



CALIFORNIA ENERGY COMMISSION

The ‘Diversified Portfolio’ for Transportation Energy

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California- An Island?





California Nation-State Statistics

- Population: 36.8 million
- GDP: \$1.8 trillion - 8th largest economy
- GHG Emissions: 440 MMT (2004)
 - 7.2% of U.S. Emissions (Pew Center)
 - 10th largest emitter on global scale
 - Transportation accounts for 38 % of all GHG emissions
- Vehicles: 26.3 million cars + 0.92 million trucks
- Annual Fuel Consumption: 20 billion gallons
 - 16 billion gallons gasoline
 - 4 billion gallons diesel
 - 3rd largest consumer of vehicle fuels after China and US



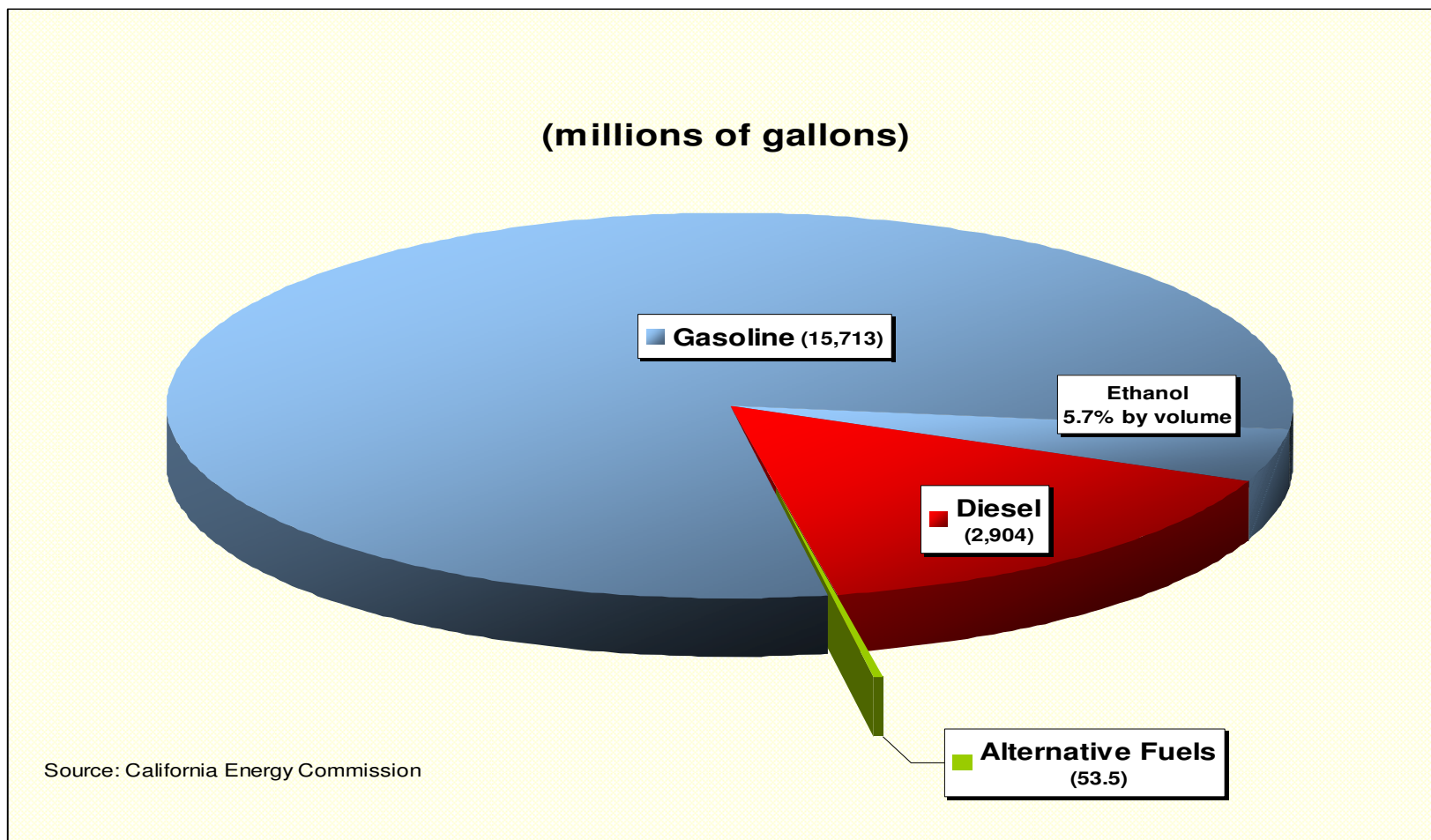
Key Policy Objectives

Objectives	Goals and Milestones
GHG Reduction	Reduce GHG emissions to 1990 levels by 2020 and 80% below 1990 levels by 2050
Petroleum Reduction	Reduce petroleum fuel use to 15% below 2003 levels by 2020
Alternative and Renewable Fuel Use	Increase alternative and renewable fuel use to 11% of on-road and off-road fuel demand by 2012, 13% by 2017 and 26% by 2022
In-State Biofuels Production	Produce in California 20% of biofuels used in state by 2010, 40% by 2020, and 75% by 2050



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California's Petroleum and Alternative Fuels Demand





California Alternative Fuels Plan

- **Adopted Plan to achieve state petroleum reduction goals.**
 - Increase use of alternative fuels by 20 percent
 - Reduce demand for gasoline and diesel to 15 percent below 2003 levels by 2020
- Full-fuel-cycle analysis of all fuels, specific recommendations.
- Goals: 9% in 2012, 11% in 2017, 26% in 2022.
- Displacement of 4 billion gge in 2020 (adding about 1Mg/p/d increased Alternative Fuel use)

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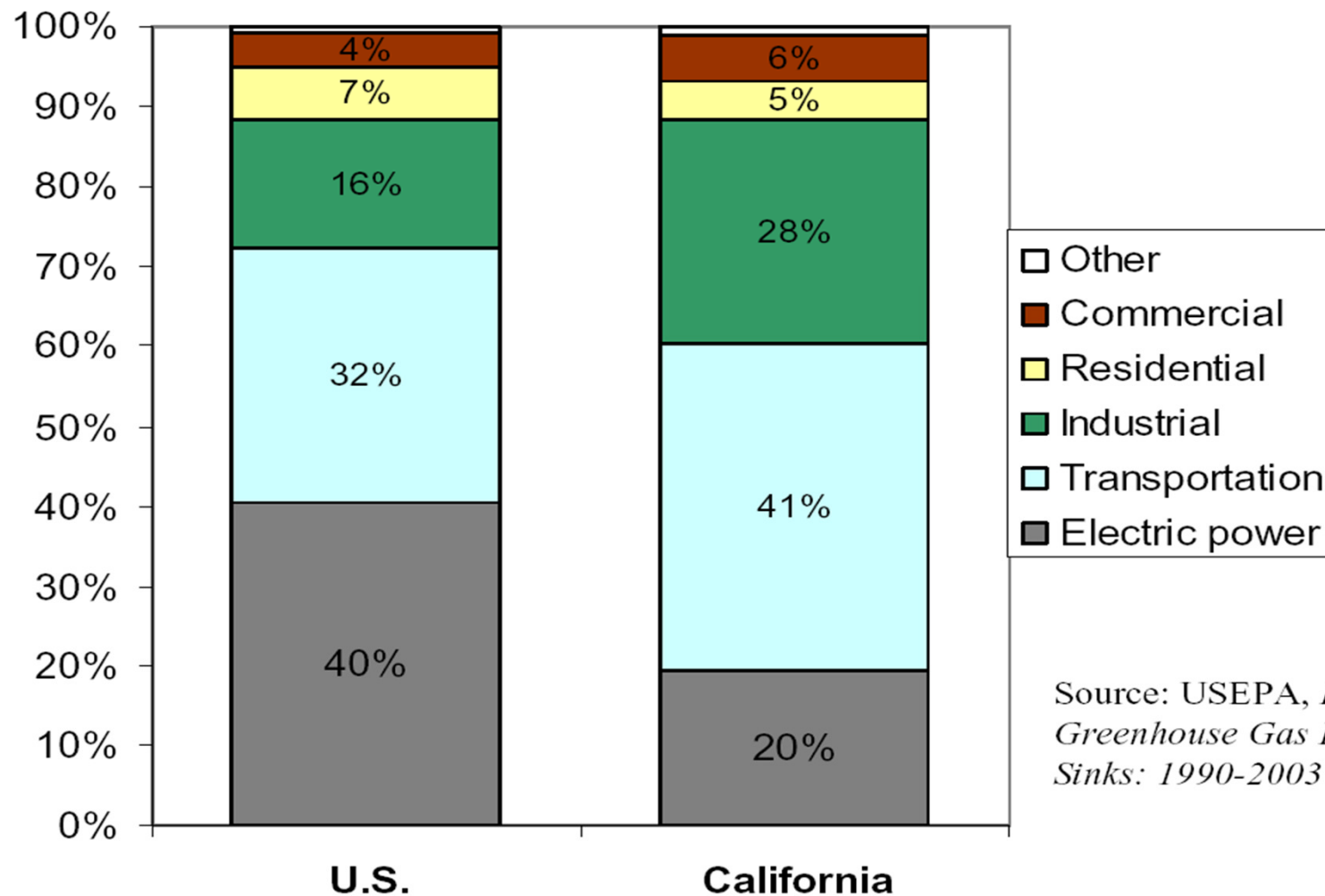


California Air Resources Board





Sources of Greenhouse Gas Emissions



Source: USEPA, *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2003*



Global Warming Solutions Act of 2006

- **On September 27, 2006, Governor Schwarzenegger signed legislation, Assembly Bill 32, the Global Warming Solutions Act of 2006.**
- **California's initiative is intended to limit greenhouse gas emissions from the state's largest emitting sources.**
- **This legislation gives the California Air Resources Board significant, new responsibilities.**



California's Low Carbon Fuel Standard

- On January 9, 2007, the Governor issued Executive Order S-1-07, establishing the world's first Low Carbon Fuel Standard for transportation fuels.
- Petroleum refiners, gasoline sellers and fuel suppliers must reduce the carbon content of their fuels by 10 percent by 2020.
- By regulating carbon fuel content, this standard will support the state's greenhouse gas reduction targets, while promoting the use of alternative fuels.
- Adding ethanol or other biofuels into gasoline is one option for meeting the Standard; advanced biofuels show promise.
- The California Air Resources Board expects to complete its rulemaking in late 2008.



Funding and Objectives

- Up to \$100 million per year for 7 ½ Years (\$75 million for FY 08-09; \$101 million for FY 09-10)
- Develop, produce, manufacture, and deploy alternative and renewable fuels, advanced vehicles, vehicle efficiency improvements for on-road and non-road applications.
- Emphasize workforce training and job creation
- Foster education, promotion and technology centers
- Prepare environmental, market and technology assessments



ARRA Cost-Sharing - \$36.52 million

- Install 3,891 electric vehicle charging sites
- Demonstrate over 800 medium- and heavy-duty natural gas and hybrid-electric trucks.
- Develop high energy density lithium-ion batteries
- Provide public outreach and education to promote the deployment of heavy-duty natural gas vehicles



Closed PONs- \$124.4 million

- Biomethane production (\$21.5 million)
- Alternative and renewable fuel infrastructure (\$9.5 million)
- Medium- and heavy-duty vehicles (\$13.8 million)
- Manufacturing facilities for electric vehicles, alternative vehicles, vehicle components and batteries (\$19 million)
- Biofuel production plants (\$15 million)
- Hydrogen fueling infrastructure (\$19 million)
- Ethanol production incentive programs (\$6 million)
- Hydrogen dispensing equipment certification (\$4 million)
- Workforce training and development programs (\$15 million)
- Conversion of state-owned hybrid-electric vehicles to plug-in electric vehicles (\$600,000)
- Technical assistance for Program administration (\$1 million)



Funding Allocation Summary for FY 2010-2011 Investment Plan

• Battery Electric Drive	\$24.5 million
• Hydrogen Electric Drive	\$13 million
• Gasoline Substitutes	\$16.5 million
• Diesel Substitutes	\$9 million
• Natural Gas	\$22 million
• Propane	\$3 million
• Innovative Technologies/Advanced Fuels	\$8 million
• Market and Program Development	\$12 million

Total	----- \$108 million
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Funding Mechanisms under Consideration

- *Block Grants (public entities and organizations)*
- *Loans or Funds Distribution through the Office of the State Treasurer (STO)*
- *Continuous Solicitations (vehicle procurement, fuel infrastructure)*
- *Goods Movement Funding (suites of projects including vehicle and fuel demonstrations/deployments, necessary infrastructure establishment)*
- *Market and Program Outreach (likely competitive solicitation)*



The “Five Spoke Wheel”





C A L I F O R N I A E N E R G Y C O M M I S S I O N

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