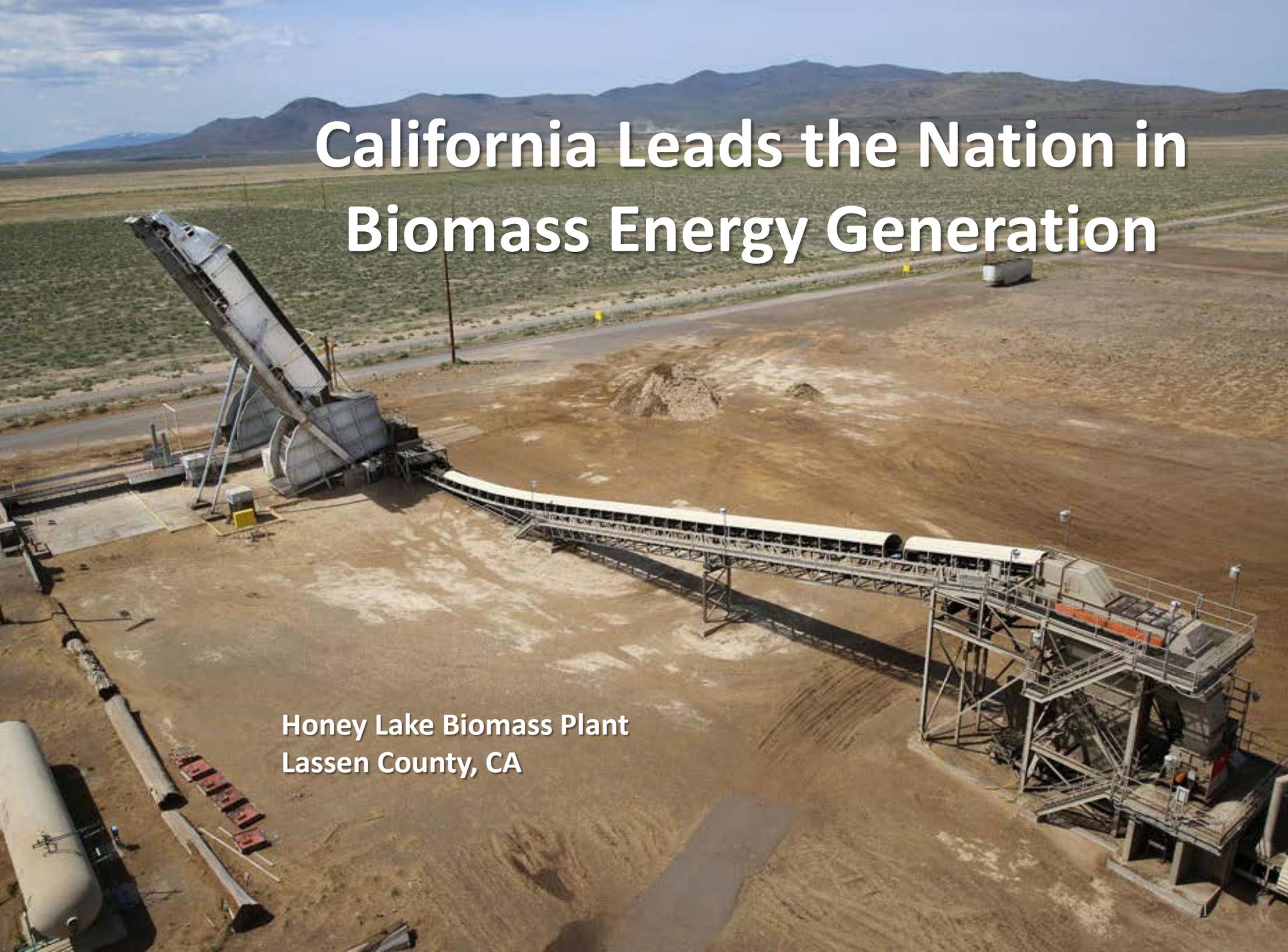


The World's Largest Wind Project

Alta Wind Energy Center
1550 MW
Kern County, CA



California Leads the Nation in Biomass Energy Generation

An aerial photograph of the Honey Lake Biomass Plant. The image shows a large industrial facility with a prominent conveyor system that curves across a large, flat, brownish area. In the background, there are mountains under a blue sky with some clouds. The foreground shows various pieces of equipment, including a large cylindrical tank and some structural elements.

Honey Lake Biomass Plant
Lassen County, CA

New Solar Home Construction Growing Rapidly

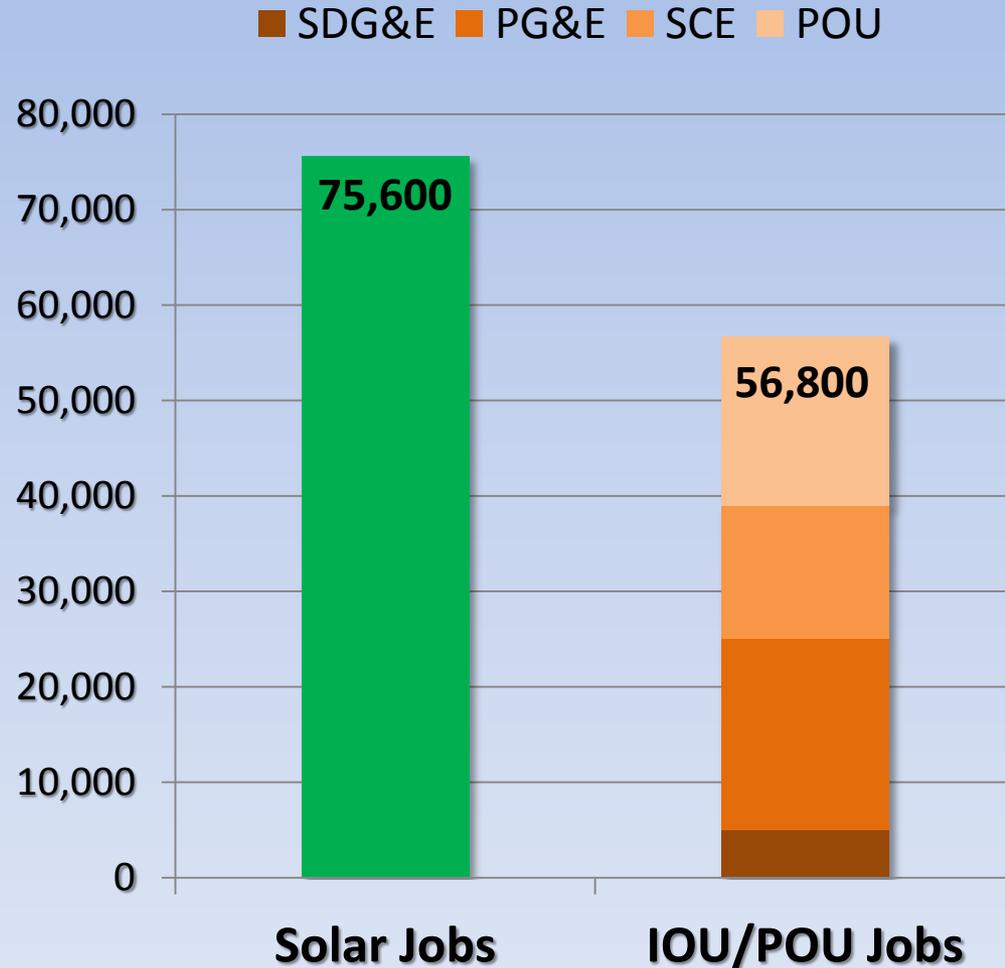


**Zero Energy Community
Rocklin, CA**

27% of new homes in
Southern CA
built with solar



More Californians Work in the Solar Industry Than for All Utilities Combined



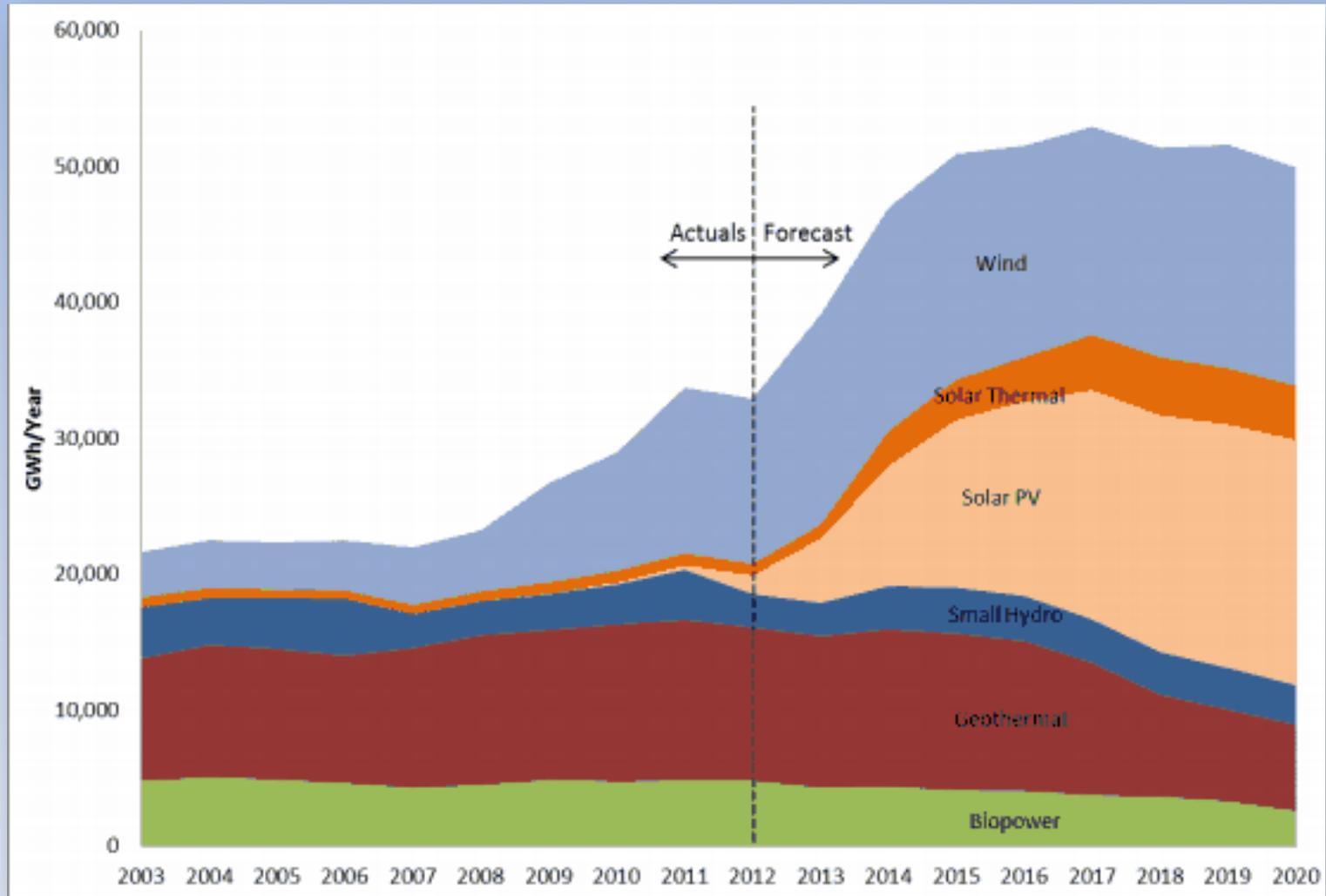
Sources:

Solar Foundation, 2015 Solar Jobs Census

U.S. Securities and Exchange Commission, Form 10-K, 2014

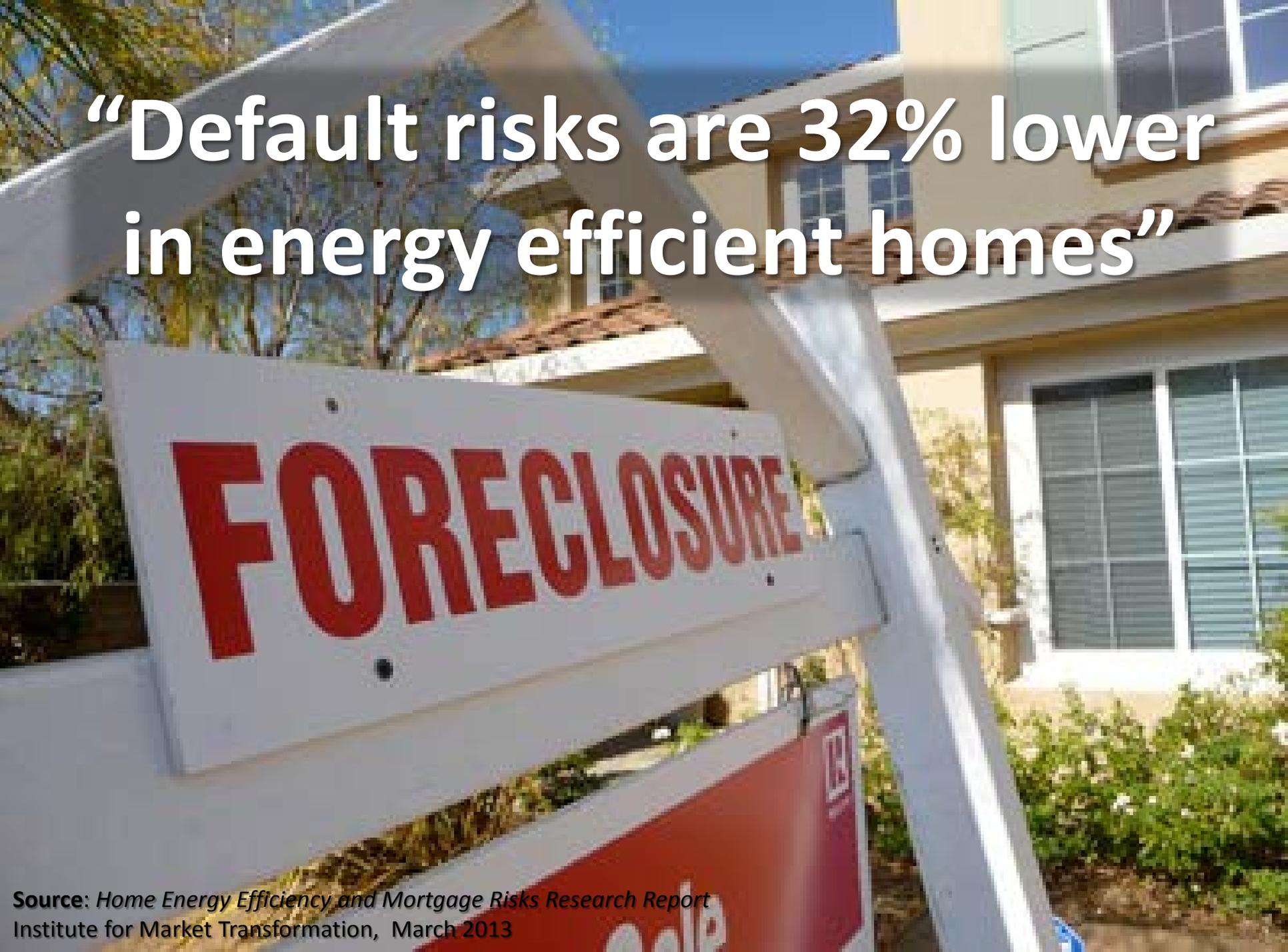
<http://www.sec.gov/edgar/searchedgar/companysearch.html>

Solar Expected to be half of all Renewable Energy in California by 2020



A high-angle photograph of a worker in a white shirt and dark cap installing blue solar panels on a brown shingled roof. The worker is positioned on the left side of the frame, leaning over the panels. The solar panels are arranged in neat rows, covering most of the roof's surface. In the background, a chimney and some greenery are visible under a blue sky with light clouds. The text 'Lancaster, CA: The first city in the US to mandate solar on new construction' is overlaid in white, bold font in the upper right quadrant of the image.

**Lancaster, CA: The first city in
the US to mandate solar
on new construction**



**“Default risks are 32% lower
in energy efficient homes”**

Largest Manufacturing Plant in CA Produces Electric Vehicles

Tesla employs over
12,000 people



Tesla Factory
Fremont, CA



**150,000
ELECTRIC VEHICLES
IN CALIFORNIA
TODAY**

Innovation in Electric Vehicles: 100 mile range, recharges in 20 minutes



Proterra Battery Electric Bus

Chevy Bolt (EV) Due Oct 2016

Retail Price: \$30,000

Range: 200 miles





Electric bike



Electric motorcycle

Companies Committing to 100% Renewable Energy

Google



The Latest Solar Customer: Solar Panels on the White House Roof



Governor Brown installs solar on the Governor's Mansion....



High Speed Rail is Coming to California and it will be 100% Powered by Renewables...



Smoking in the US



According to repeated nationwide surveys,

More Doctors Smoke **CAMELS** than any other cigarette!

Doctors in every branch of medicine were asked, "What cigarette do you smoke?" The brand named most was Camel!

You'll enjoy Camels for the same reasons as many doctors enjoy them. Camels have cool, cool *mildness*, pack after pack, and a flavor unmatched by any other cigarette. Make this sensible test. Smoke only Camels for 30 days and see how well Camels please your taste, how well they suit your throat as your steady smoke. You'll see how enjoyable a cigarette can be!

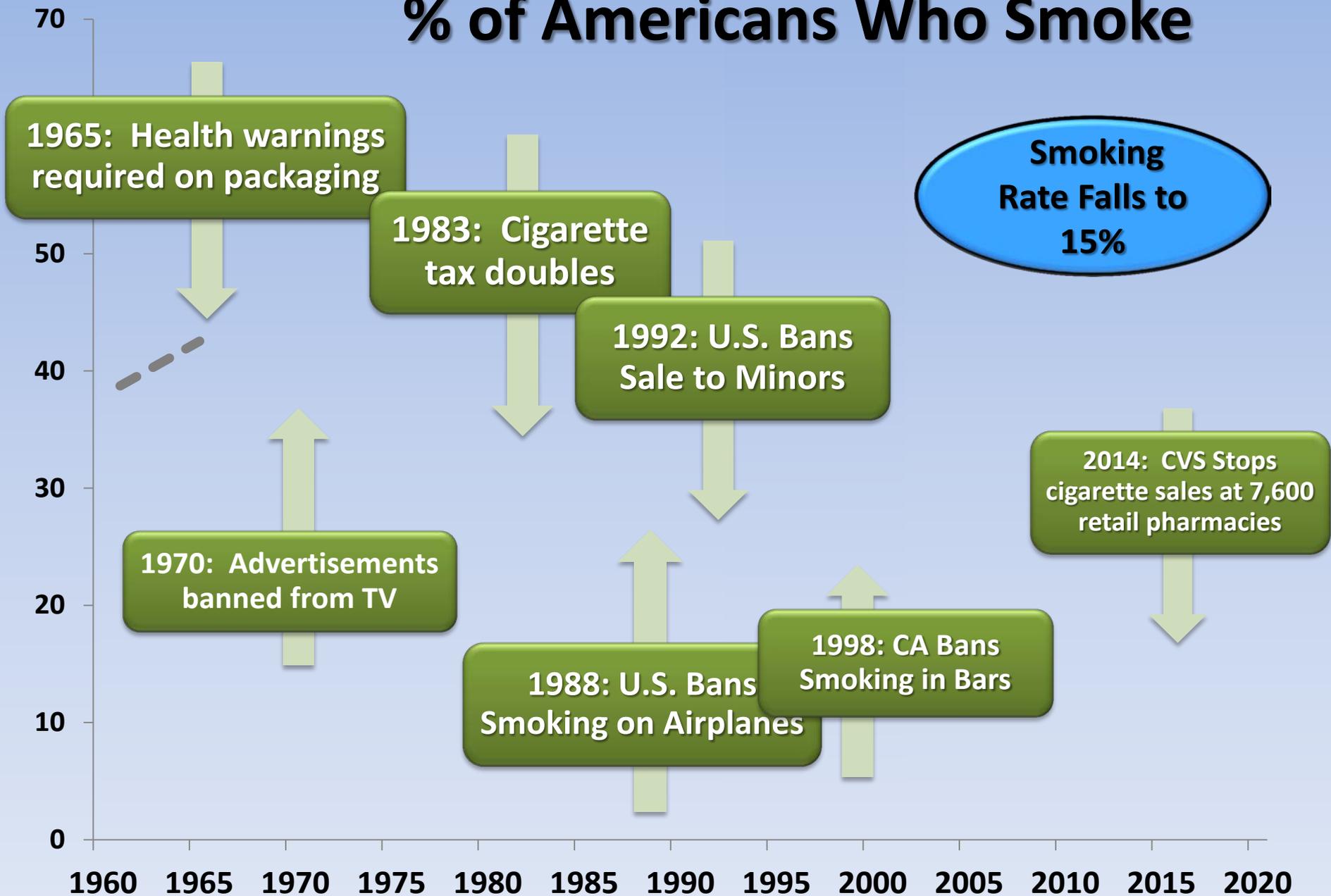
THE DOCTORS' CHOICE IS AMERICA'S CHOICE!

 <small>DR. J. EDGAR HOOVER Director, Federal Bureau of Investigation Washington, D.C.</small>	 <small>DR. ROBERT H. TAYLOR President, American Medical Association Chicago, Ill.</small>	 <small>DR. WILLIAM W. STEWART President, American College of Surgeons Chicago, Ill.</small>	 <small>DR. CHARLES E. YOUNG President, American Society of Internal Medicine New York, N.Y.</small>
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For 30 days, test Camels in your "T-Zone" (T^h for Throat, T^t for Taste).



% of Americans Who Smoke



Source: Centers for Disease Control and Prevention (CDC), 2014

http://www.cdc.gov/tobacco/data_statistics/tables/trends/cig_smoking/index.htm