



Building Energy Performance in California and Its Role in the State's Climate Initiative

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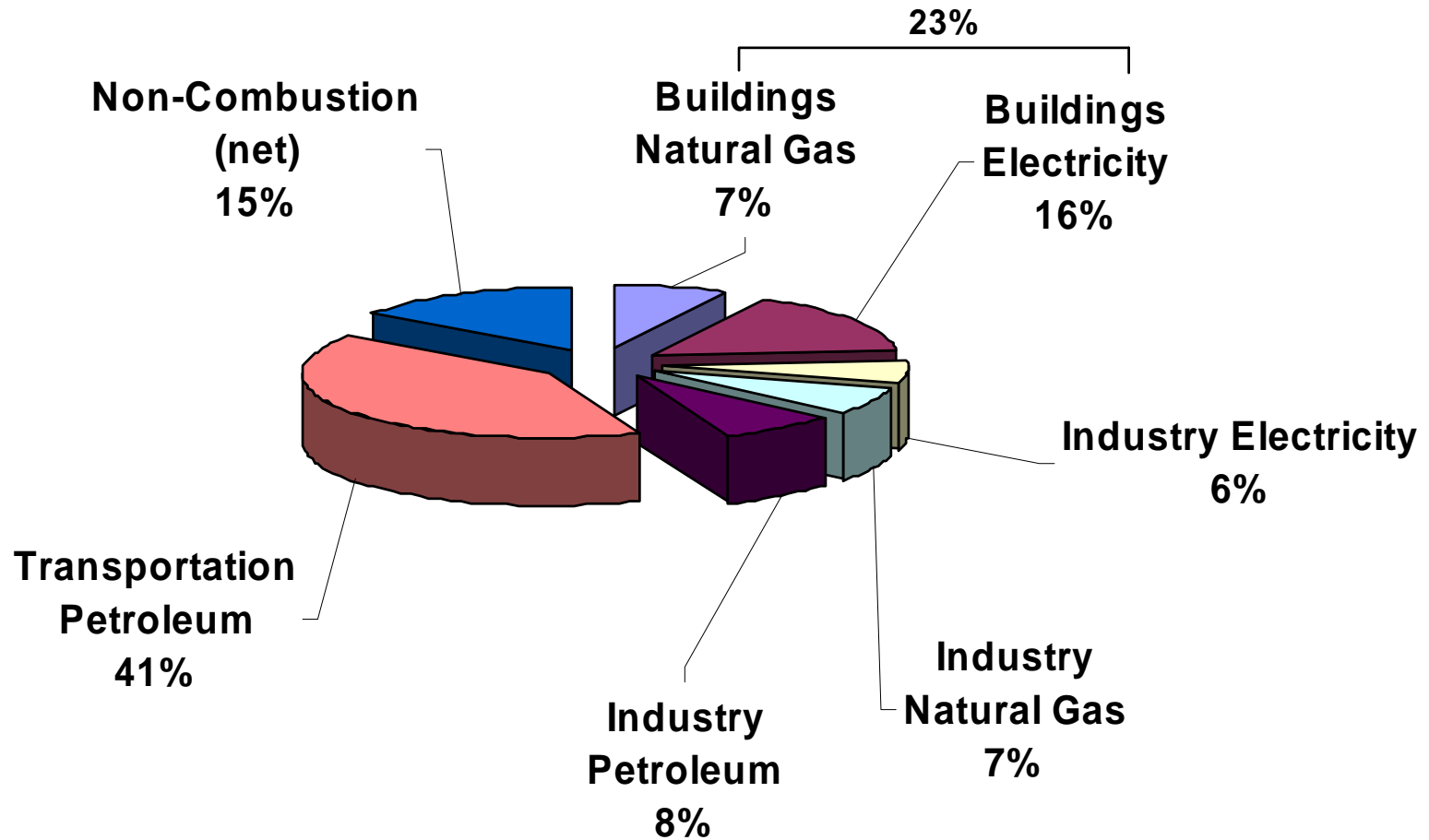
Overview

- Environmental Impacts of Buildings
- California Climate Policy
- Energy Efficiency Successes
- Key Energy Efficiency Policies
- Next Steps

U.S. Building Environmental Impacts

- Energy
 - 65% of total U.S. electricity consumption
 - 30% of U.S. greenhouse gas emissions
- Resources
 - 136 million tons of construction and demolition waste
 - 40% (3 billion tons annually) of global raw materials
- Water
 - 12% of potable water in the U.S.

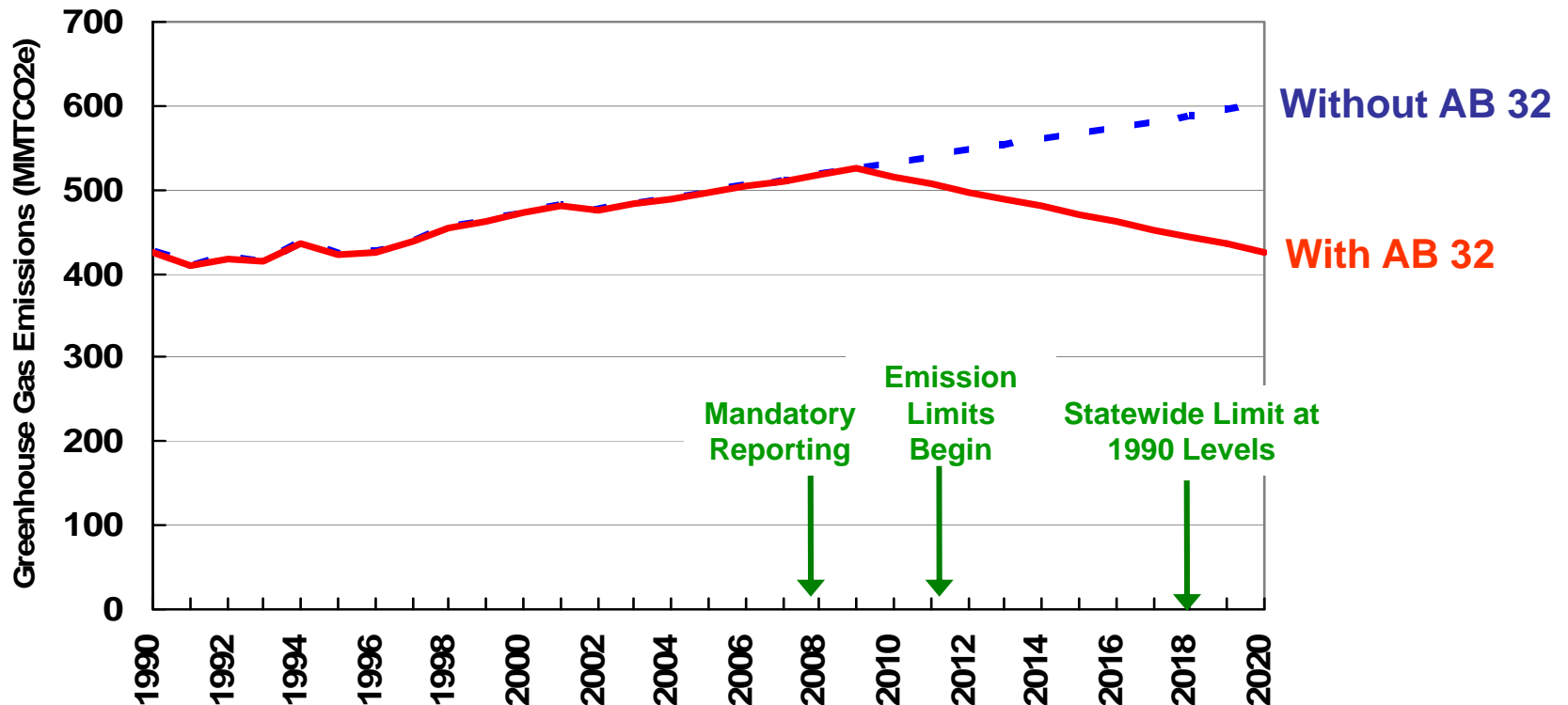
CA Sources of Global Warming Pollution



Source: CEC, Inventory of California Greenhouse Gas Emissions and Sinks: 1990-2004

Global Warming Solutions Act

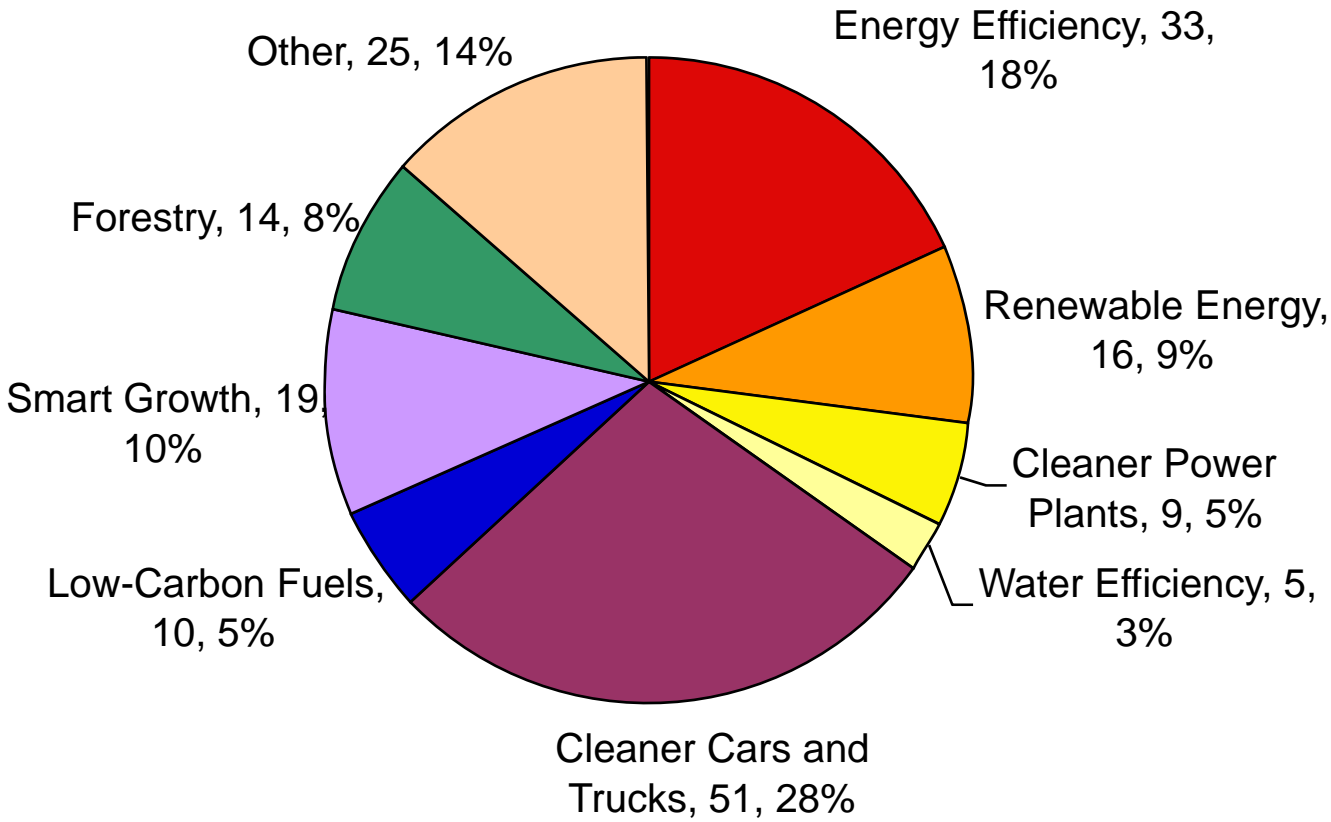
- AB 32 (Núñez-Pavley) – 2006
- Reduce GHG emissions to 1990 levels by 2020
- First step in what needs to be a larger effort



Sources: Climate Action Team, *Report to Governor Schwarzenegger and the Legislature*, March 2006; AB32

Strategies to Cut Global Warming Pollution

Summary of Key Emission Reduction Strategies *(Measure, MMTCO₂e reduction, Percent of Total)*

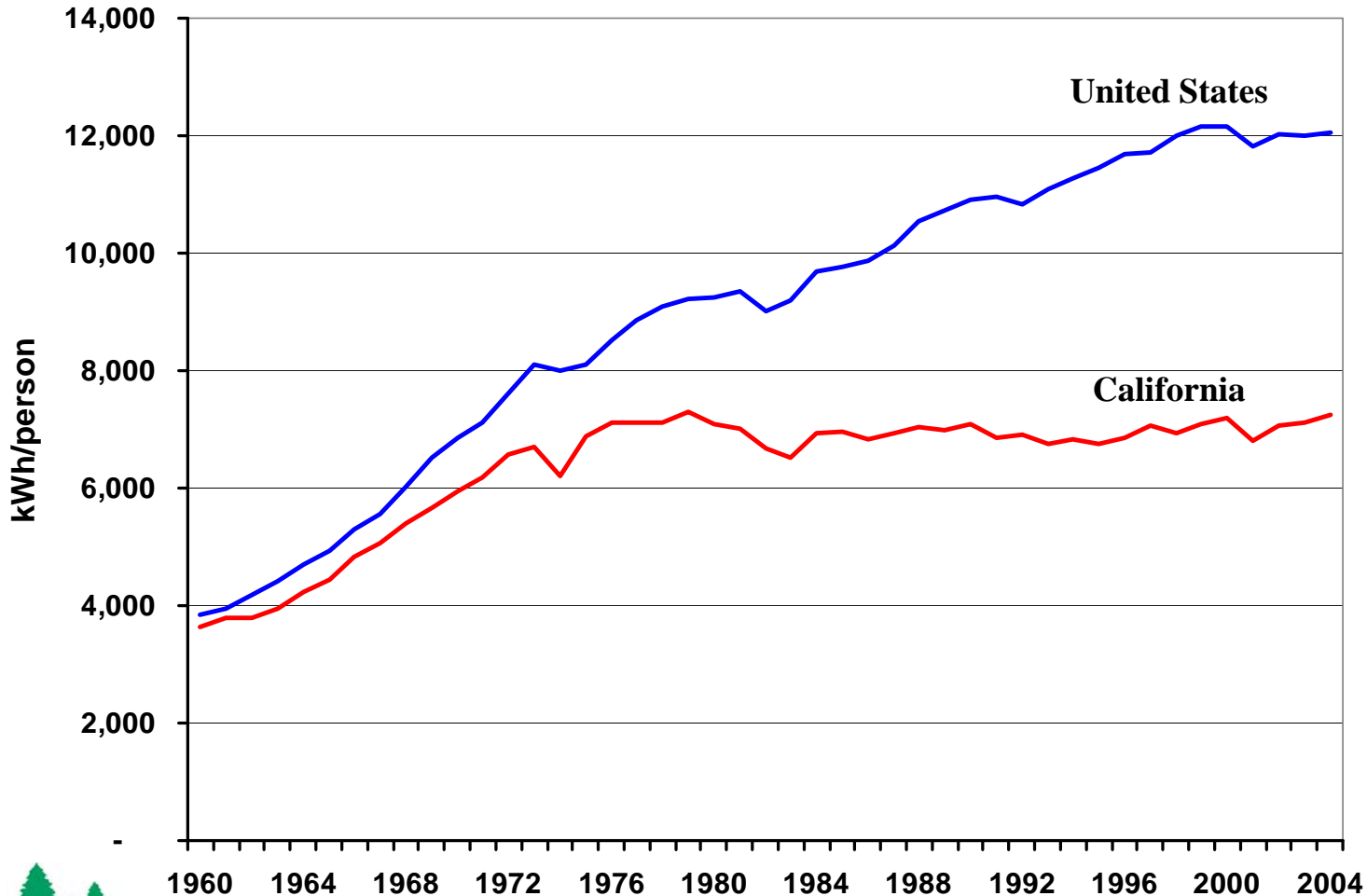


Sources: Climate Action Team, California Air Resources Board, NRDC



CA Energy Efficiency Success

Per Capita Electricity Consumption



✓ Saved
12,000 MW
(~24 power
plants)

✓ Saved
\$875 to
\$1300 *per
person*

Source: California Energy Commission, 2005 and RAND

Loading Order

- Energy Resource Loading Order:
 1. Energy Efficiency (EE)
 2. Renewable Energy
 3. Clean Distributed Generation
 4. Efficient Fossil Fuel Generation
- EE codified as a priority
- Statewide goal of 100% cost-effective EE

Key Tools to Save Energy

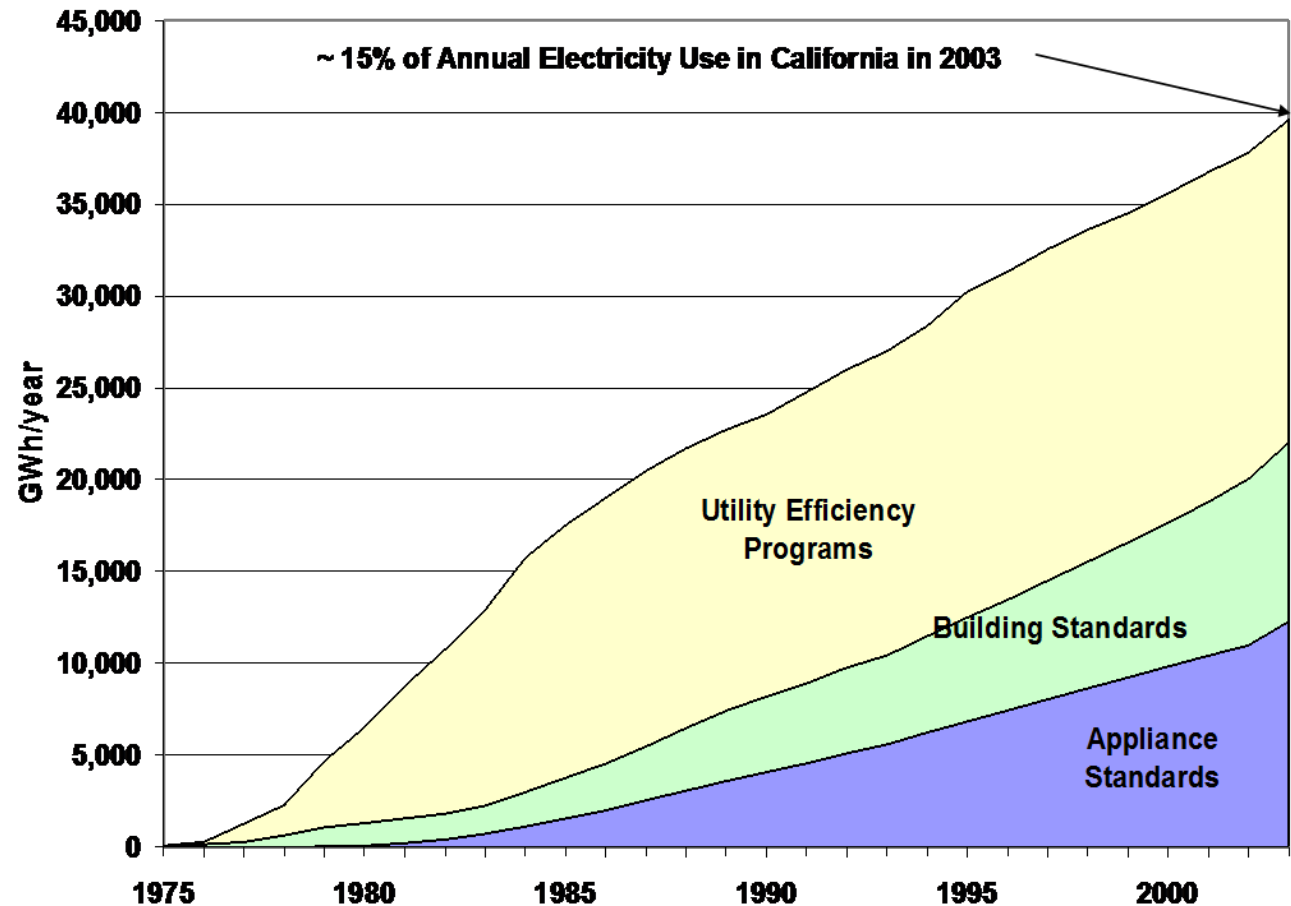
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Energy Efficiency Programs



Standards



Source: California Energy Commission, 2005

Research, Development, and Demonstration

- Public Interest Energy Research (PIER)
 - \$80 Million
 - Administered by the CEC
- Institutions
 - UC Davis
 - Stanford
- Laboratories
 - Lawrence Berkeley National Lab

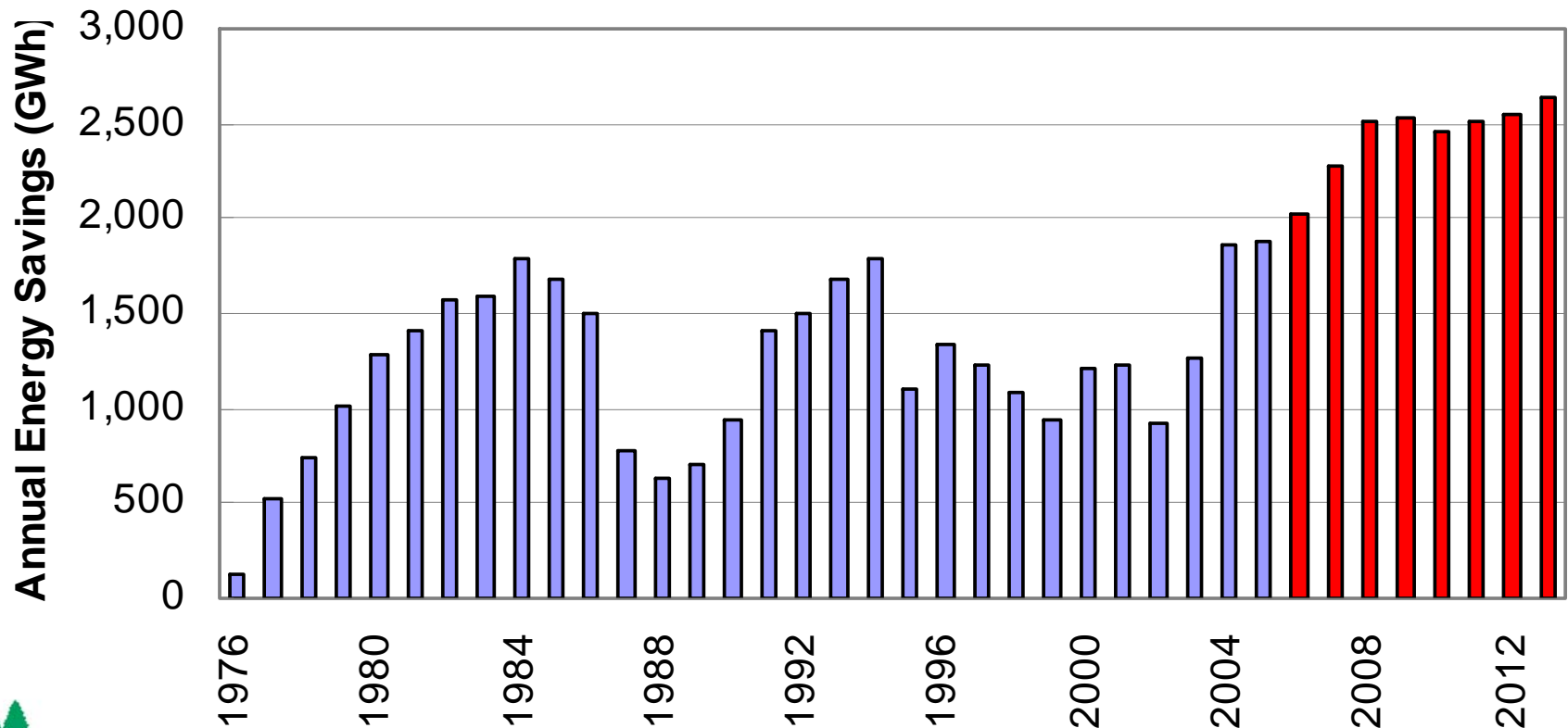
Program Framework

1. Make energy efficiency (EE) a priority
2. Remove financial disincentives (decoupling)
3. Create Funding Mechanisms
4. Integrate EE into utilities' resource procurement
5. Set aggressive targets
6. Design a 3-year cycle with well-designed programs
7. Ensure independent evaluation of savings
8. Implement performance-based incentives

Investor-Owned Utility (IOU) Policies

By 2013, the IOU goals will:

- Avoid 10 giant power plants & save consumers \$10 billion
- Cut pollution equal to emissions from 2 million cars



Sources: California Energy Commission; IOU Annual Reports; California Public Utilities Commission

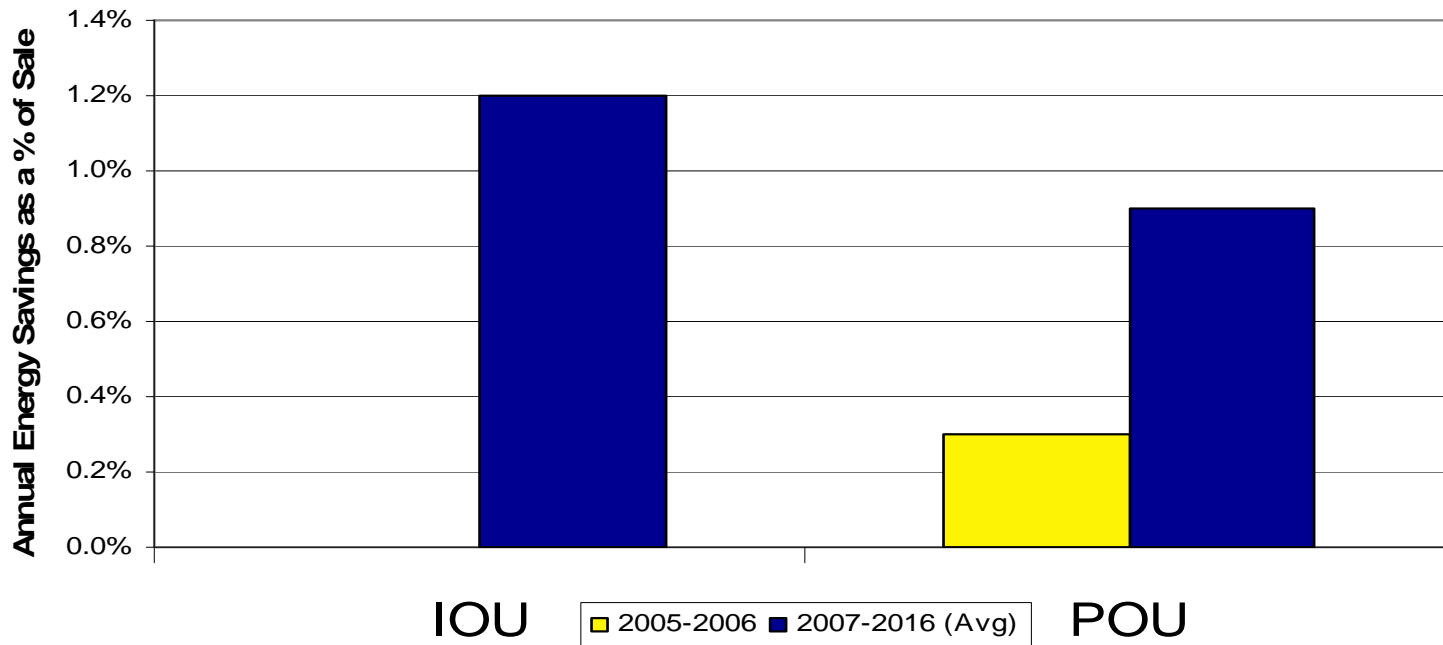
Strategic Plan

- Long term planning through 2020
- Aggressive goals
- Linkage to AB32 Scoping Plan
- Big Bold Initiatives
 - Net zero energy new residential by 2020
 - Net zero energy new commercial by 2030
 - HVAC industry reshaping

Publicly-Owned Utility (POU) Policies

- Senate Bill 1037 (2005) & Assembly Bill 2021 (2006)
- By 2016, POU goals will:
 - Avoid 2 giant power plants & save consumers \$2 billion
 - Cut pollution equal to emissions from 400,000 cars and trucks

Comparison of POU and IOU Energy Savings Targets



Sources: California Energy Commission; POU Annual Reports; POU AB 2021 Report

T24 - 2008 Proposed Efficiency Standards

- First Year Savings:
 - 550 GWh - cumulative
 - 150 MW - in each year
- After 5 years:
 - Avoid one giant power plant
 - Cut pollution equal to 200,000 cars

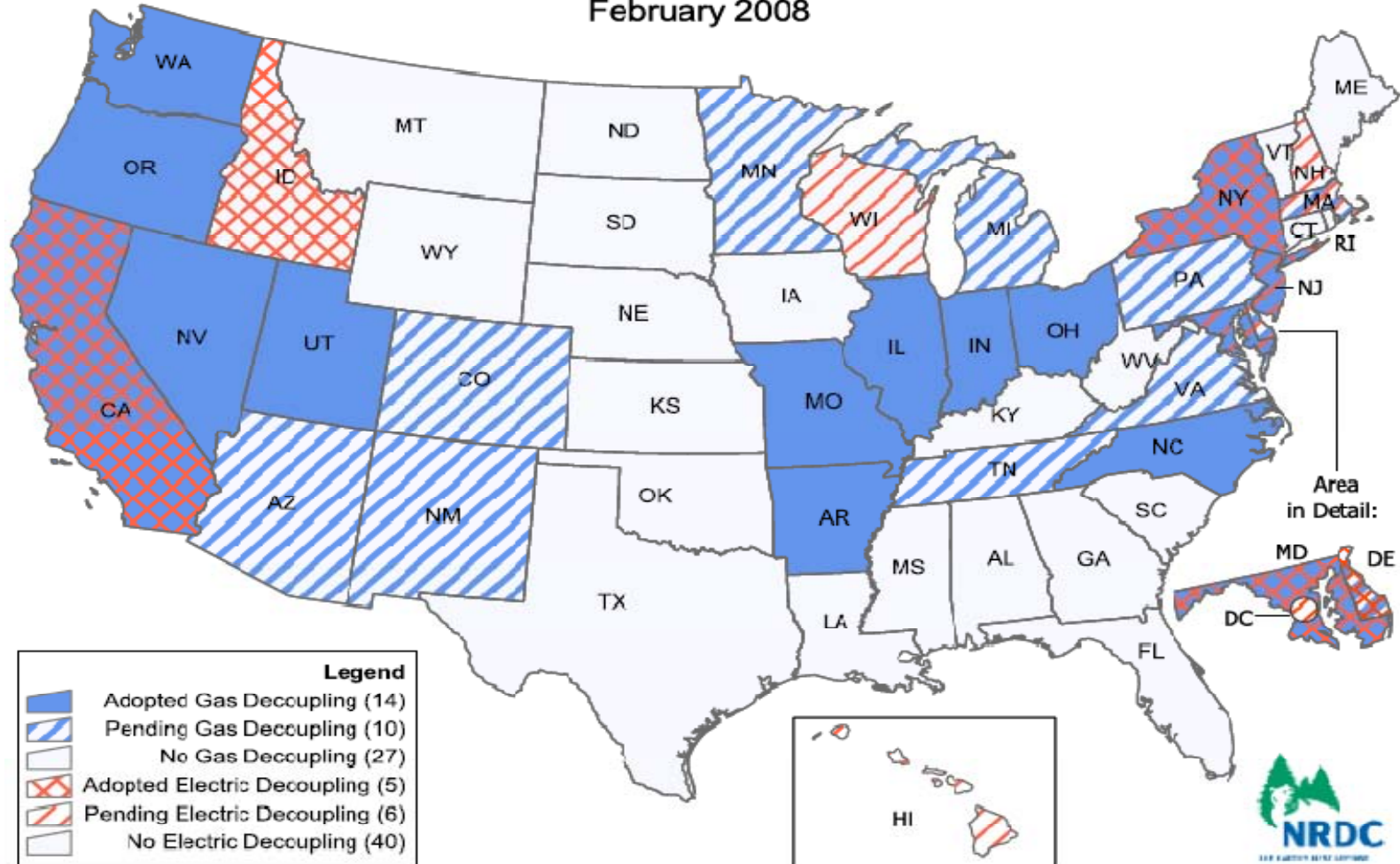
Looking Forward...

- Ramp up POU efficiency programs
- Link between water efficiency and energy
- Integrate demand-side management
- Take advantage of time of sale
- Use the whole-house approach
- Collaborate with building community

Beyond California

Gas and Electric Decoupling in the US

February 2008



Questions?

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