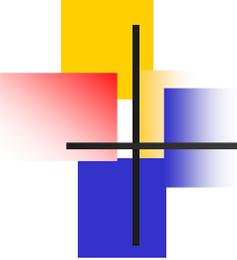


WSPA Comments on Predictive Model Update

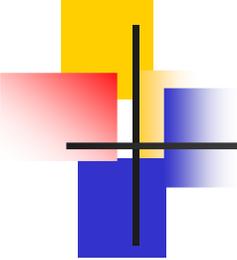
Albert M. Hochhauser

May 24, 2006



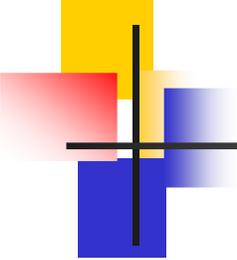
Overall Schedule

- Time is short, schedule is very condensed
 - Schedule and work plan are not defined fully
 - Difficult for stakeholders to comment effectively
 - Many interlocking issues
 - Inventory, Predictive Model, CO reactivity
- WSPA concerned that some important issues will not get adequate analysis and technical review
 - Major disconnect between EMFAC finalization and Predictive Model adoption dates



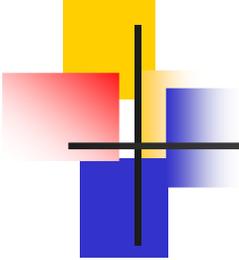
Important Inventory Issues

- Number of vehicles on road
- Evaporative emissions model
- Temperatures for inventory calculation have major effect on
 - Relative contribution of exhaust and evaporative emissions
 - Impact of ethanol on evaporative emissions including permeation
- Need to finalize inventory at beginning of effort
 - Open process with full discussion of assumptions



Effect of Ethanol on Permeation

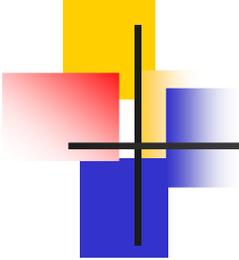
- CRC data is limited: 10 vehicles, E6
 - E10 results hopefully available in June
- CARB had to make a number of untested assumptions to model permeation
 - Augmentation Ratio
 - Permeation contribution to each evaporative emissions process: diurnal, resting, hot soak, running
 - Tank temperatures



Assumption on Augmentation Ratio

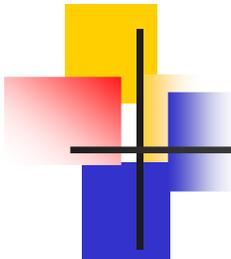
CARB Model for Diurnal Emissions (per Car)				
Emitter Category	Diurnal Emissions (g/day)	Augmentation Ratio	Increased Permeation (g/day)	Basis for Estimate
Normal	1	2.55	1.55	CRC Data
Moderate	5.4	1.20	1.08	CRC Data
High	49	1.05*	2.45	Assumption
High	49	1.02	1.08*	WSPA Proposal

*** ASSUMED VALUE**



Assumption on Permeation Contribution

- CARB assumes that 90% of resting losses are due to permeation
- This is not unreasonable, but needs supporting data
- Small changes can affect overall ethanol contribution

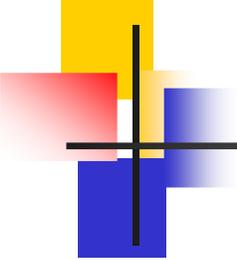


Overall Ethanol Contribution

- Two different daily temperature profiles considered for South Coast EMFAC modeling

	Low Temperature	High Temperature
Increase in Evaporative Emissions due to ethanol	+6.5 %	+12.8 %

- Why does ethanol contribution double?
 - Augmentation ratio is constant with temperature
 - Other processes (hot soak, running loss) should increase in importance



Conclusions

- Predictive Model update will have a major impact on California gasoline and the extent to which ethanol can be blended
- Important to get it right
- Technical steps should set the schedule not the other way around