

# SCAQMD Ethanol Forum & Technical Roundtable

June 15, 2006

Western States Petroleum Association

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**Ethanol Use in the Future:  
Important Considerations**

# Historical Context

- Oil industry has used ethanol for at least 30 years
- EtOH replaced MTBE-currently >95% gasoline in CA contains 5.7% by volume
- Nearly a Billion gallons currently used in CA-96% from out-of-state sources, 25% of national use, competing demand from other states
- Federal RFS requires significant increase in use already: 4.0B gal renewables this year, 7.5B gal by 2012
- Declining need for EtOH winter programs for CO control due to vehicle turnover/tech improvements

# Advantages of Ethanol

- E85 extends overall transportation fuel volume
- Octane enhancer
- Partially renewable, some homegrown
- Some properties help meet RFG specs (dilution)
- Reduction in CO, debatable reductions in GHGs
- No vehicle modifications needed for E10 and under
- Standards well established for low level blends

# Disadvantages of Ethanol

- Lower volumetric energy content than gasoline. Decreased fuel economy: E10 by 2-5%, E85 by 20-30%
- Emissions increases with low level blends: evaporative emissions, acetaldehyde, NO<sub>x</sub>
- Weather or other factors can limit feedstocks and reduce ethanol production
- Not conducive to pipeline transport: needs other forms of transport
- Ethanol facility emissions – well-to-wheels?

# E-85 Considerations

- **Not compatible with existing retail equipment, additional retail space, cost of tanks/equipment expensive (2002 70 terminals -\$700MM)**
- **FFVs still small percent of overall population**
- **Value to vehicle owner not established, reduced range of FFVs**
- **CARB specs from '93 (sulfur 40ppm), no deposit control additives standards, no HC spec re. CBG3**
- **Limited info available on emissions and durability of modern tech FFVs operated on E85**
- **Mis-fueling of conventional vehicles, performance & warranty issues, commingling impacts, toxics**
- **Multimedia evaluation needed**

# Considerations if Mandated to Reduce Current Ethanol Use

- CA refiners have optimized system for ethanol use. Would need to make up octane, dilution and other attributes. Impacts on cost and producibility not fully understood.
- RFS requires multi-billion gallon renewables in nation-if reduce use in CA- adversely impacts RFS. Loss of fuel distribution system flexibility, susceptible to supply disruptions, price volatility
- Seasonal or Regional ban would disrupt the overall transportation fuels market

# Considerations if Mandated to Increase Current Ethanol Use

- Current CA gasoline regulations make it difficult to blend greater than 6% EtOH – NOx increases
- Unknown Consequences
  - More permeation emissions with higher ethanol concentrations?
  - Other?

# General Principles Oil Industry Supports

- Oppose mandates, not the product. Mandates force market to support and retailers to buy a product regardless of availability-distorts market
- Federal RFS has flexibility. Boutique state or local mandates do not & reduce federal RFS flexibility
- No ban on ethanol – including no seasonal or regional bans (CEC: summer ban results in greater than 10% reduction in gasoline production w/o add'l imports)
- Maintain industry flexibility to allow use when economic and makes sense
- Minimize changes to rules

# General Principles - cont

- Research thoroughly before acting – including CARB's update to Predictive Model/EMFAC
- May be many unintended consequences due to complexity of fuel system. Allow sufficient time for any changes-evolutionary not revolutionary
- Collaborative approach –mobility, health, safety, environment, cost
- Government's role isn't to pick winners and losers
- Product quality, consumer protection, standards
- Focus research dollars on development of cellulosic ethanol-CA specific waste streams