

# **California's Energy Efficiency Leadership:**

## **Smart Policies Providing Enormous Economic, Environmental Benefits**

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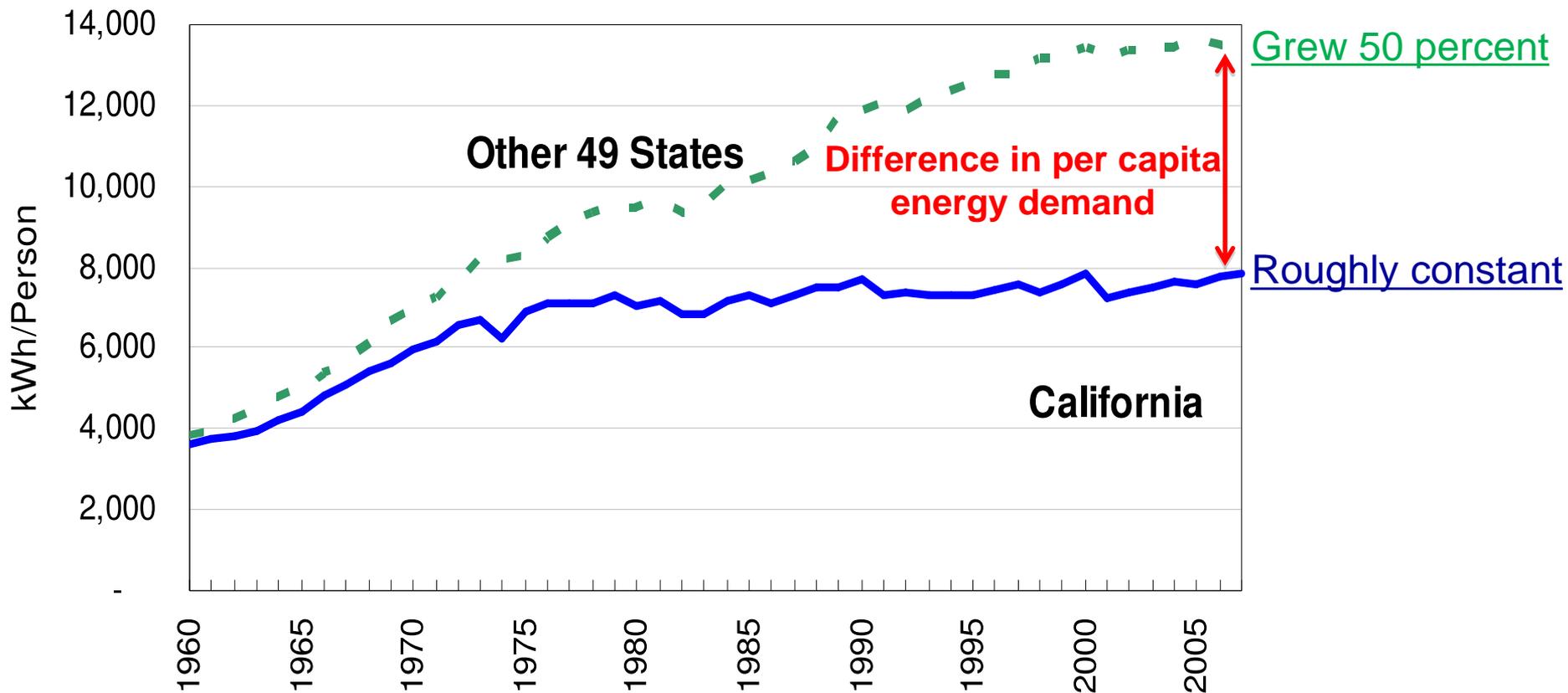
# Outline

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- ▶ Benefits of energy efficiency (EE)
- ▶ New policies since energy crisis of 2000-1
- ▶ Future potential in California and elsewhere

# Efficiency:

## *The Rosenfeld Curve\**



\*Named after Dr. Arthur Rosenfeld, one of the “fathers” of energy efficiency

# Benefits Achieved So Far

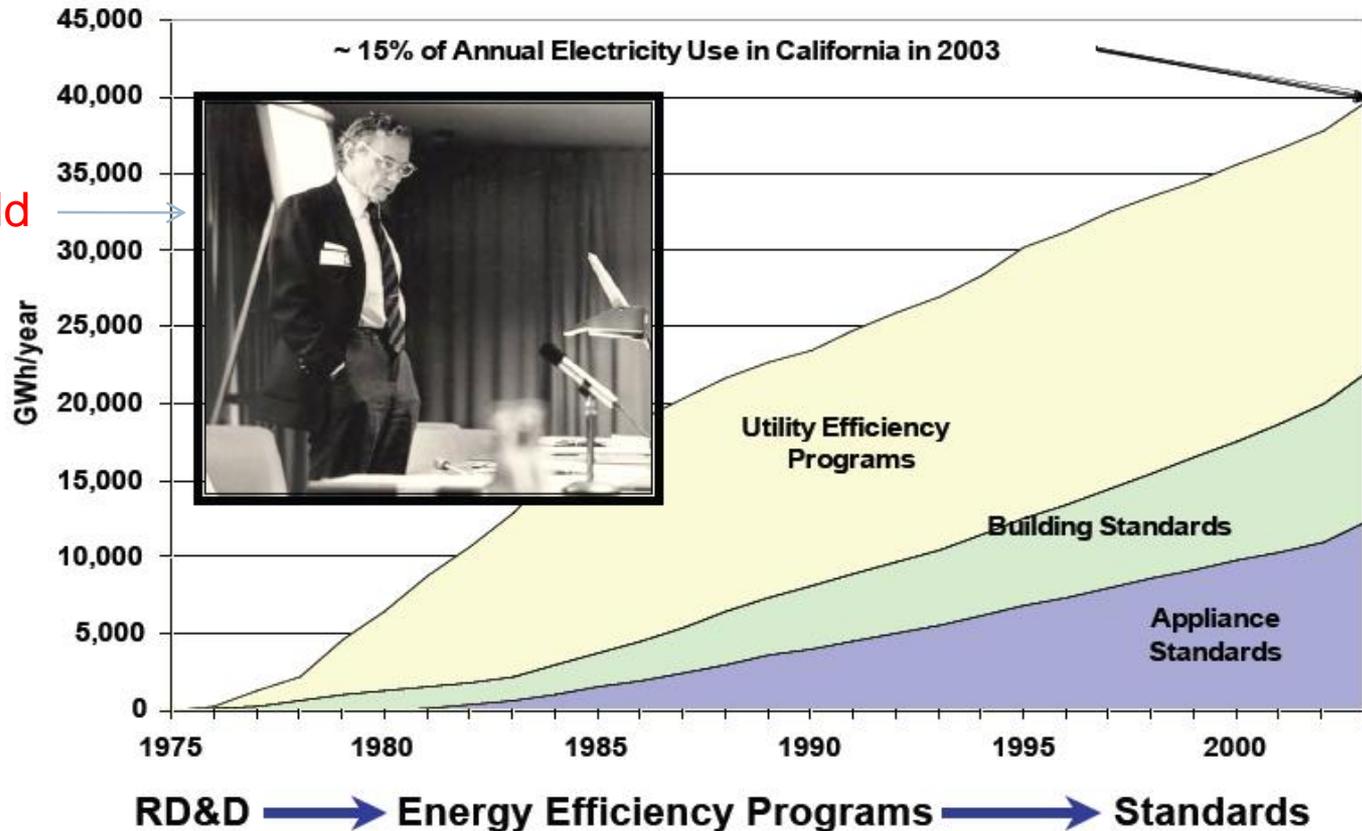
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- ▶ Between 1972-2006, California's EE policies...
  - ▶ *saved \$56 billion*
  - ▶ *created 1.5 million new jobs (full-time equivalent)*
  - ▶ *significant climate and air pollution benefits (more on this later)*

# How Has This Been Achieved?

- ▶ California's industry composition, household sizes, etc.
- ▶ Comprehensive policies:

Art Rosenfeld



# California's Energy Crisis in 2000-1

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**Energy savings slowed in late 1990s**  
(after deregulation of state's electricity market)



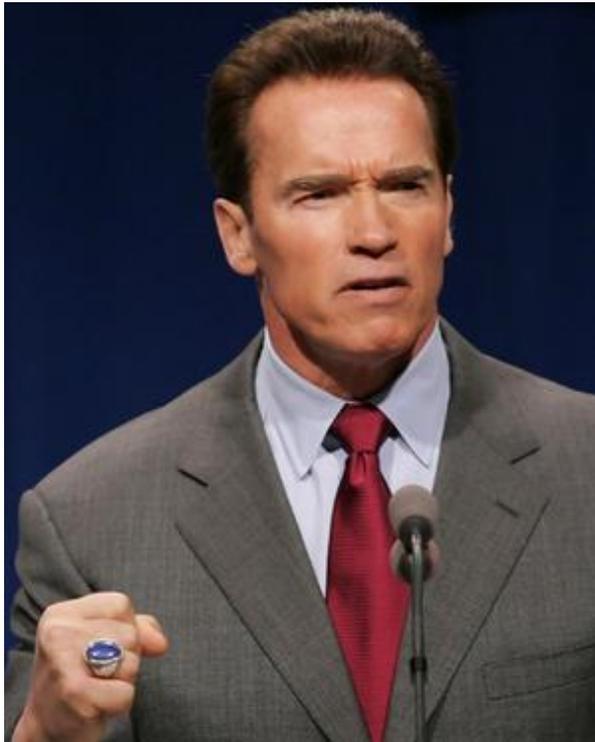
**Energy crisis in 2000-2001**  
(electricity shortages/blackouts)



**Energy efficiency is fastest, cheapest, cleanest  
resource to meet California's energy needs**

# New Policies Since 2001

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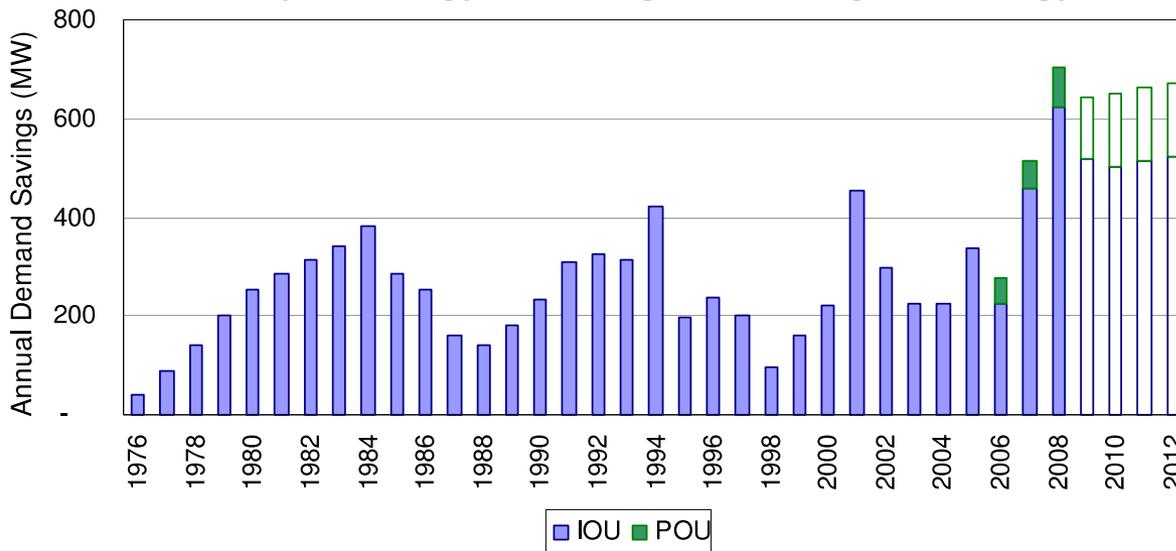
- ▶ California reintegrated energy efficiency into utility resource procurement policies
- ▶ Established aggressive **energy and demand saving targets**
- ▶ **Decoupling**: break link between recovery of authorized fixed costs and volume of energy sold
- ▶ Created **performance-based incentives** for utilities

# Efficiency Policies Have:

## (1) Saved Californians Money

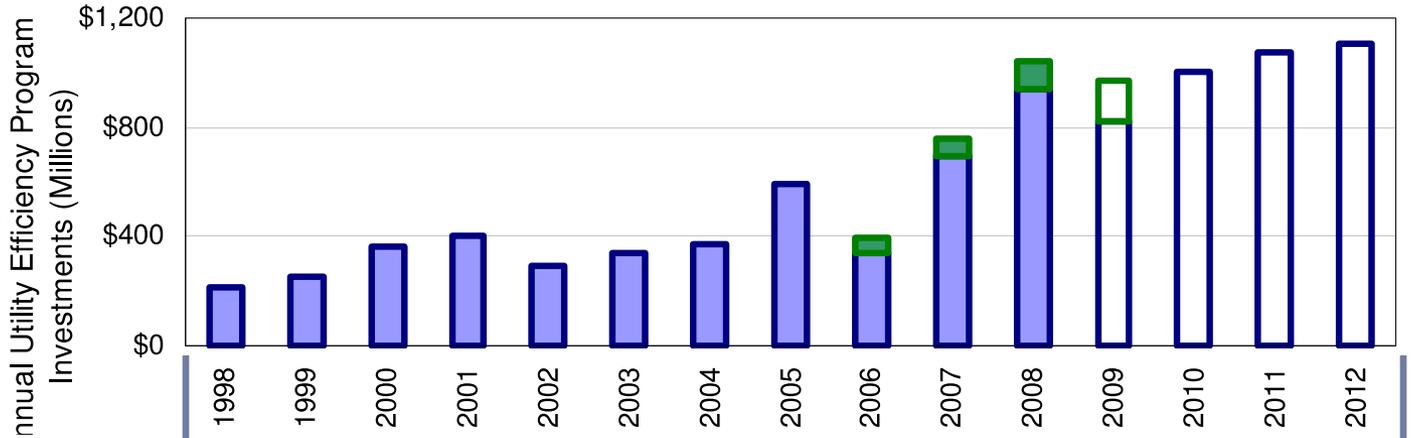
- The state's efficiency programs have generated
  - more than **\$2 in benefits for every \$1 invested**
  - **\$5 billion in net benefits over last 10 years**

Annual Utility Energy Savings Through Energy Efficiency

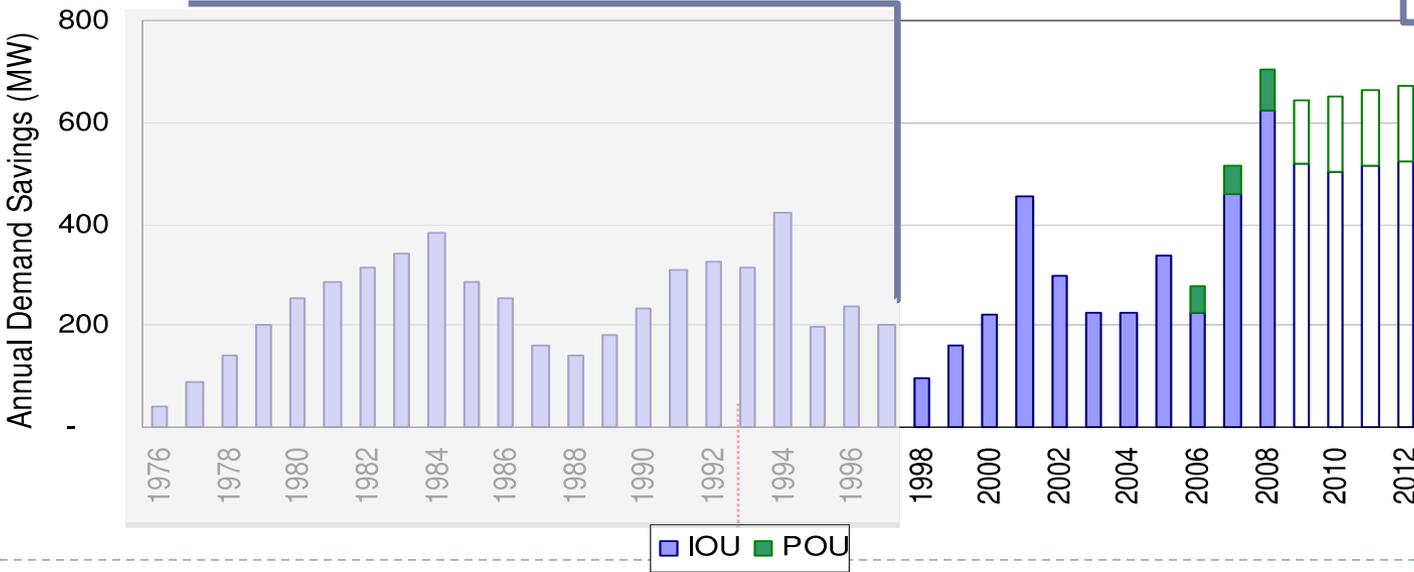


# Utility Investments Driving Savings

**Annual Energy Efficiency Investments by California Utilities**

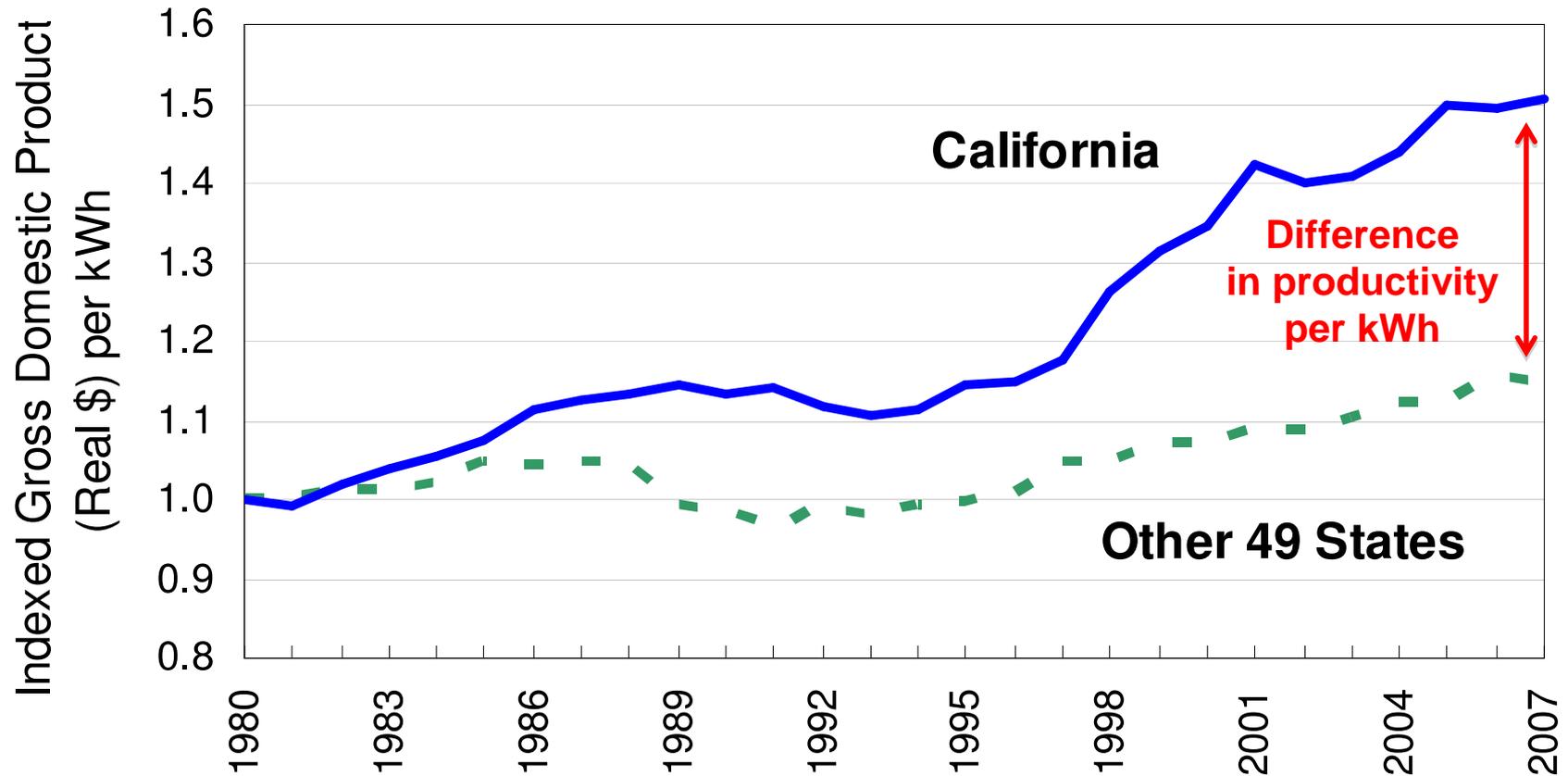


**Annual Utility Energy Savings Through Energy Efficiency**



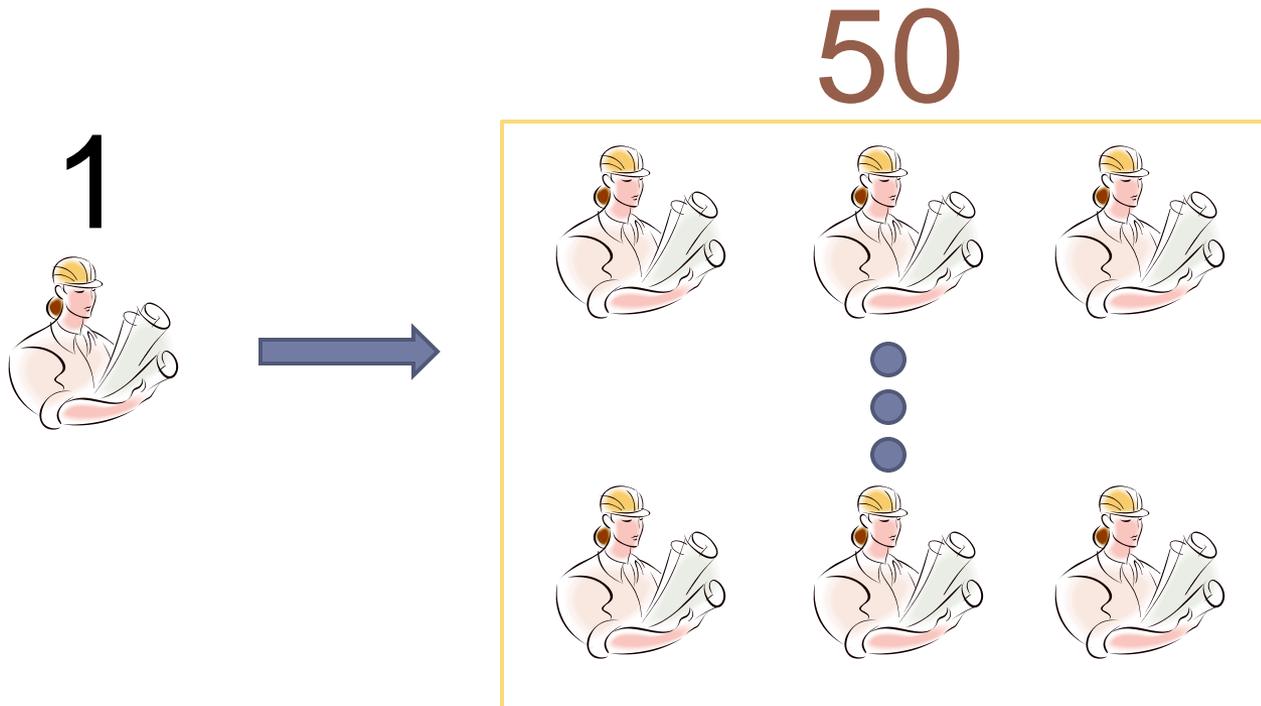
■ IOU ■ POU

# (2) Made Its Economy More Competitive



# (3) Created New, Green Jobs

- ▶ In California, for every **new job lost in fossil fuel sectors** due to investments in efficiency, **more than 50 new jobs are created** across the economy



## (4) Benefitted Consumers

- Efficiency programs help make **California's cost of electricity the fifth lowest in US** (measured as fraction of GDP)
- Consumers bills are **16% below national average**

## (5) Helped Low-Income Households

- ▶ Energy efficiency is the most powerful way to make **energy bills more affordable** (focused on energy *bills* rather than rate paid for each kWh)
- ▶ By reducing energy use, utility low-income programs **reduce overall cost of assistance programs**

# (6) Achieved Significant Climate Benefits

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- ▶ Efficiency is by far the cheapest significant GHG reduction source in the utility sector
- ▶ **California saves 10-15 MMTCO<sub>2</sub>e/year** based on cumulative policies since 1978 (equivalent to removing ~3 million cars)
- ▶ By 2020, expects to save an additional **16 MMTCO<sub>2</sub>e/year**

# (7) Reduced Air Pollution

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- ▶ In 2008, California avoided 1,000 tons of NO<sub>x</sub> (equivalent to removing ~200k cars)
- ▶ Avoided lung disease and hospital and emergency room visits



# (8) Transformed the Market

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- ▶ Strong market shares for state-of-the-art measures
- ▶ Introduce next-generation products and services with even higher levels of efficiency
- ▶ Help transform markets to make efficiency the norm rather than the exception

# (9) Influenced Policies Beyond California's Borders

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- ▶ Key role in improving U.S. efficiency standards (e.g., national standards to improve screw-in light bulb efficiency by 60% by 2020)
- ▶ California's policies have been a model for policies adopted by other countries such as China and Russia

# Potential To Achieve Still More...

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- ▶ California can capture an additional **7,000 MW** and **29,000 GWh** of efficiency savings through 2020
- ▶ Cost of saving this energy will continue to be less than producing it
- ▶ Efficiency is a major pillar of the state's greenhouse gas reduction effort

# Thank You!

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- ▶ Contact me:

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- ▶ Read our blogs:

[switchboard.nrdc.org/blogs/](http://switchboard.nrdc.org/blogs/)

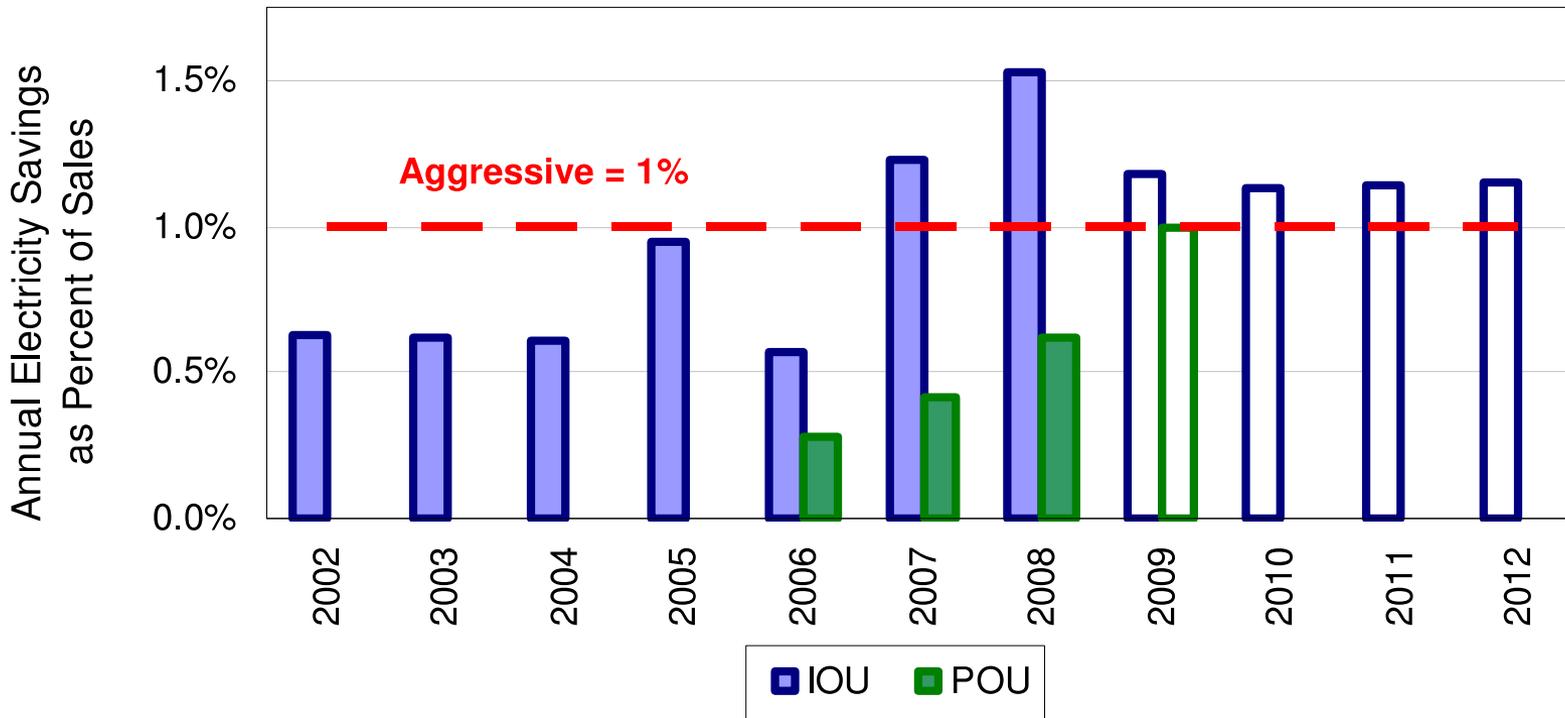
- ▶ For an international perspective, see **China-U.S. Energy Efficiency Alliance:**

[www.chinausealliance.org/](http://www.chinausealliance.org/)

# Extra Slides

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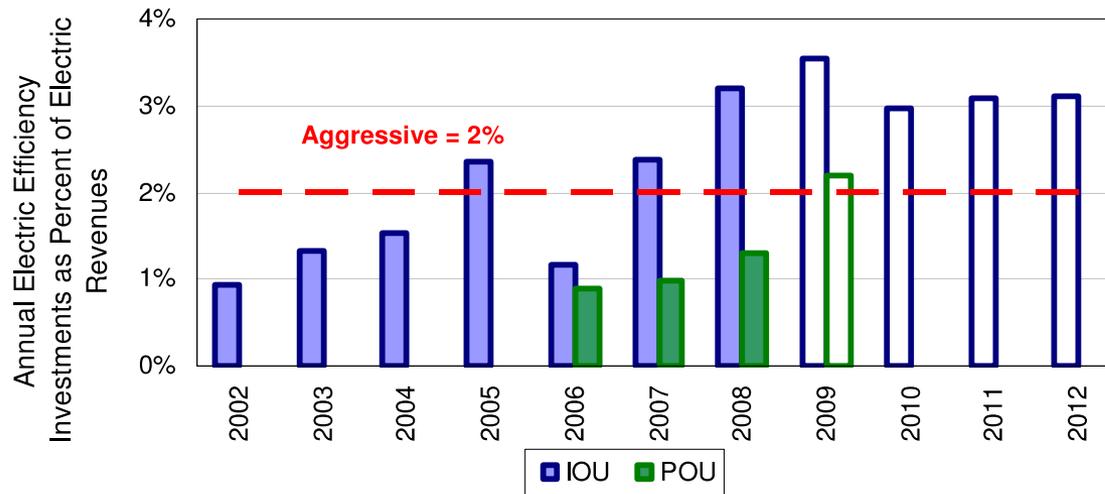
# Annual Utility Electric Savings as Percent of Sales



Note: Comprehensive data on POU efficiency savings is only available beginning in 2006; however, many POU have offered programs for decades.

# Annual Utility Energy Efficiency Investments as % of Revenues

Figure 6: Annual Electric EE Investments as Percent of Revenues<sup>54</sup>



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