

Fuels Workshop on Regulatory and Non-Regulatory Fuels Activities for 2007

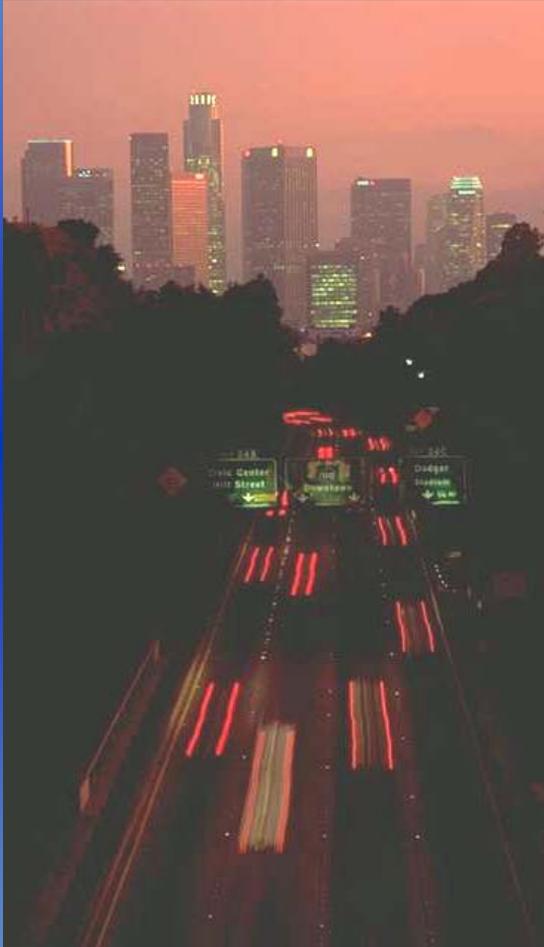
March 23, 2007

California Environmental Protection Agency



Air Resources Board

Agenda



- Introductions and Schedule
- Discussions of proposed amendments
 - Updates to Predictive Model
 - CaRFG3 limits
 - Alternative Emissions Reduction Plan
 - Sulfur offset mechanism
 - Denaturant levels
 - Off-road
 - Implementation
- Presentations by Others
- Open Discussions
- Closing Remarks

Board Hearing and Workshops

- Proposed Amendments to go to the board June 14, 2007
- Staff Report: Initial Statement of Reasons due out by April 27, 2007
- Staff anticipates having at least one more workshop before board hearing or up to three more depending on need

Proposed Updates to the Predictive Model

- ➡ Include new data on LEVS, ULEVS and SULEVS
- ➡ Improve handling of CO as ozone precursor
- ➡ Require permeation increase from on-road motor vehicles to be mitigated

Refinements to the Proposed Predictive Model

- Use 2015 emission inventory as baseline
- Maintain hierarchy structure in all exhaust models
- Flat spot for NO_x and THC responses to T50 and T90
- Revise Tech 5 mean and standard deviation
- Rebuild evap models based on disaggregate subarea temperature of CA-8Hr ozone day

2010-2015 Emission Weighting Factors

EMFAC 2007 (PC-T4, GVW < 10,000 lbs.)

Pollutant	2010			2015		
	Tech 3 (1981-1985)	Tech 4 (1986-1995)	Tech 5 (1996-2010)	Tech 3 (1981-1985)	Tech 4 (1986-1995)	Tech 5 (1996-2015)
HC	0.08	0.47	0.45	0.07	0.38	0.55
NOx	0.05	0.41	0.54	0.05	0.33	0.62
CO	0.07	0.38	0.55	0.06	0.29	0.65
Toxics*	0.01	0.11	0.88	0.01	0.06	0.94

*Based on VMT

2007 Draft Predictive Model

2010 Statewide (Tech 1-5, GVW<10,000 lbs)

Pollutant	Emission (tpd)	MIR	OFP	
			(tpd)	(%)
Exh TOG	244.3	4.01	979.6	51.3
CO	4388	0.06	263.3	13.8
Evap TOG				
DI/RT	68.1	2.74	186.6	9.8
HS	42.1	3.12	131.2	6.9
RL	128.4	2.73	350.5	18.3
Perm	18.4	2.77	51.4	2.7

2007 Draft Predictive Model

2015 Statewide (Tech 1-5, GVW < 10,000 lbs.)

Pollutant	Emissions (tpd)	MIR (tons, O3/TOG)	OFP	
			(tpd)	(%)
Exh TOG	156.2	4.01	626.5	45.1
CO	3082.0	0.06	184.9	13.3
Evap TOG:				
DI/RT	60.0	2.74	164.4	11.8
HS	38.9	3.12	121.3	8.7
RL	106.9	2.73	291.7	21.0
Perm	12.1	2.77	33.5	2.4

Proposed CaRFG3 Specifications

- Staff proposes to change the RVP limit for non-oxygenated gasoline to 6.9 psi to offset any increase in emissions due to commingling.
 - RVP limit for all other blends will be 7.0 psi
- Staff proposes to reduce the Sulfur cap limit from 30 ppmw to 20 ppmw.

Alternative Emissions Reduction Plan

- Staff is proposing to add provision to allow for the use of Alternative Emissions Reduction Plans (AERPs).
- An AERP would allow a refiner the option of seeking emission reductions from other sources while they are making the refinery modification necessary to produce fully complying California gasoline.
 - AERPs would only apply to those emissions associated with offsetting permeation.
 - The refiner would still have to at least comply with the non-permeation portion of the Predictive Model.
 - AERP would sunset in 2012

Sulfur Offset Mechanism

- Staff proposes adding a provision that would allow for emissions offsetting when a refiner has determined that a batch of gasoline can not be sold due to unintentionally high sulfur content
- The refiner intending to use this flexibility must demonstrate that the batch would have complied with a lower sulfur level.

Denatured Ethanol

- Staff proposes to change the allowable levels of denaturant in ethanol from 4.76 percent to 5.00 percent to be consistent with recent changes in ASTM specification

Ethanol Effects on Off-road Sources

- Reevaluating effects of proposed amendments on off-road emissions
- Reviewing off-road studies:
 - Two ARB lawnmower studies that used ethanol blends to estimate permeation
 - U.S. EPA study on 2-stroke off-road engines that used 0-10% ethanol blends for exhaust emissions
 - U.S. EPA evaluation of fuel effects on 4-stroke off-road engines using vehicle test data

Quantifying Off-road Emissions

- Ethanol increases permeation emissions from off-road engines and storage containers
- Staff working with the Emission Inventory Group to quantify off-road emissions
- Early indications suggest ethanol decreases exhaust HC and CO emissions
 - Nominal change in NOx emissions



Implementation of Proposed Amendments

- ☞ Staff is proposing that refiners and producers be required to use the amended Predictive Model to certify fuel formulations by 2010
 - Establish AERPs to mitigate the increase due to permeation, if unable to produce compliant CaRFG at that time
- ☞ The proposed implementation date for refiners and producers to produce CaRFG that offsets the increase in permeation by 2012

Other Items

Presentations by Others

Open Discussions

Closing Remarks