A New Era for Transportation Fuels

Governor Schwarzenegger's Low Carbon Fuel Standard and Other Transportation Initiatives

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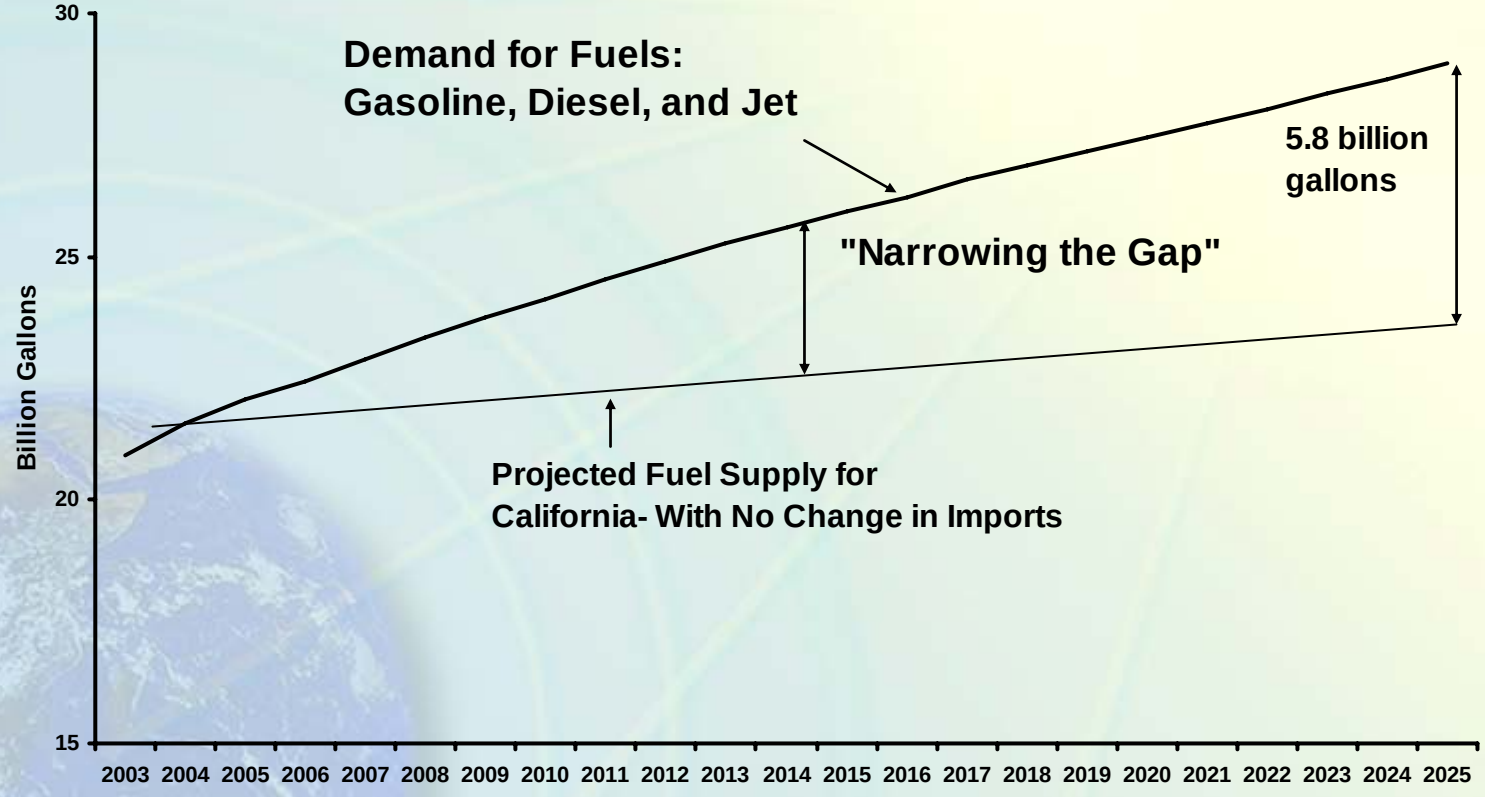
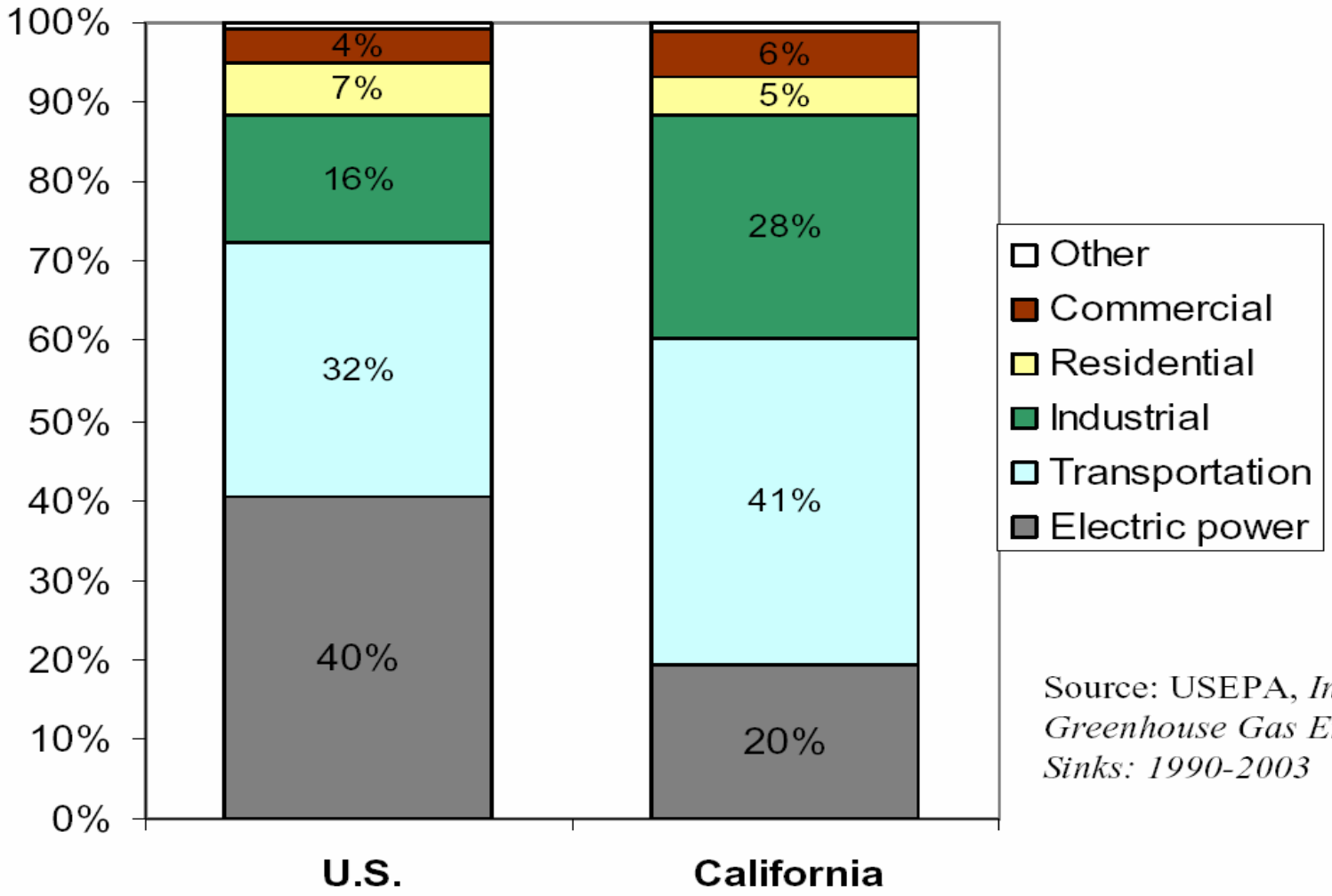
The Nation State Of California

- 5th largest economy in the world
- Population growth:1980-2000: 1.9%, 2000-2020: 1.4% projected
- Population – expected to grow from 36 million now to 45 million by 2025
- Vehicle Miles Traveled: 1980-2000 increased 3.3% per year
- 5th largest consumer of energy in the world
- 2nd largest consumer of gasoline and diesel in the world – only the US consumes more
- Approximately 26 million registered vehicles
- $150 million for gasoline and diesel spent daily

The Heart of the Problem

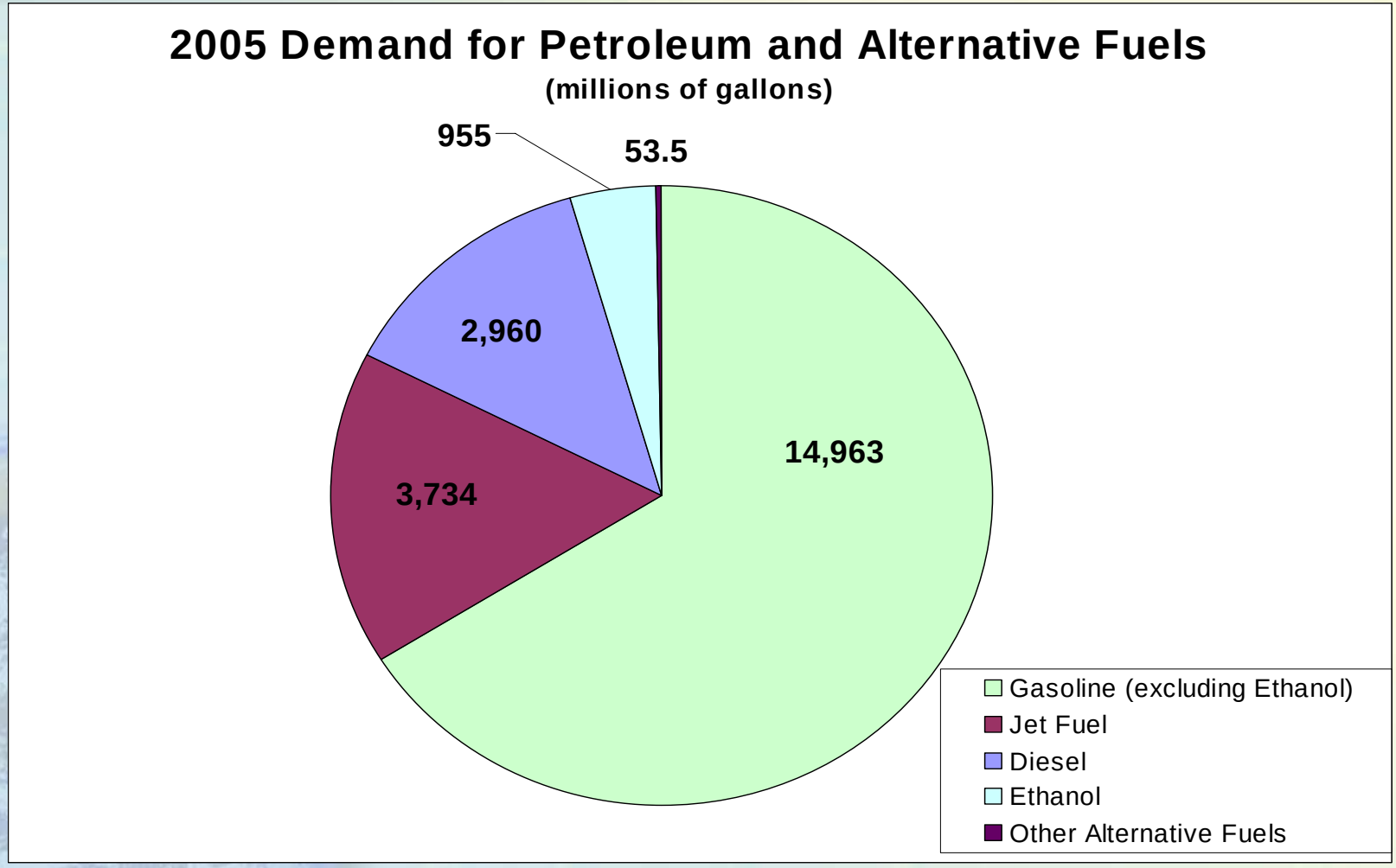


Transportation is a Major Source of Greenhouse Gas Emissions

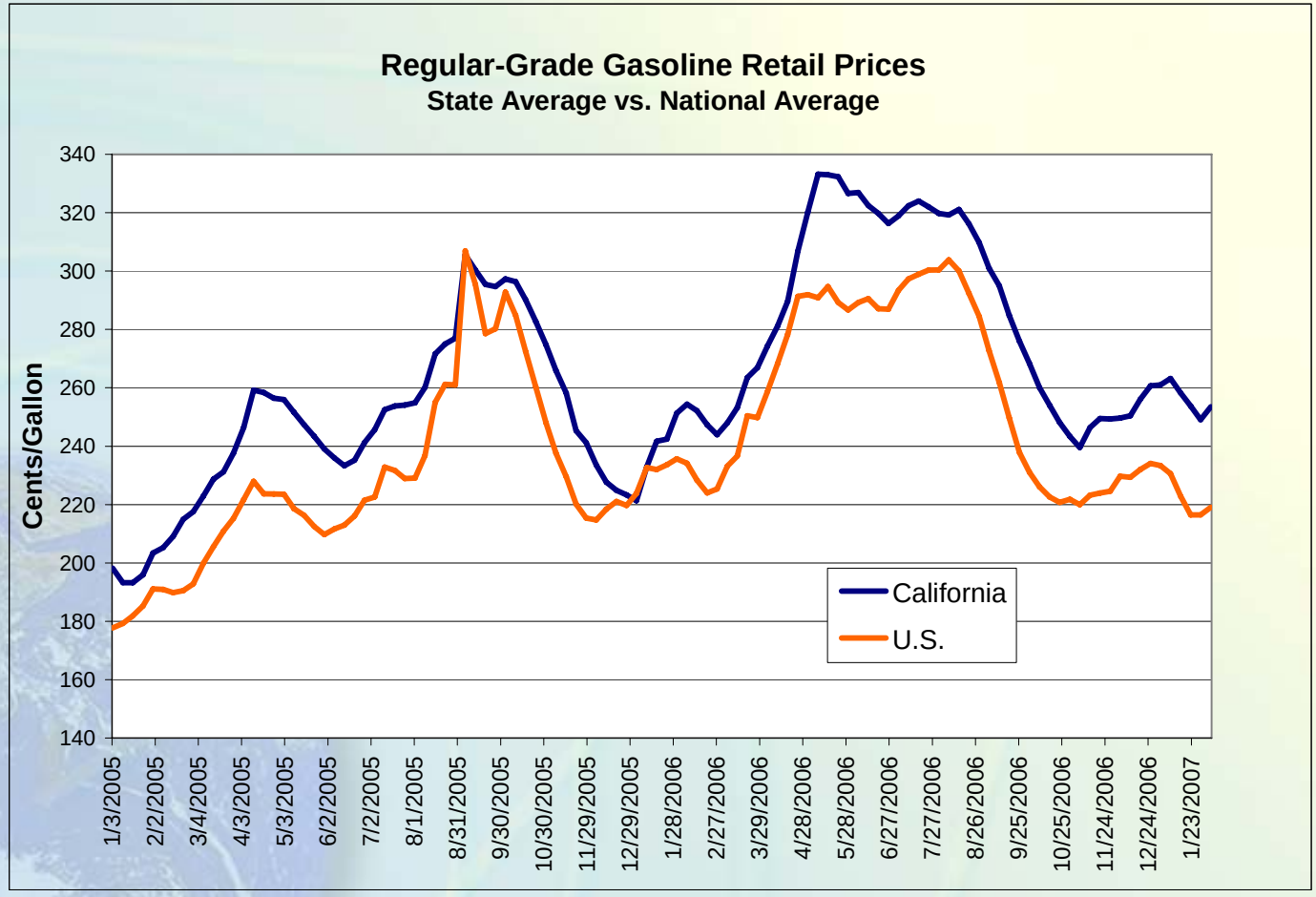


Source: USEPA, *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2003*

California is Overly Dependent on Petroleum for Transportation



Gasoline Prices are Volatile and Trending Upwards



World's First Greenhouse Gas Fuel Standard

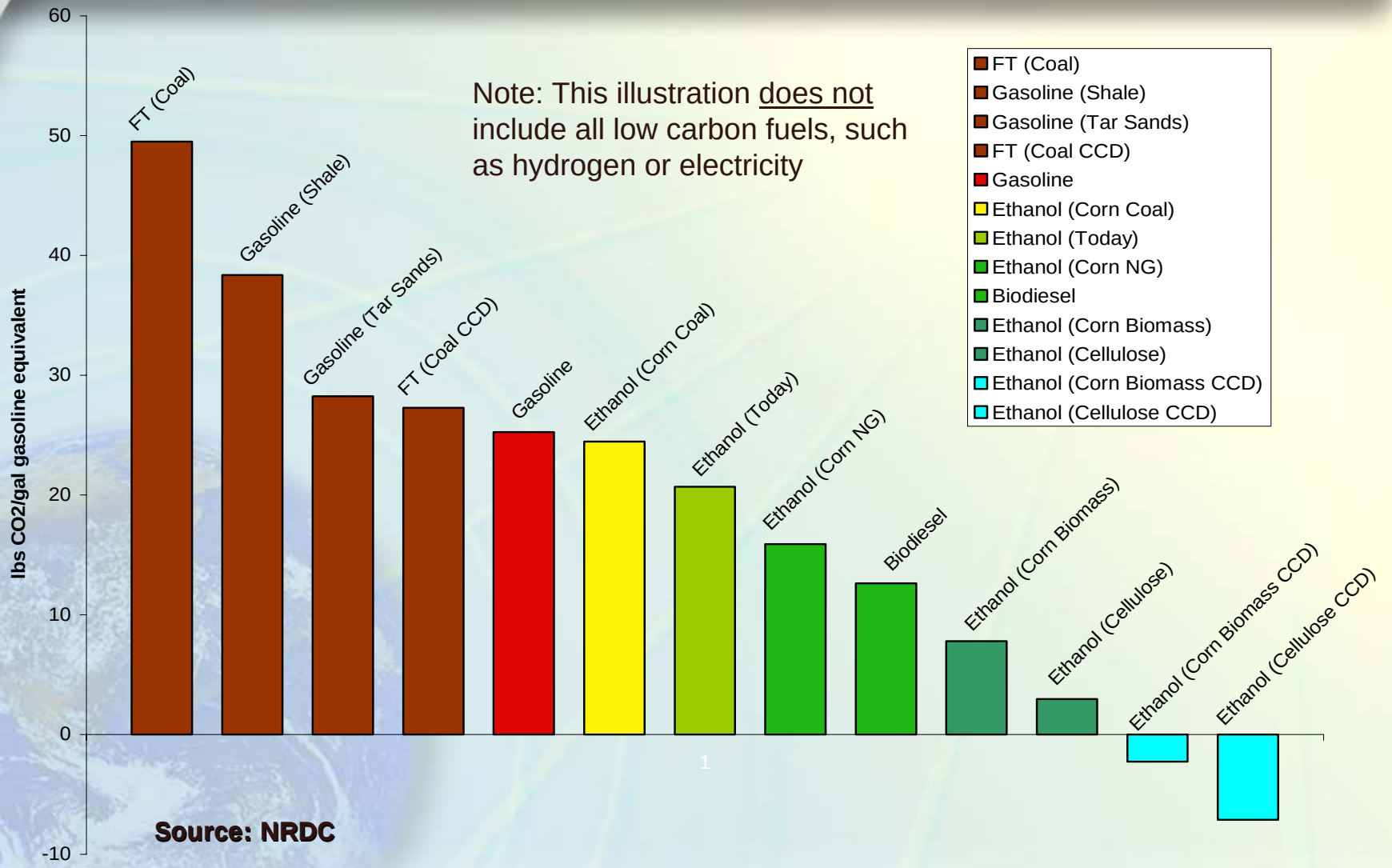
- A statewide goal to reduce the *carbon intensity* of California's transportation fuels by at least 10 percent by 2020

- Goal will be accomplished by establishing a **Low Carbon Fuel Standard** ("LCFS") for transportation fuels sold in California.

The Low Carbon Fuel Standard

- Requires fuel providers to decrease carbon intensity of average annual fuel sales
- Standard measured on a lifecycle basis
- **Performance-based:** allows averaging, banking and trading to achieve lowest cost and consumer-responsive solutions
- **Fuel-neutral:** Fuel providers will choose which fuels to sell and in what volumes

Alternative Fuels are Not Created Equal



Note: This illustration does not include all low carbon fuels, such as hydrogen or electricity

Source: NRDC

Flexible Options for Compliance

Fuel providers will have different options by which to comply, including:

- Blending or selling increasing amounts of lower carbon fuels
- Using previously banked credits
- Purchasing credits from fuel providers who earned credits by exceeding the standard

Examples of Possible Low Carbon Fuel Strategies

- **E10** – Increase blending of ethanol from today's E6
- **E85** – Sell high blend ethanol for use in Flex Fuel Vehicles
- **Low Carbon Ethanol** – "cellulosic" materials have 4 to 5 times lower GHGs than today's corn
- Hydrogen, Natural Gas, Electricity…

Benefits

- **Less Gasoline Consumption:** Displace 20% of gasoline consumption
- **Larger renewable fuels market:** Expand California's alternative fuels markets by 3 to 5 times, while reducing GHG emissions
- **More alternative fuel and hybrid vehicles:** 7 million advanced technology vehicles, more than 20 times current level

Rationale for the Low Carbon Fuel Standard

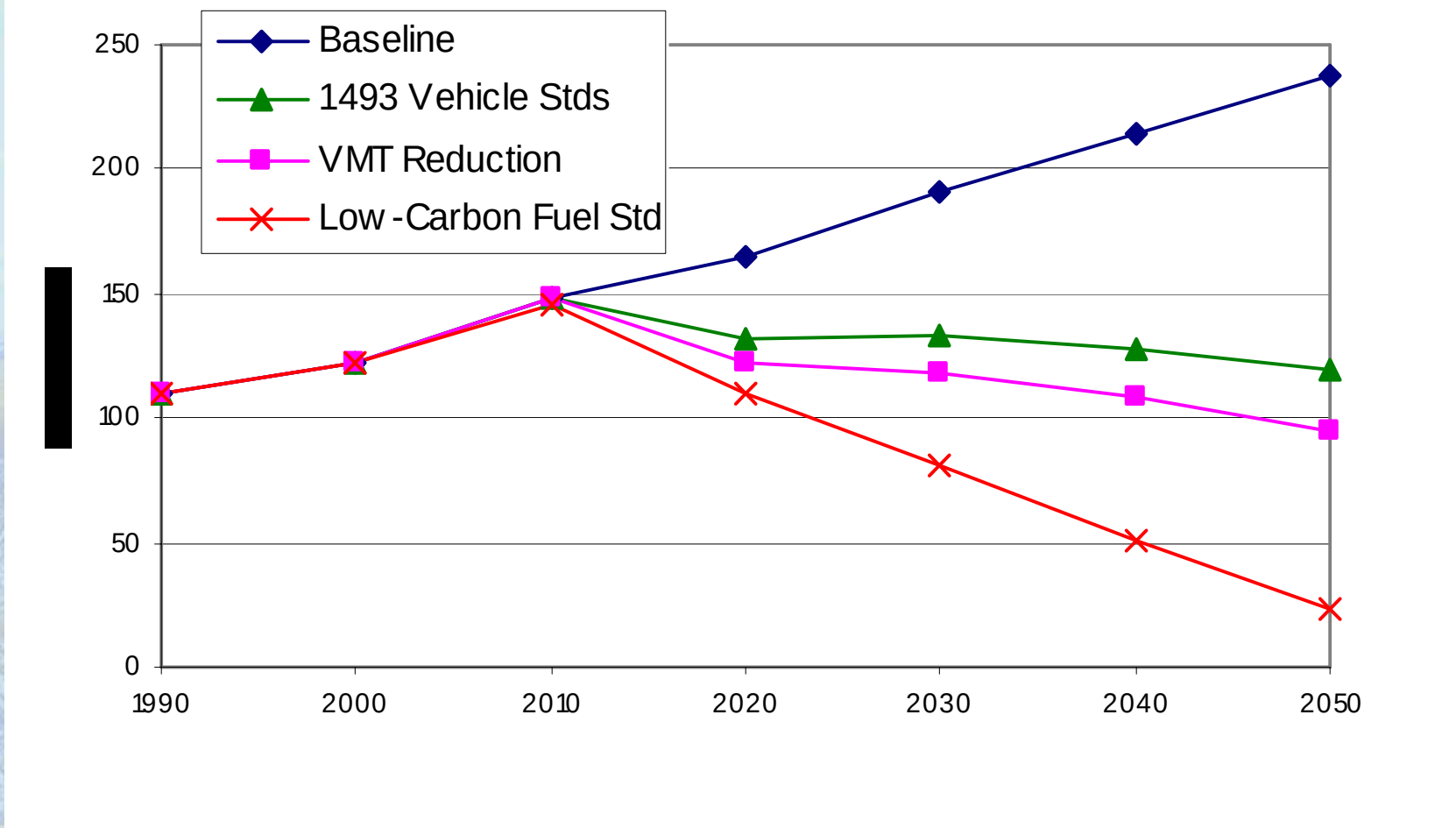
- A statewide cap-and-trade system alone unlikely to create a large enough price signal to induce sufficient, timely investments in new fuel and vehicle technologies
- LCFS creates a substantial, certain market for low carbon fuels and a stable investment environment
- Benefits versus Renewable Fuel Standard
  - ***More flexible*** since it includes electricity, hydrogen, natural gas, etc, rather than just biofuels
  - Ensures greenhouse gas reductions
  - Penalizes the use of high carbon, fossil fuels (coal to liquids)

Other Transportation Initiatives

- Reduces vehicular GHG emissions ~30% by 2016 (California's GHG Tailpipe Standard)
- Possible automaker responses: engine valve technologies, transmissions, integrated starter-generator, efficient A/C, alternative refrigerants (HFC-152a), diesel, hybrids
- Alternative compliance mechanism includes alternative fuels

California's Reduction Strategy for Transportation-related GHGs

Passenger Vehicles CO2 Emissions, End-Use Only



Conclusions

- Confronting Global Climate Change requires a comprehensive approach, using a combination of market-based programs and performance-based standards
- Transportation must contribute its fair share and the three key strategies are: cleaner cars, low-carbon fuels, and reduce travel demand
- Low Carbon Fuel Standard ensures we can meet twin goals of reducing petroleum dependency and GHG emissions