

The Future is Now!

Planning for Low Carbon Transportation Fuels in Northern California

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Northwest California Alternative Fuels Readiness Plan



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SISKIYOU COUNTY
ECONOMIC DEVELOPMENT

California's Northwest Region



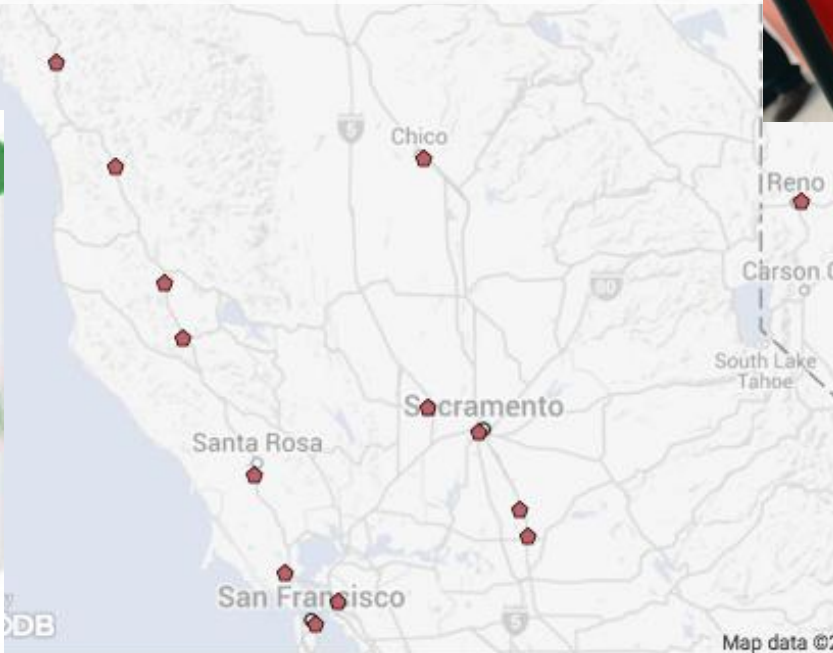
What Are Alternative Fuels?

- Biodiesel
 - Renewable Diesel
 - Ethanol
 - Natural gas & Renewable Natural Gas
 - Propane
 - Electricity
 - Hydrogen
- Zero Emissions vehicles

Overview of Fuels – Biodiesel

Advantages:

- Domestically produced
- Can be used in most diesel engines
- Less air pollution*
- Biodegradable, non-toxic



Disadvantages:

- Lower fuel economy / power (10% for B100, 2% for B20)
- Currently more expensive
- B100 not suitable in low temps.
- Potential engine issues
- Land use impacts

Overview of Fuels – Renewable Diesel



Advantages:

- Drop-in fuel for all diesel vehicles
- Can be domestically produced from renewable resources
- Less air pollutants
- Less greenhouse gas emissions

Disadvantages: Land use impacts

Overview of Fuels – Ethanol

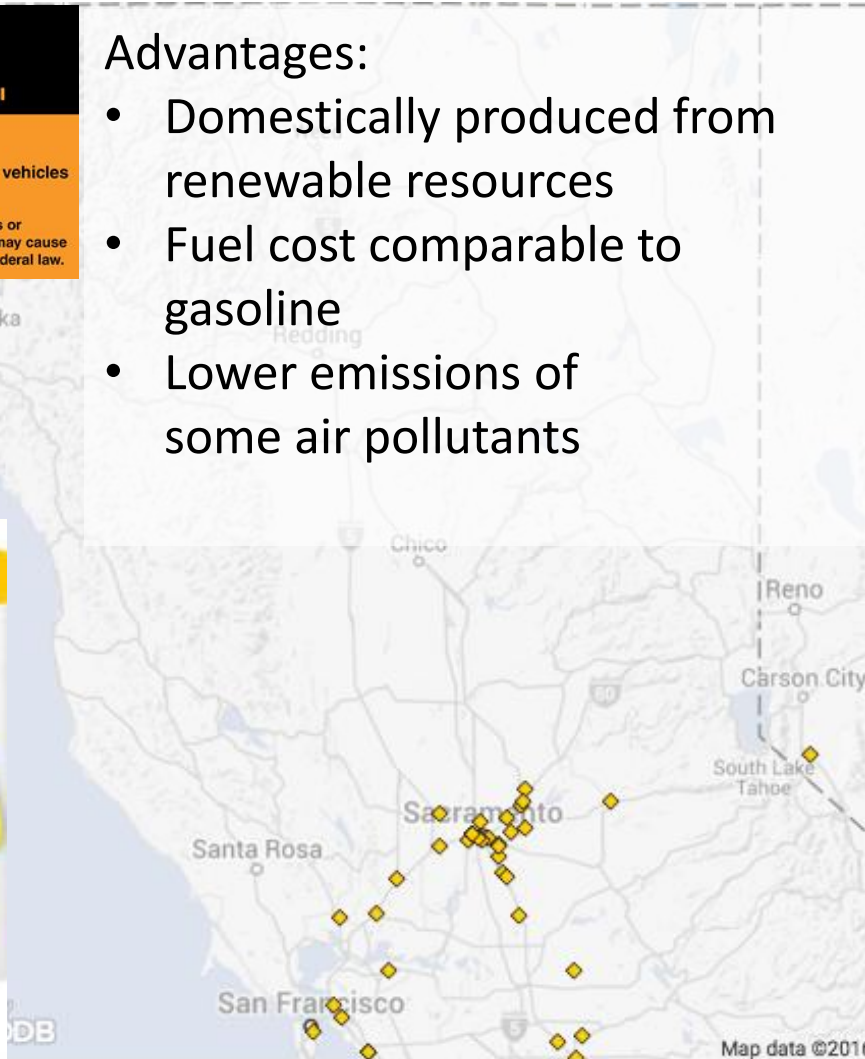


Advantages:

- Domestically produced from renewable resources
- Fuel cost comparable to gasoline
- Lower emissions of some air pollutants

Disadvantages:

- Flex-fuel vehicle required for higher blends above 15%
- Lower energy content than gasoline = lower fuel economy
- Land use impacts



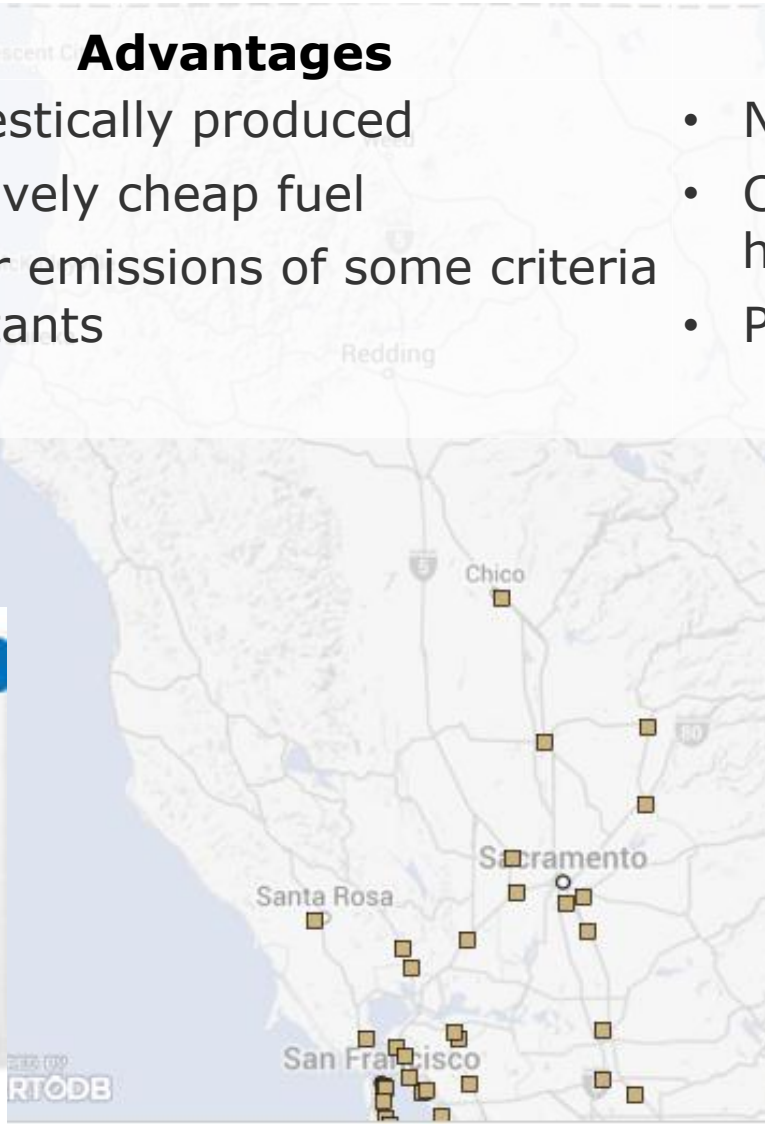
Overview of Fuels – Natural Gas

Advantages

- Domestically produced
- Relatively cheap fuel
- Fewer emissions of some criteria pollutants

Disadvantages

- Non-renewable fuel source
- CNG vehicles primarily limited to heavy duty sector
- Potentially higher GHG emissions



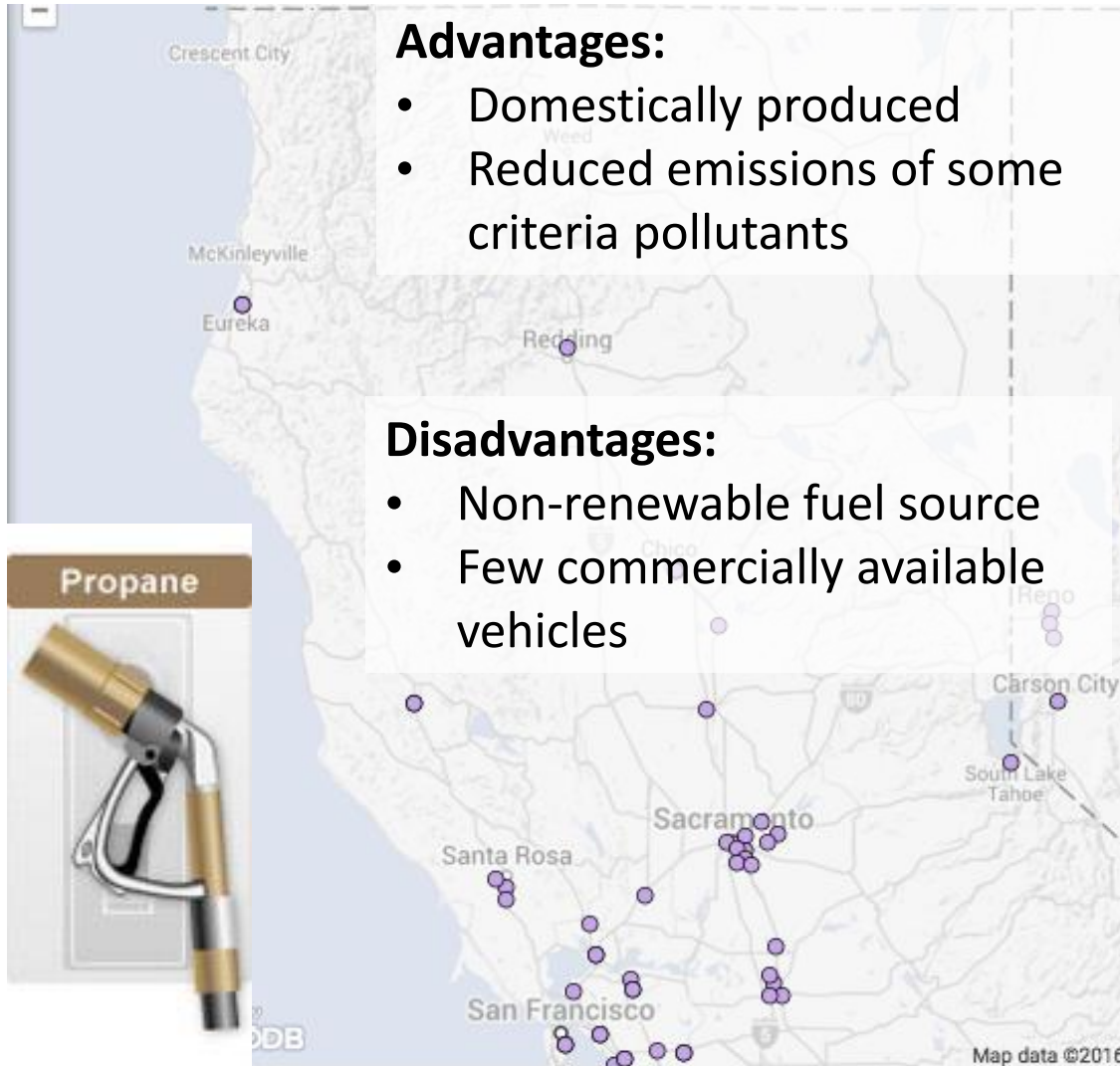
Overview of Fuels – Propane (Liquefied Petroleum Gas)

Advantages:

- Domestically produced
- Reduced emissions of some criteria pollutants

Disadvantages:

- Non-renewable fuel source
- Few commercially available vehicles



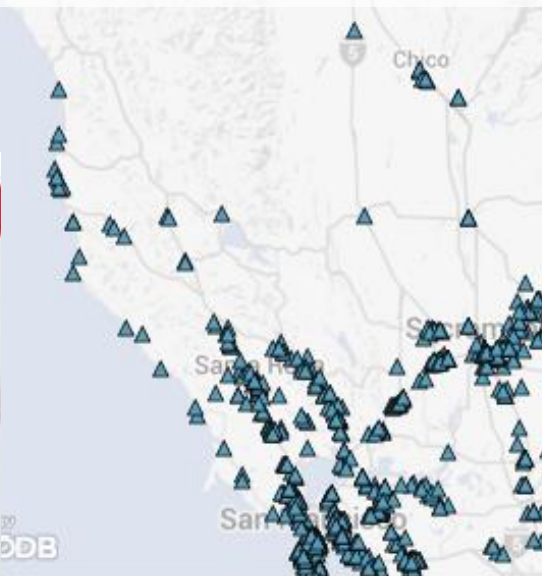
Overview of Fuels – Electricity

Advantages:

- Fuel can be produced everywhere
- The most energy efficient vehicle option available
- Zero tailpipe emissions
- Lowest fuel cost per mile
- High performance

Disadvantages:

- Driving range
- Recharge time



Overview of Fuels – Hydrogen

Advantages:

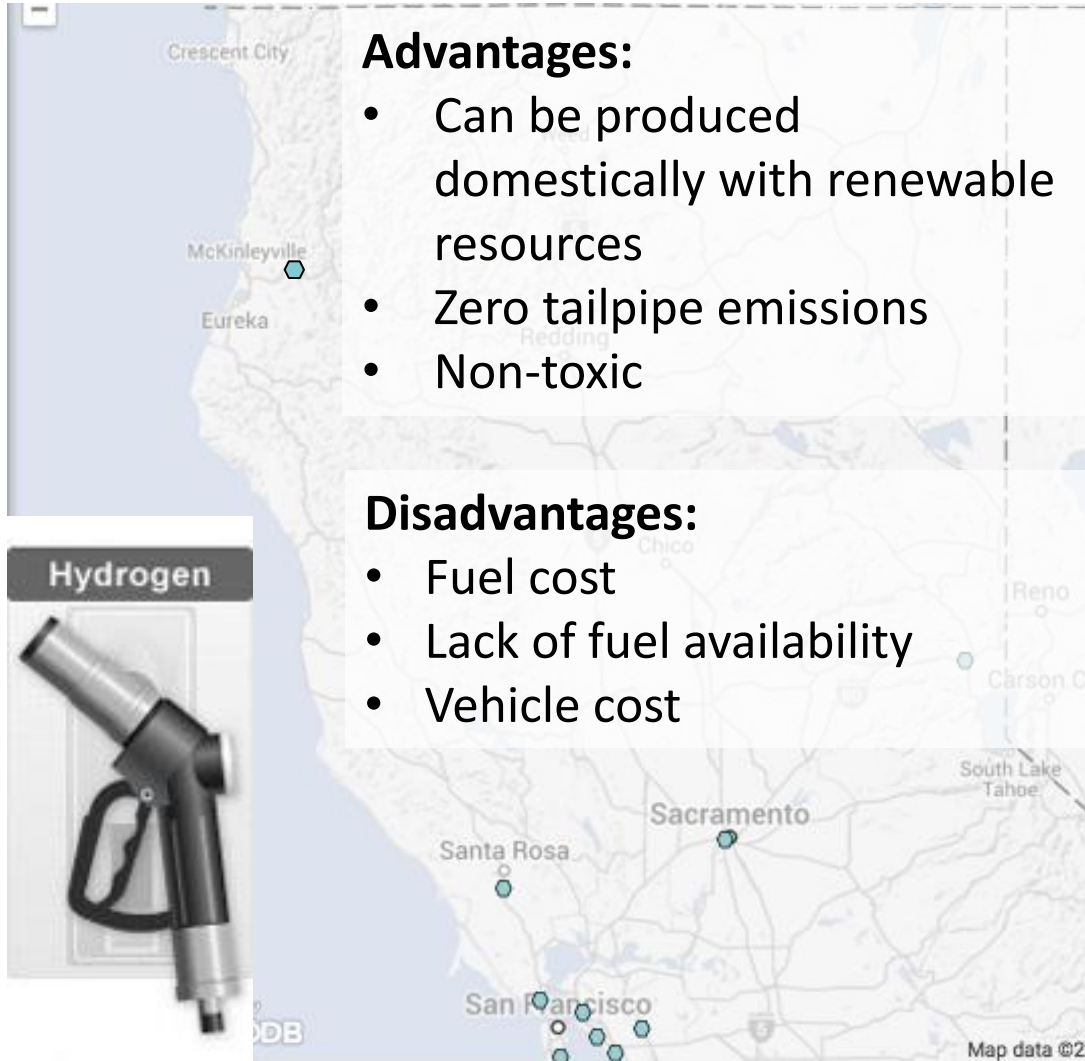
- Can be produced domestically with renewable resources
- Zero tailpipe emissions
- Non-toxic

Disadvantages:

- Fuel cost
- Lack of fuel availability
- Vehicle cost

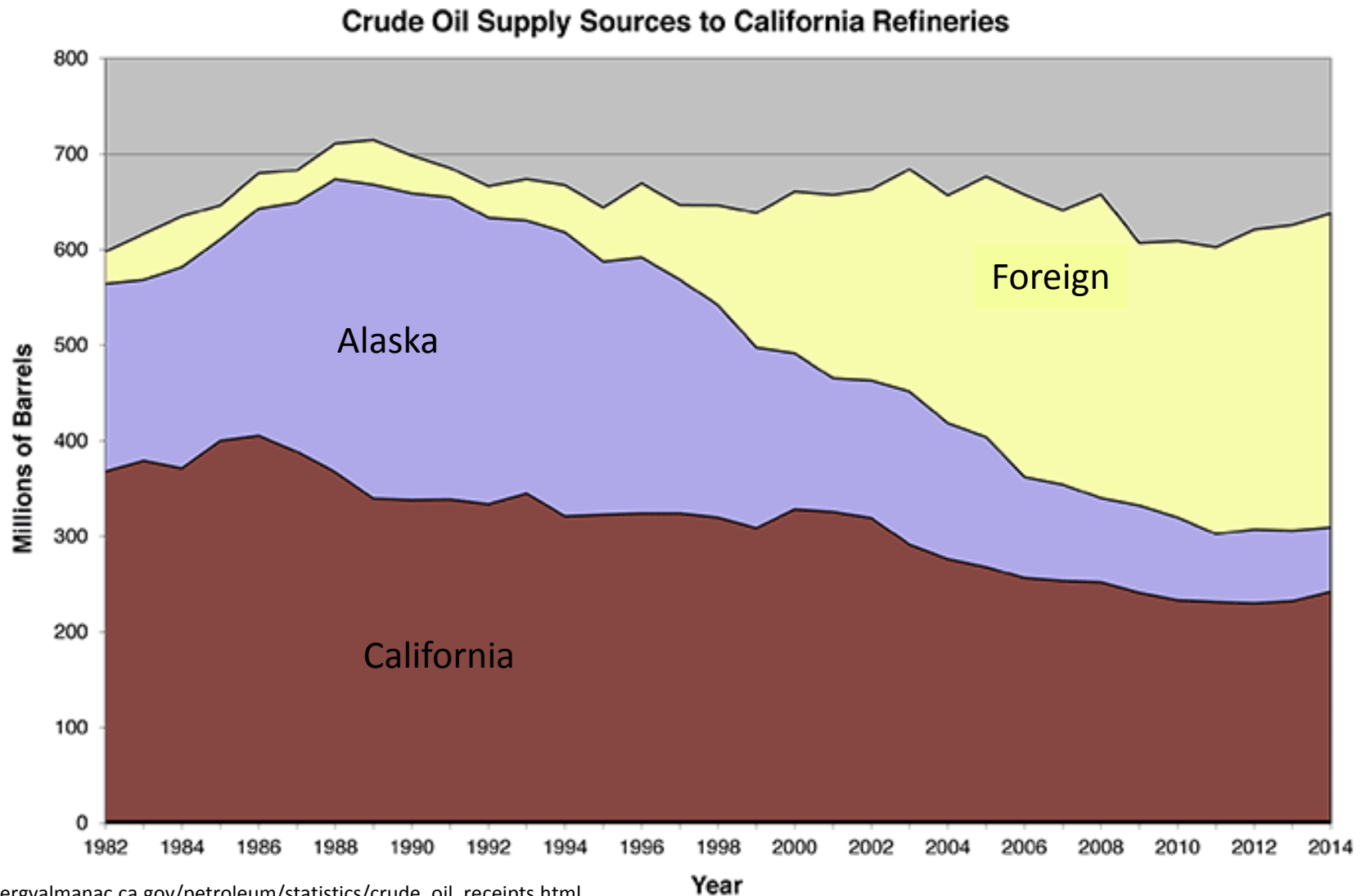
California H2 Fuel goals:

- 51 stations by 2016
- 86 stations by 2021



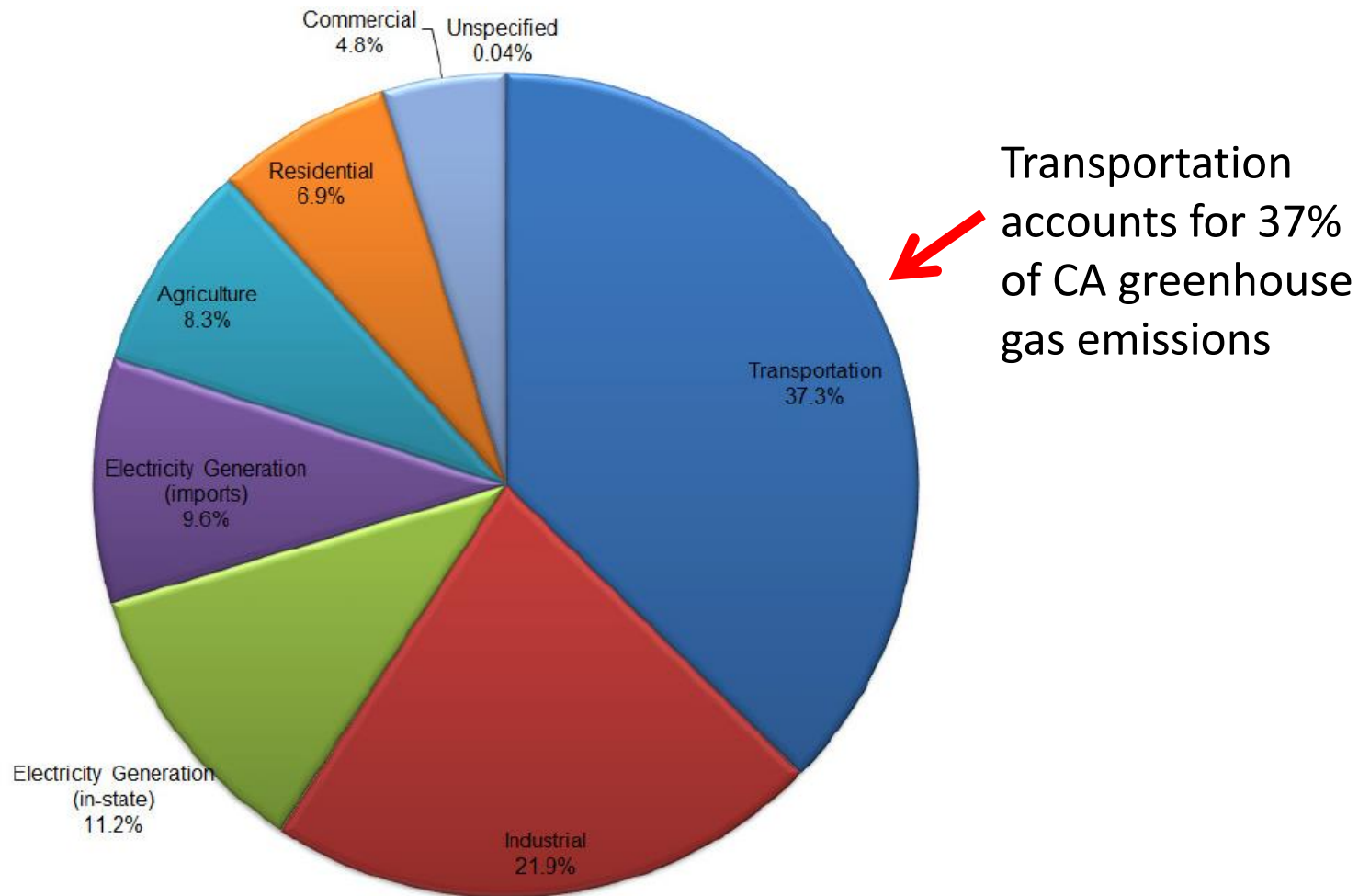
Why Alternative Fuels?

Energy Security



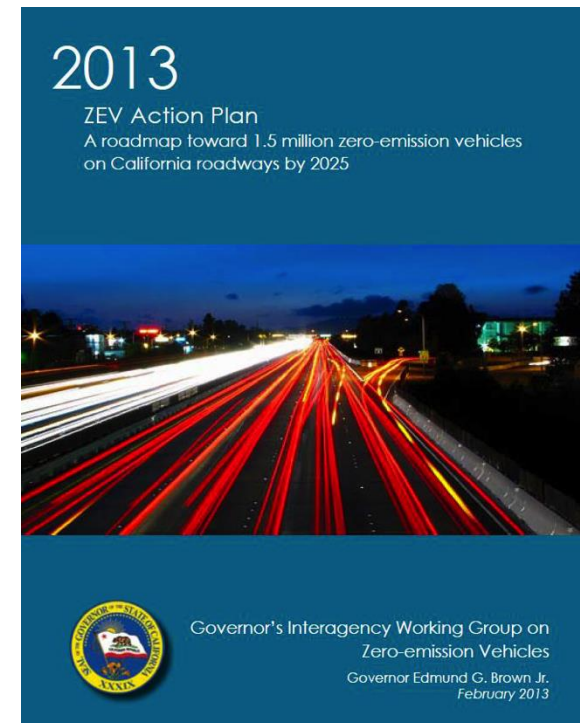
Why Alternative Fuels?

GHG Reduction



CA Zero Emission Vehicles Goals & Policies

- Increase use of fuels produced in CA
 - Reduce dependency on petroleum
 - Increase energy security
- Improve air quality
- Reduce GHG emissions



CA Mandates & Standards

- **CA Low Carbon Fuel Standard (LCFS)**
 - 10% reduction in carbon intensity of CA fuel mix by 2020
- **Title 24: 2013 Building Codes**
 - EV Charging infrastructure requirements
- **Mobile Source Emissions Reductions Requirements**
- **State Agency Low Carbon Fuel Use Requirement**
 - 10% of all state fuel purchases must be low-carbon fuels
- **State Vehicle Petroleum Reduction Requirements**
 - 20% reduction in state consumption of petroleum by 2020
- **Zero Emission Vehicle Production requirement**
 - 20% of new vehicles sold in 2025 will be ZEVs



Federal Incentives & Standards

- **1975 Corporate Average Fuel Economy (CAFE) standards**
- **1992 Energy Policy Act**
 - Required state, federal, and alternative fuel providers to establish an inventory of Alternative Fuel Vehicles
- **2005 Energy Policy Act**
 - Established grants & tax incentives to promote use of alternative fuels and advanced vehicle technologies
- **2007 Energy Independence and Security Act**
 - Set **Renewable Fuels Standard** to increase U.S. supply of renewable fuel
 - Increased CAFE standard to 35mpg by 2020 for passenger cars and trucks



Why should local Gov't care?

➤ **Local energy security**

- Reduce vulnerability to fuel price volatility

➤ **Economic development**

- New types of parts, equipment, and maintenance will be needed
- Reduce outflow of money from petroleum sales

➤ **Municipal fleet operations benefits**

- Achieve compliance with emissions standards
- Reduce operating costs



What can local Gov'ts do?

- Plan for alternative fuel infrastructure
 - Include language in General Plan updates
 - Update zoning & building codes
- Add alternative fuel vehicles to municipal fleet
 - Accelerate retirement of older engines
- Become a regional Clean Cities Coalition partner



Northwestern CA

Clean Cities Coalition

- U.S. Department of Energy program
 - Resources for local alternative fuels infrastructure development
 - Alternative fuel vehicle training programs
- Looking for regional partners to:
 - Provide input on plans for alternative fuels in the region
 - Collaborate on funding applications to meet common goals
 - Establish a regional EV charging network
 - Increase availability of Renewable Diesel and biofuels



Thank You!

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