



CALIFORNIA STATE LANDS COMMISSION  
PREVENTION FIRST 2012 SYMPOSIUM

**FUTURE OF TRANSPORTATION FUELS:  
A MANUFACTURER'S PERSPECTIVE**

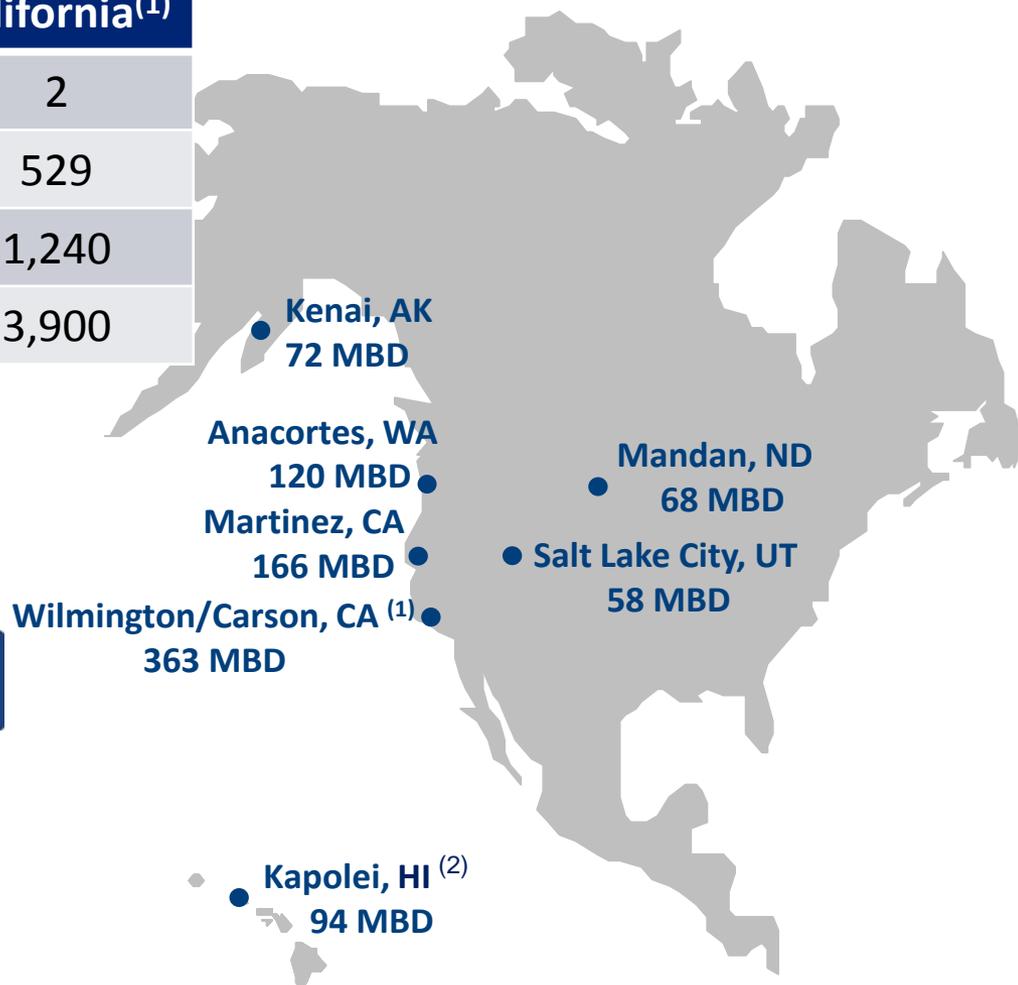
October 23, 2012

Greg Goff  
President and CEO  
Tesoro Corporation

# WHO IS TESORO?



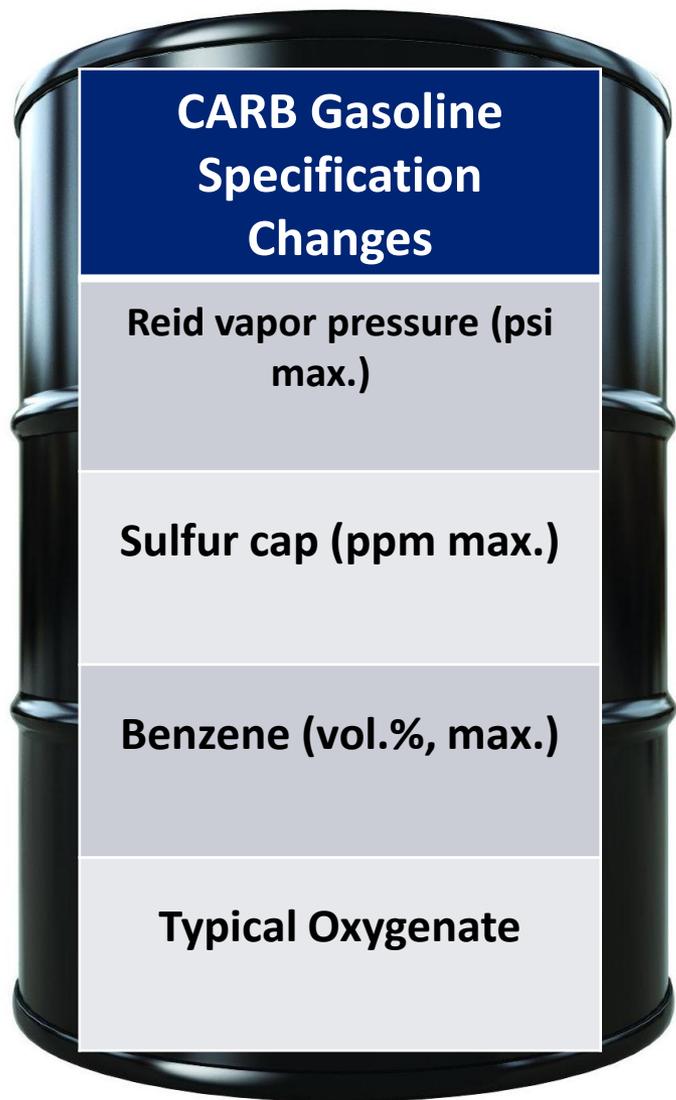
|                 | Current | Future <sup>(1)</sup> | California <sup>(1)</sup> |
|-----------------|---------|-----------------------|---------------------------|
| Refineries      | 7       | 7                     | 2                         |
| Capacity (MBD)  | 675     | 941                   | 529                       |
| Retail Stations | 1,375   | 2,175                 | 1,240                     |
| Employees       | 5,400   | 7,100                 | 3,900                     |



(1) Acquisition subject to regulatory approval by FTC and California Attorney General

(2) Asset currently for sale

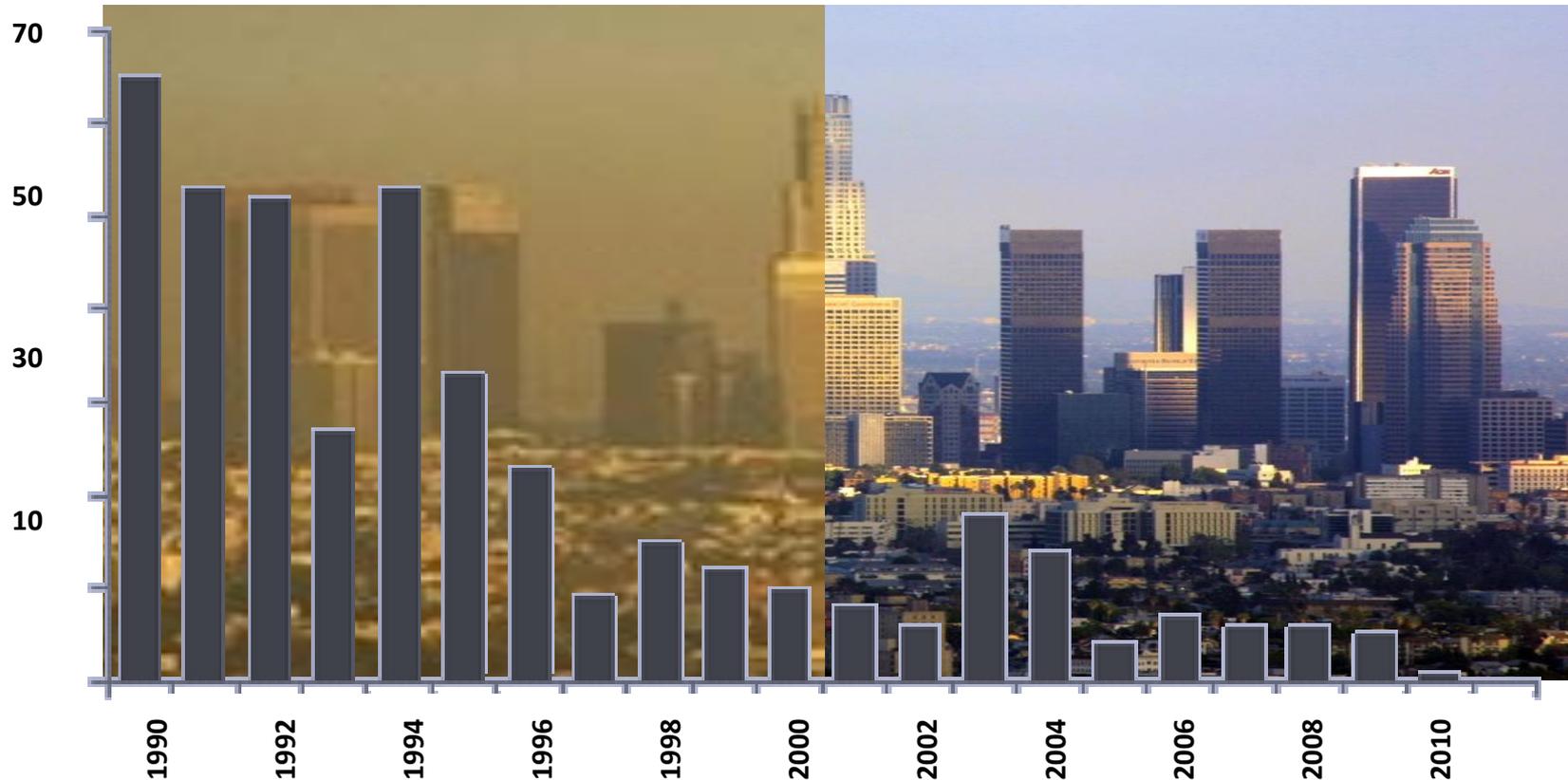
# CA FUEL REGULATIONS – A LOOK BACK



| <b>CARB Gasoline Specification Changes</b> | <b>Phase 1<br/>1992</b>       | <b>Phase 2<br/>1996</b> | <b>Phase 3<br/>2004</b>             | <b>Phase 4<br/>2010</b> |
|--|-------------------------------|-------------------------|-------------------------------------|-------------------------|
| Reid vapor pressure (psi max.)             | 7.8                           | 7.00                    | 7.00                                | 7.20                    |
| Sulfur cap (ppm max.)                      | 300                           | 80                      | 60                                  | 20                      |
| Benzene (vol.%, max.)                      | Not regulated                 | 1.20                    | 1.10                                | 1.10                    |
| Typical Oxygenate                          | Ethanol or MTBE (winter only) | MTBE                    | MTBE Banned<br>5.5% to 7.7% Ethanol | 10% Ethanol             |

# AIR QUALITY TREND IN LOS ANGELES

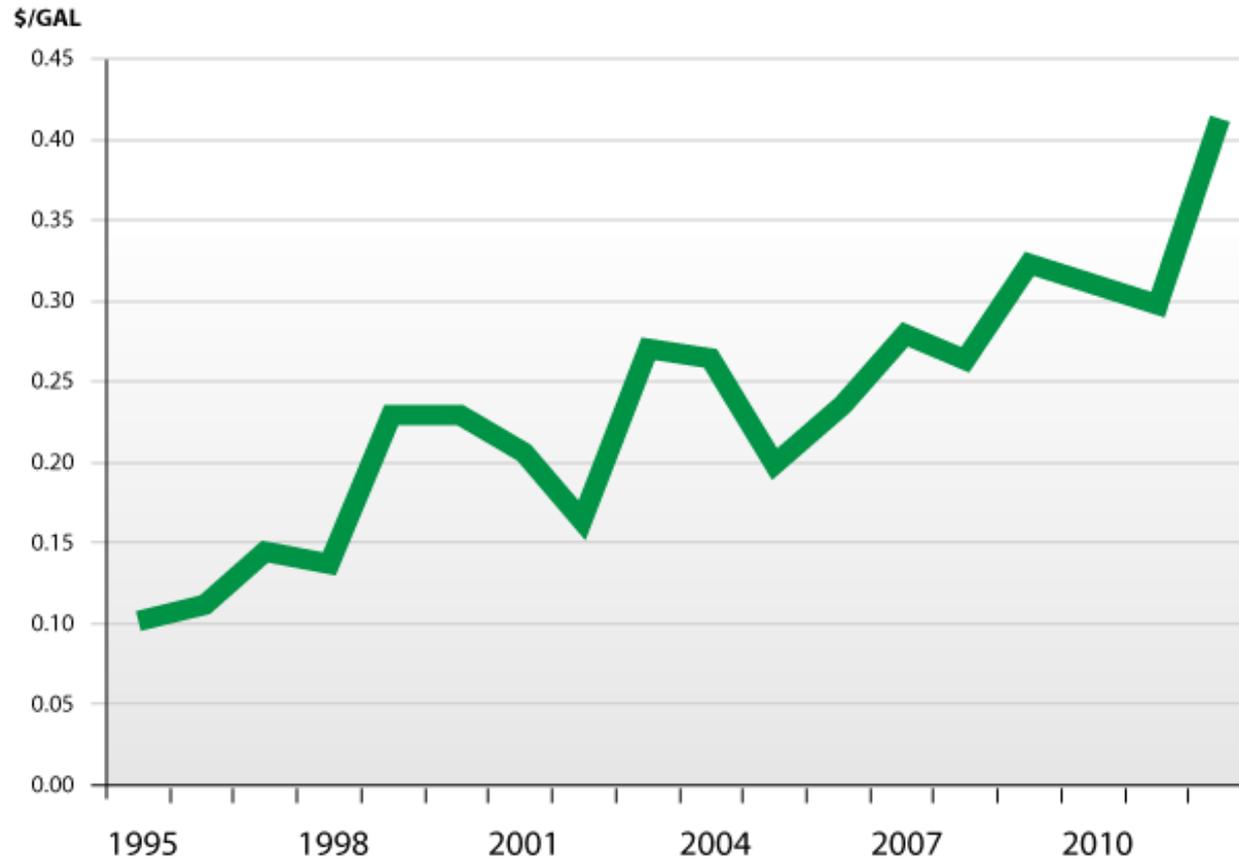
## Days Los Angeles Exceeded Ozone Standard



Days per year ozone levels exceeded 0.7 parts per million

Source: California Air Resource Board

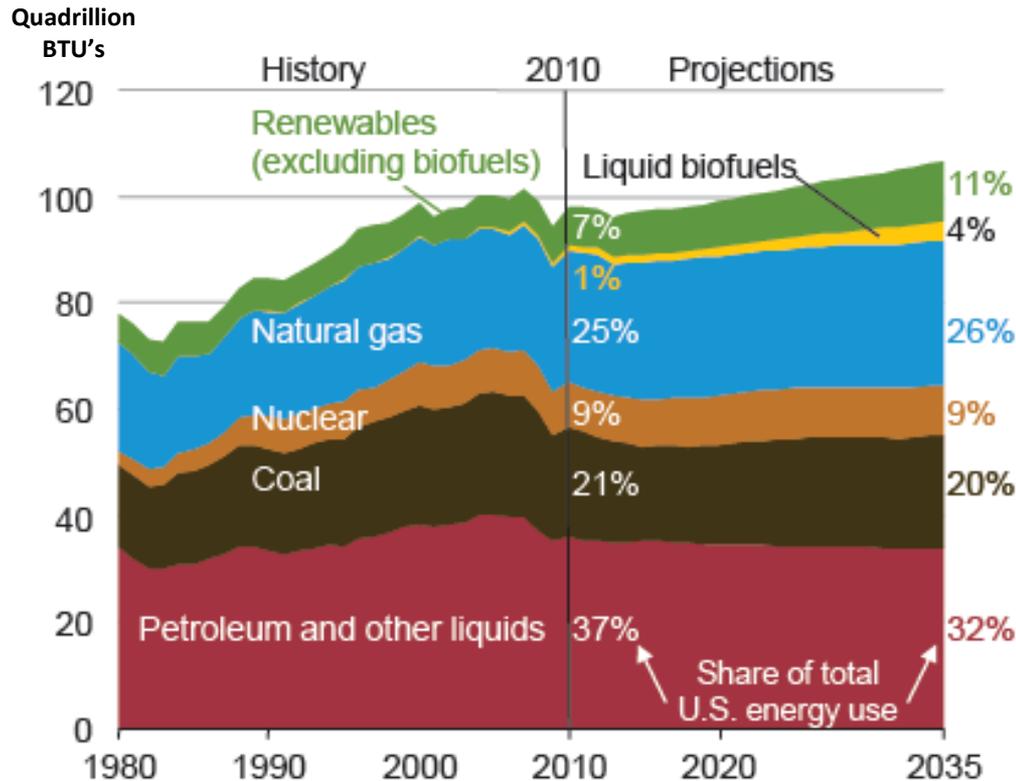
## CA Regular over US Regular Average



US EIA

**This progress has not come free to the California consumer**

## US Energy Use by Fuel



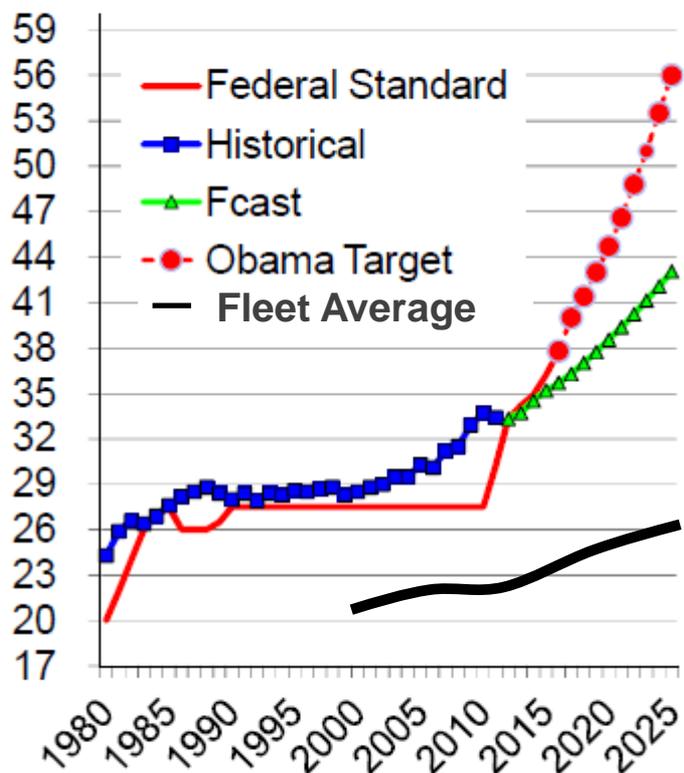
US EIA's 2012 Energy Outlook

- Petroleum products and natural gas remain the primary energy source through 2035
- Renewables and bio-fuels grow to 15% during the period

**The growing population and expanding economy increase energy demand for all fuels over the long term**

# NEW VEHICLE EFFICIENCY

## New Car MPG



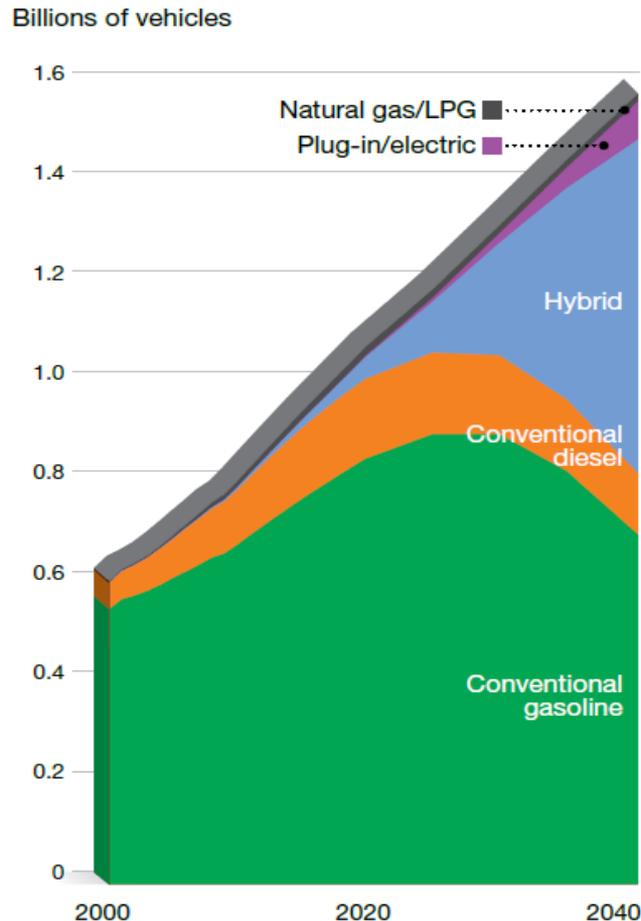
- White House recently established new vehicle MPG standards of 54 MPG by 2025
- Automotive industry does not expect to achieve, but expects substantial progress
- Fleet average is well below new vehicle average

**New car mileage performance is expected to lag aggressive regulations**

# GLOBAL PASSENGER VEHICLE GROWTH



Light duty vehicle fleet by type



- Hybrid vehicles become more prominent in latter decades
  - Hybrid vehicles typically are gasoline vehicles
- Dieselization grows but remains less than 15% of fleet
- Electric and natural gas power vehicles remain minor penetration

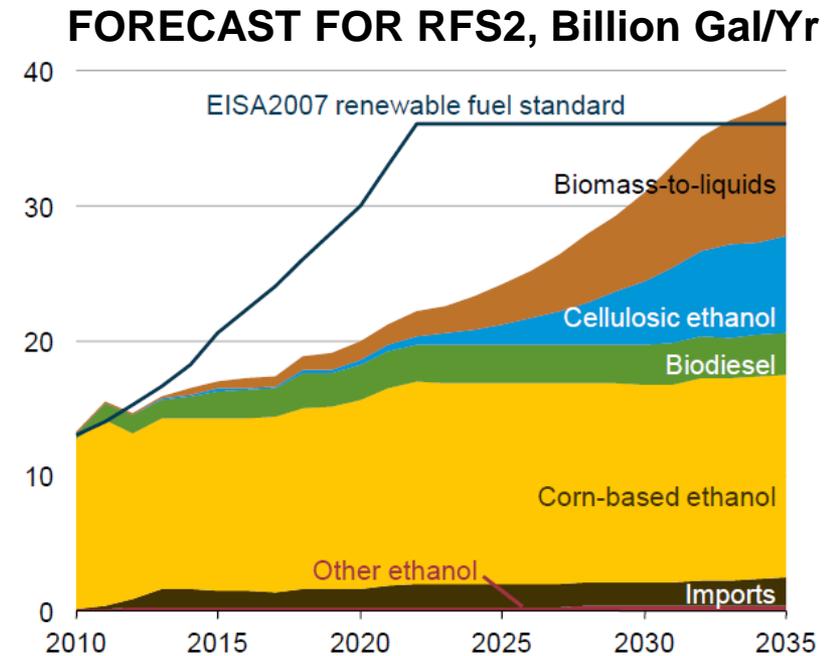
**Conventional gasoline remains the dominate transportation fuel  
Gasoline based hybrids offset conventional gasoline vehicles**

## Federal Regulations

- Renewable Fuels Standard (RFS2)
  - Requires 36 billion gallons by 2022
  - Food versus fuel issue
- Tier 3 Gasoline Specification
- Raising ethanol blend limits to 15%

## California Regulations

- Low Carbon Fuel Standards
  - Requires 10% reduction in Carbon Intensity of gasoline and diesel by 2020
  - Required technology is not commercially available
  - Will require significant volumes of Brazilian ethanol being swapped with US corn based ethanol to supply California requirements next year
  - LCFS is infeasible in 2014/2015 timeframe



**EIA Projections recognize RFS2 supply lagging requirements**

- California has the cleanest fuels in the world
- Population and economic growth will drive increasing demand for transportation fuels in the US
- Vehicles will become more efficient and will be fueled from a variety of sources
- Fuel regulations will continue to change
  - This is best accomplished in a collaborative way

**Conventional gasoline remains the dominant transportation fuel in US  
Petroleum will continue to be a significant  
source of energy for the foreseeable future**