

SCAQMD Ethanol Forum & Technical Roundtable

Thursday, June 15, 2006

California Environmental Protection Agency



Outline

👉 **California Predictive Model**

👉 **Ethanol Perspectives**

California Predictive Model

Predictive Model Goals

- ➡ Update the model with latest data
- ➡ Mitigate emission increases from ETOH blends
- ➡ Enable continued use of ETOH at levels needed to comply with the 2005 Energy Act
- ➡ Explore opportunities for increased ethanol use
- ➡ Explore wide range of mitigation strategies
 - Greater use outside smog season
 - Use non-fuel measures to mitigate effects

Model Components

Hydrocarbons

- Evaporative Emissions
- Exhaust Emissions
- Reactivity-Weighted (CO Included)

Oxides of Nitrogen

Potency-Weighted Toxics

Model Considerations

- ➡ **Include new fuel property/emissions responses**
 - Increased permeation due to ETOH
 - Oxides of nitrogen – ETOH
 - Vehicle test programs
- ➡ **Update speciation profiles/reactivity Factors**
- ➡ **Incorporate new emissions inventory data**

ETOH Impact

- ➡ **6-10% ETOH increases some emissions; decreases others**
- ➡ **Evap increases; exhaust HC decreases**
- ➡ **NOx generally increases**
- ➡ **CO generally decreases**

Permeation Emissions

- 👉 **6% ETOH causes 65% increase in permeation through hoses/fuel tanks**
- 👉 **Emissions significant**
- 👉 **Effect present in new and older vehicles; relative magnitude less in new vehicles**
- 👉 **Documentation available in June**

Schedule

- ➡ **Statistical evaluation** **June**
- ➡ **Mitigation strategies** **July**
- ➡ **Initiate Peer Review** **August**
- ➡ **Staff Report** **September**
- ➡ **Board Hearing** **October**

**Yes, 2006, and
Meetings/Workshops Throughout**

Ethanol Perspectives

California Use

- ☞ CA currently uses 900 million gal/yr
- ☞ Increase since 2002 due to State ban on MTBE & Federal Clean Air Act O₂ mandate
- ☞ 2005 Energy Act provides national mandate to double ethanol use; more flexibility for CA
- ☞ CA refiner allocation in 2011 is about 850 million gallons, about equal to 2005 use

Low Level ETOH Expectations

- ➡ Refining and distribution system in place to manage ETOH
- ➡ Refiners likely to continue to use ETOH to ensure supplies
- ➡ Challenge is to maximize flexibility to use ETOH, while preserving air quality benefits of clean fuels
- ➡ E10 more difficult to mitigate than E5.7

E85, an Alternative Fuel

- ➡ Over 250,000 vehicles now in CA**
- ➡ Low emissions typical of new cars**
- ➡ No permeation issues**
- ➡ Greater global warming gas reductions**
- ➡ Much larger ultimate market for ETOH than E10**
- ➡ Economic to make E85 at current oil prices**

E85 – How to Promote?

- ☞ Buy E85 cars and use E85 as the fuel**
- ☞ Partner with auto & oil firms to expand fueling network**
- ☞ Provide E85 with preferential treatment in any actions CA takes to promote, subsidize, or require renewable fuels**
- ☞ Use ARB rules to require E85 retail outlets**

E85 Demonstration Program

- ➡ State entered into agreement with GM, Chevron (CTV), and Pacific Ethanol to learn more about E85 as a vehicle fuel.
- ➡ CalTrans fleet will use E85 at 2 locations for about 1 year.
- ➡ Vehicles acquired
- ➡ Infrastructure going into place
- ➡ Update E85 fuel specifications

Summary

- ➡ **Update model to preserve emissions benefits**
- ➡ **Enable refiners to use low level blends**
- ➡ **Encourage ETOH production from biomass and waste products**
- ➡ **Create CA sources for raw materials and provide incentives for CA production**
- ➡ **Establish aggressive E85 effort**