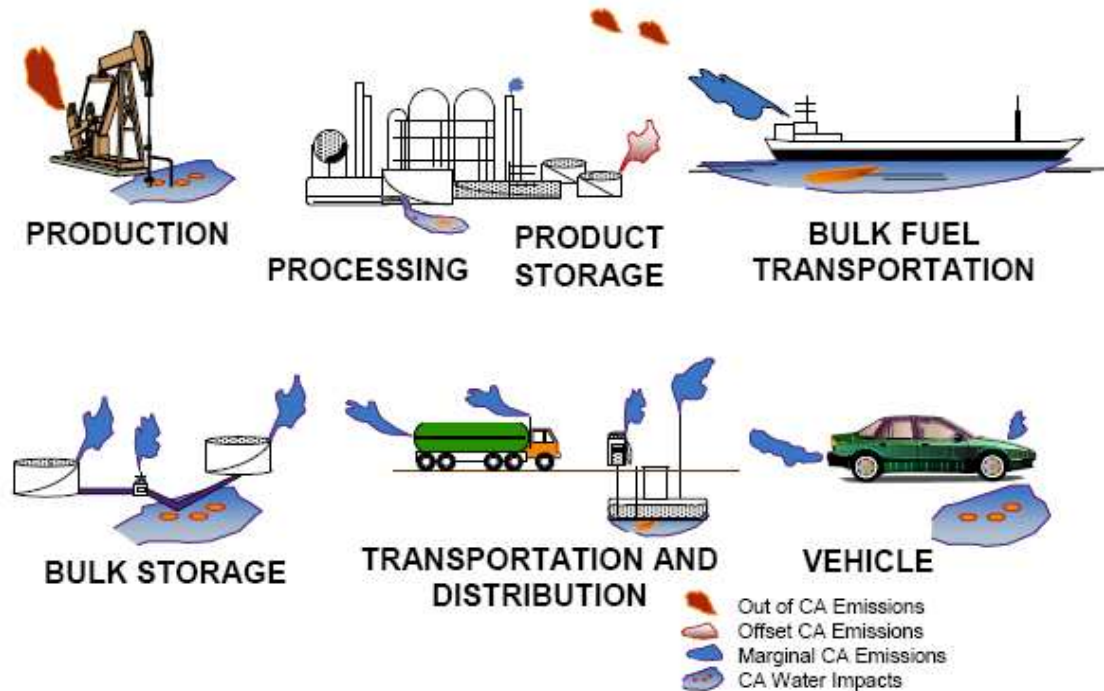


Why Well to Wheels? Win/Win Transportation Policies

Patricia Monahan
SCAQMD Roundtable
June 2007



Well (or Farm or Sun or Coal Mine ...) to Wheels



Source: CEC AB
1007 Full Fuel Cycle
Assessment (2007)

Transforming Transport: Co-benefits Beyond Clean Air

- Today's transport

- Congested
- Petroleum-dependent
- High-polluting
- Long commutes
- Single-passenger
- Poorly-planned



- Sustainable transport

- Fast and efficient
- Clean and renewable fuels
- Low-polluting
- Mode shifting
- Smart growth



Union of
Concerned
Scientists

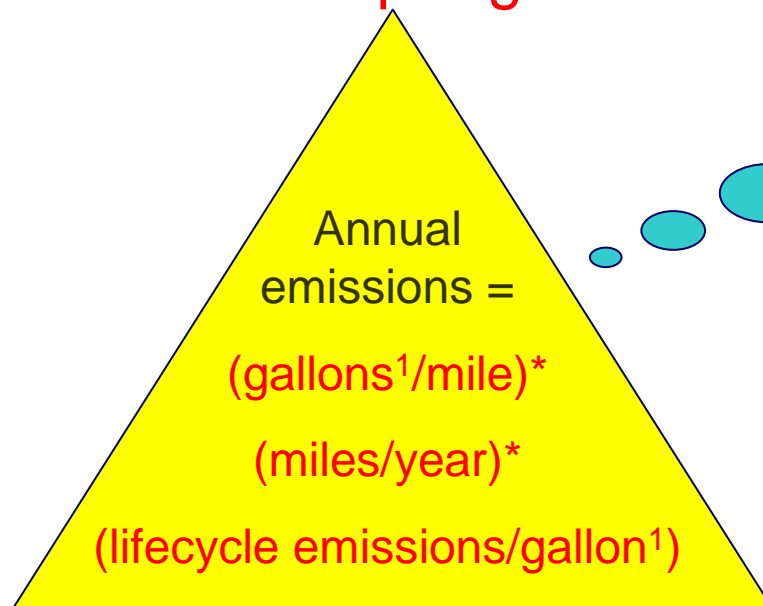
Citizens and Scientists for Environmental Solutions

Greening Transportation?



Triumvirate of Transport

Fuels: full lifecycle
emissions per gallon¹



GHG, soot,
NOx, HC, CO,
toxics

¹ Gallons of
gasoline equivalent

Vehicle efficiency:
miles per gallon¹

Miles traveled:
miles per year



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Transportation Policies with Potential Co-Benefits or Dis-benefits

- Clean Fuels
 - Low Carbon Fuel Standard
- Clean Cars
 - Clean Car Discount
- Clean Trucks
 - Electrification, anti-idling, fuel switching
 - “Smartway” retrofits
- Smart Growth



Cleaner Fuels: Low Carbon Fuel Standard

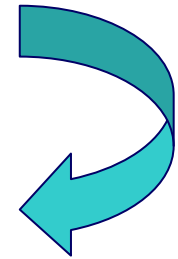
- Governor's Executive Order (Jan 07)
 - At least 10% reduction in per gallon GHG by 2020
 - Full fuel lifecycle analysis
 - Performance-based and fuel-neutral
 - Carbon market
- Protects against high GHG fuels, like liquid coal
 - Holds oil companies responsible for GHG pollution
- Promotes low-GHG fuels
 - Electricity
 - Hydrogen
 - Cellulosic ethanol



Today's
corn
ethanol



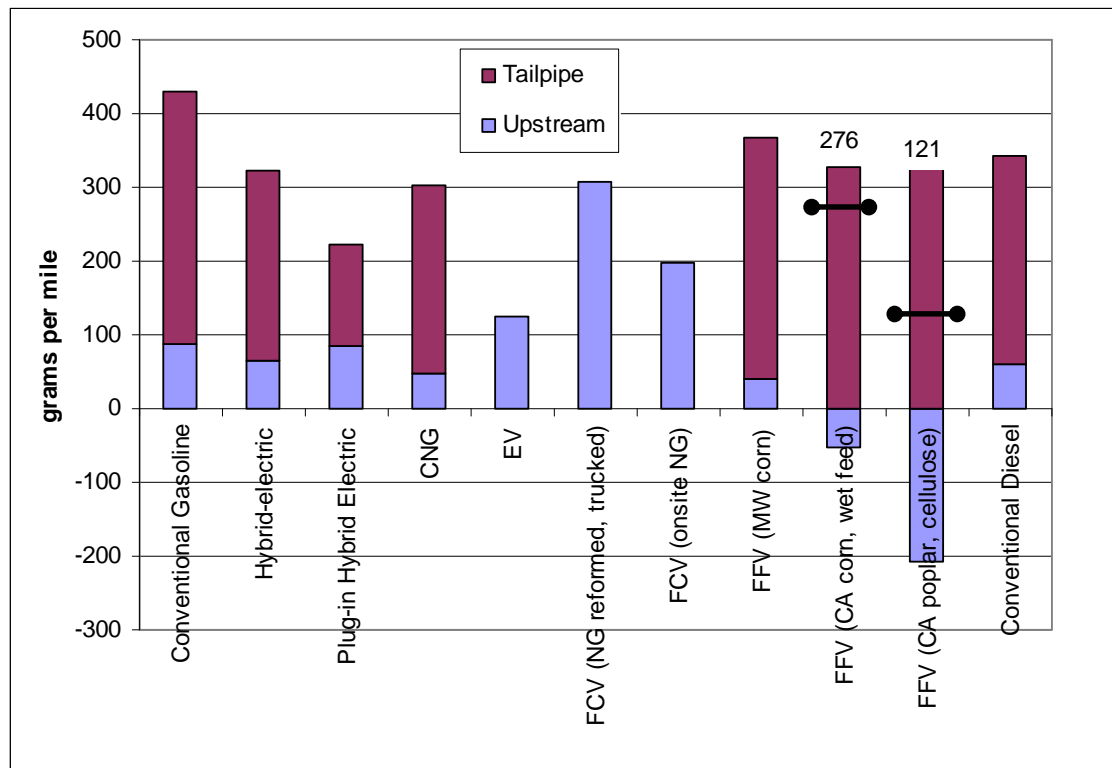
Tomorrow's
cellulosic
ethanol



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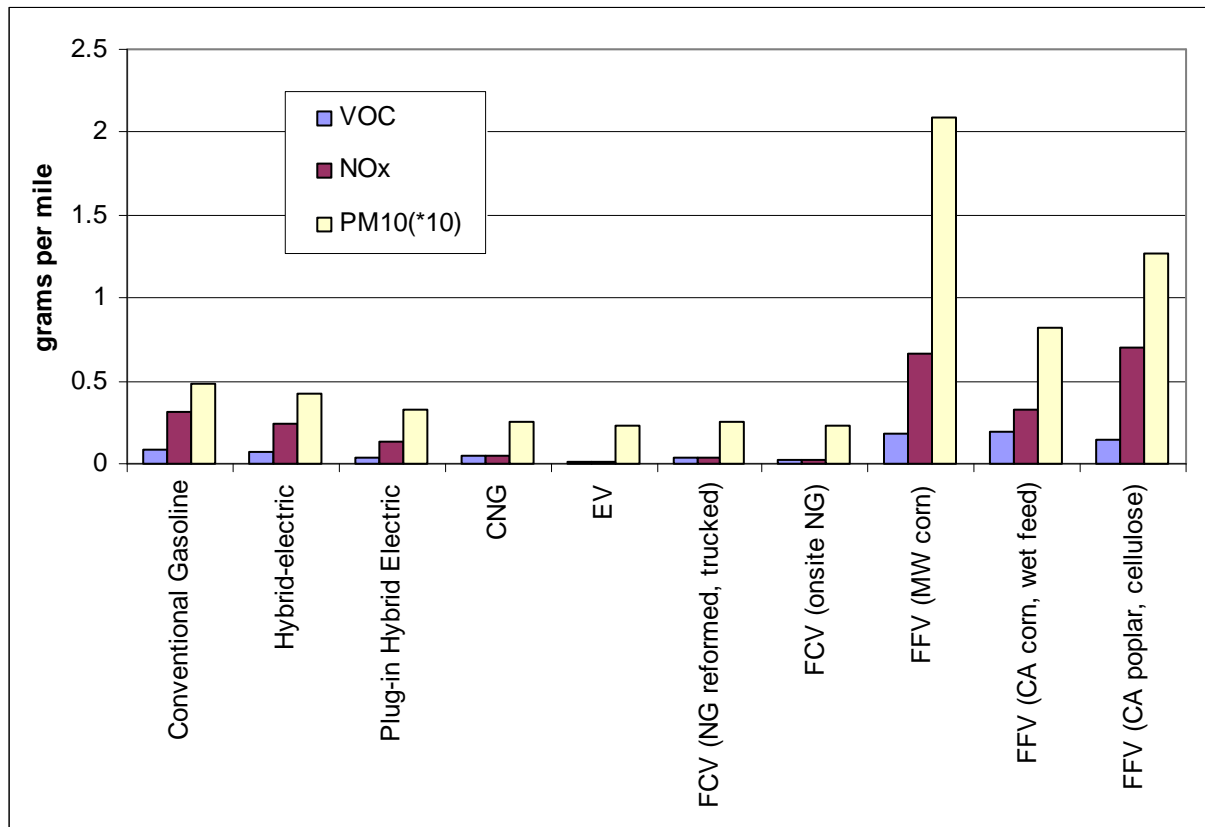
Cleaner Fuels: GHG from Full Fuel Cycle



Source: CEC AB
1007 Full Fuel Cycle
Assessment (2007).

Assumes new
vehicles, scenario
year 2012

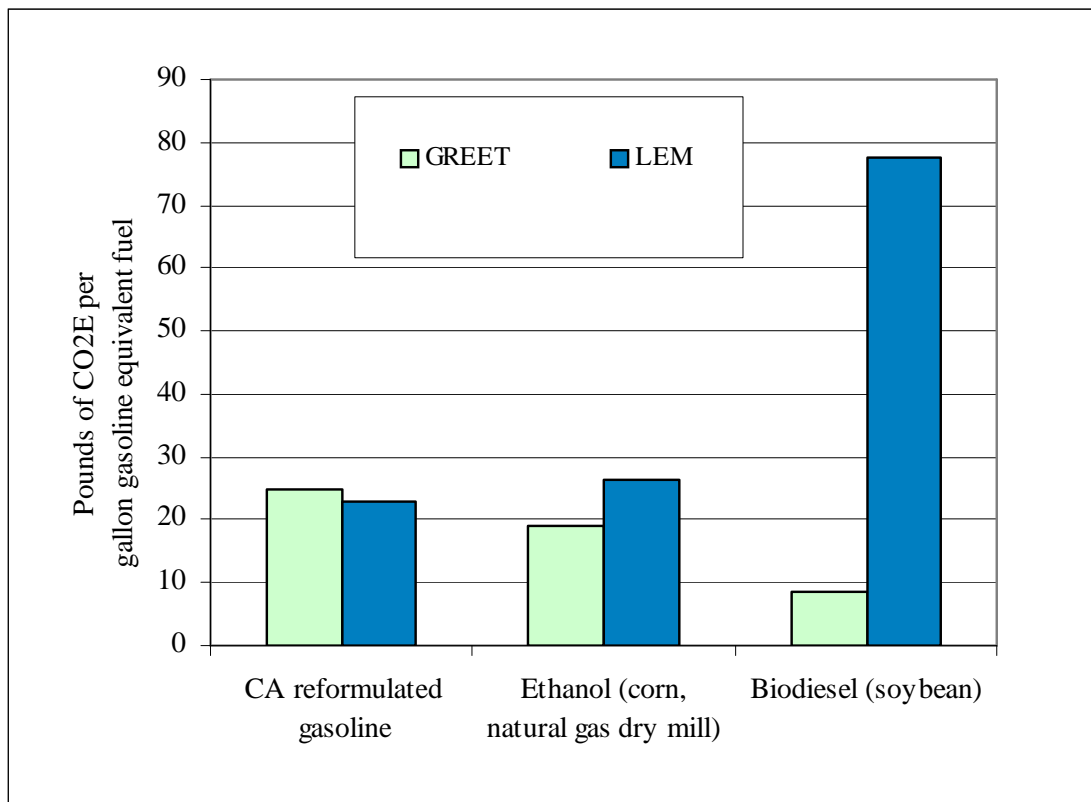
Cleaner Fuels: Criteria Pollutants from Full Fuel Cycle



Source: CEC AB
1007 Full Fuel Cycle
Assessment (2007).

Assumes new
vehicles, scenario
year 2012

Cleaner Fuels: Uncertainties in Full Lifecycle GHGs



Source: Farrell
et al, 2007

Cleaner Fuels: Environment and Air Quality

- Biofuels and the env't
 - Need sustainability criteria
 - Need breakthroughs in advanced fuels, like cellulosic ethanol
- Air quality concerns
 - Low-blend ethanol
 - CARB estimates excess emissions from using low blend ethanol in offroad engines could comprise >8% of all smog forming pollution from gasoline engines.
 - Biodiesel (20%)
 - Could cause slight NOx increase
 - E85?



Cleaner Fuels: Doing it Right

- Setting the bar
 - Drive investments in advanced fuels
- Doing the math
 - Research into “upstream” emissions
 - Best available data for carbon accounting
- Protecting the environment and food resources
 - Sustainability criteria
- Protecting air quality
 - No backsliding
 - Include upstream emissions



Cleaner Trucks: Marrying Air Quality and GHG Benefits

- Anti-idling
 - Existing regulations claim 1.2 MMCO₂E by 2020, but ARB enforcement severely understaffed
- Electrification of ports, truck stops, airports, refrigeration units
- Medium-duty delivery truck hybridization
 - 30 to 50% reductions in GHGs possible with lower tailpipe emissions of smog-forming pollution and soot

Cleaner Trucks the SmartWay

- “SmartWay” retrofits combining improved fuel economy and soot reduction
 - Low rolling resistance single-wide tires, aerodynamic panels, weight reduction, auxiliary power units, particulate filters
 - Available to install on trucks TODAY
 - Can deliver NOx reductions as well



Cleaner Cars: Clean Car Discount, AB 493 (Ruskin)

- Fees and rebates for new clean car purchases
 - Based primarily on GHG, but can also include smog-forming pollution
 - Can provide emissions reductions equivalent to CA's vehicle GHG standards (aka "Pavley")
 - If Pavley loses in court, Clean Car Discount provides greater benefit
- Cannot be enacted under AB32

Cleaner Cars: Clean Car Discount, AB 493 (Ruskin)

- \$2,500 maximum rebate/surcharge
- At least 20% of vehicles in “\$0 band” (no rebate/surcharge)
- Encourages manufactures to produce lower emission vehicles and consumers to purchase them

Smart Growth: The “Black Box”

- Win-win-win-win
 - Climate, air quality, petroleum reduction, quality of life
- Challenges of calculating emissions benefits from Smart Growth
- Over \$40 billion in bonds for transportation infrastructure
 - Some funds can be spent on smart growth, but will they?



Win/Win Transportation Policies

- Cleaner fuels
 - Low carbon fuel standard is groundbreaking policy, but needs
 - Protection against air quality backsliding
 - Accurate full lifecycle GHG accounting
 - Sustainability standards
- Cleaner trucks
 - “No brainer” strategy that marries air quality and GHG reduction
- Cleaner cars
 - Clean car discount (AB 493, Ruskin) could provide GHG and soot emissions reductions
- Smart growth
 - Black box needs light

