

Candidate Control Measures for Portable Fuel Containers



Regional Air Quality Workshop

June 29, 2005

Prepared By:

Edward Sabo

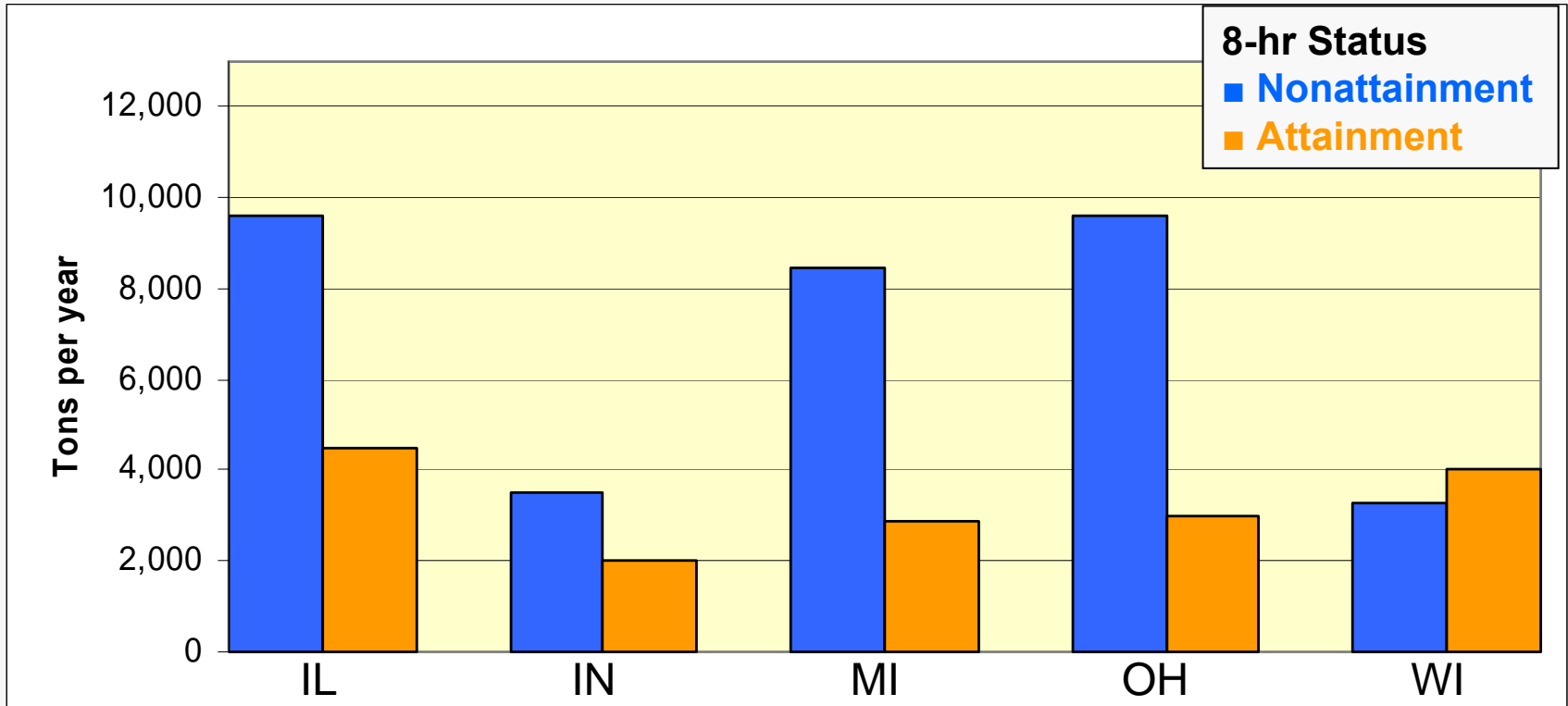
MACTEC Federal Programs, Inc.

ejsabo@mactec.com

Category Description: Portable Fuel Containers (PFCs)

- Designed to transport and store fuel from a retail distribution point to a point of use and eventually dispensing fuel into equipment
- Commonly referred to as “gas cans”
- VOC emissions from five different processes:
 - PFC refueling vapor displacement and spillage emissions
 - Transport-spillage emissions from PFCs while in transit
 - Diurnal emissions: vapors escape through vents due to daily cycle of increasing and decreasing ambient temperatures
 - Permeation emissions: vapors escape through the walls of containers made from plastic
 - Equipment refueling vapor displacement and spillage emissions
- Diurnal emissions are the largest category, accounting for roughly two-thirds of the total emissions from these five processes
- PFCs account for about 1.2% of the total anthropogenic VOC emissions in the MRPO region in 2002

VOC Emissions By State – PFCs



Regulatory History: PFCs

Non-MRPO State Rules

- CARB adopted Rules in 2000
 - Performance standards require:
 - An automatic shut-off feature preventing overfilling
 - An automatic closing feature so the can will be sealed when it is not being used
 - Eliminates secondary venting holes
 - Requires new plastics to reduce vapor permeation through container walls
 - Reduce VOC emissions by 75%
 - No requirement to scrap existing gas cans - compliance through attrition
 - CARB determined that the average useful life of a PFC is 5 years
 - One-year sell-through period, CARB anticipates full compliance within 5 years
 - CARB is currently reviewing the overall effectiveness of the regulation
 - Concern that operator error and functional failures are reducing the effectiveness of the spillage-reducing design features.
 - Overall effectiveness is now considered to be 65 percent instead of 75 percent.
- Ozone Transport Commission (OTC) Model Rule in 2001
 - Virtually identical to the CARB PFC rule
 - OTC chose to assume a more conservative ten-year turnover rate, with 100 percent rule penetration occurring 10 years after adoption of the rule
 - Rule adopted in nearly all OTC states

Regulatory History: PFCs

Federal Efforts

- No Federal rule regulating emissions from PFCs
- EPA is working on a rule, but it will not be proposed until the fall of 2005, at the earliest
- EPA rule would be similar in many respects to the CARB rule

Regulatory History: PFCs

MRPO State Rules

- None of the five MRPO/Midwest RPO States have rules specifically regulating PFCs
- Illinois has drafted a PFC rule, but has not proposed the rule pending more information from EPA regarding adoption of a national rule
- Illinois has funded voluntary “Gas Can Exchange Events” which provides individuals and business with a free, new less-polluting PFC in exchange for an old gas can.

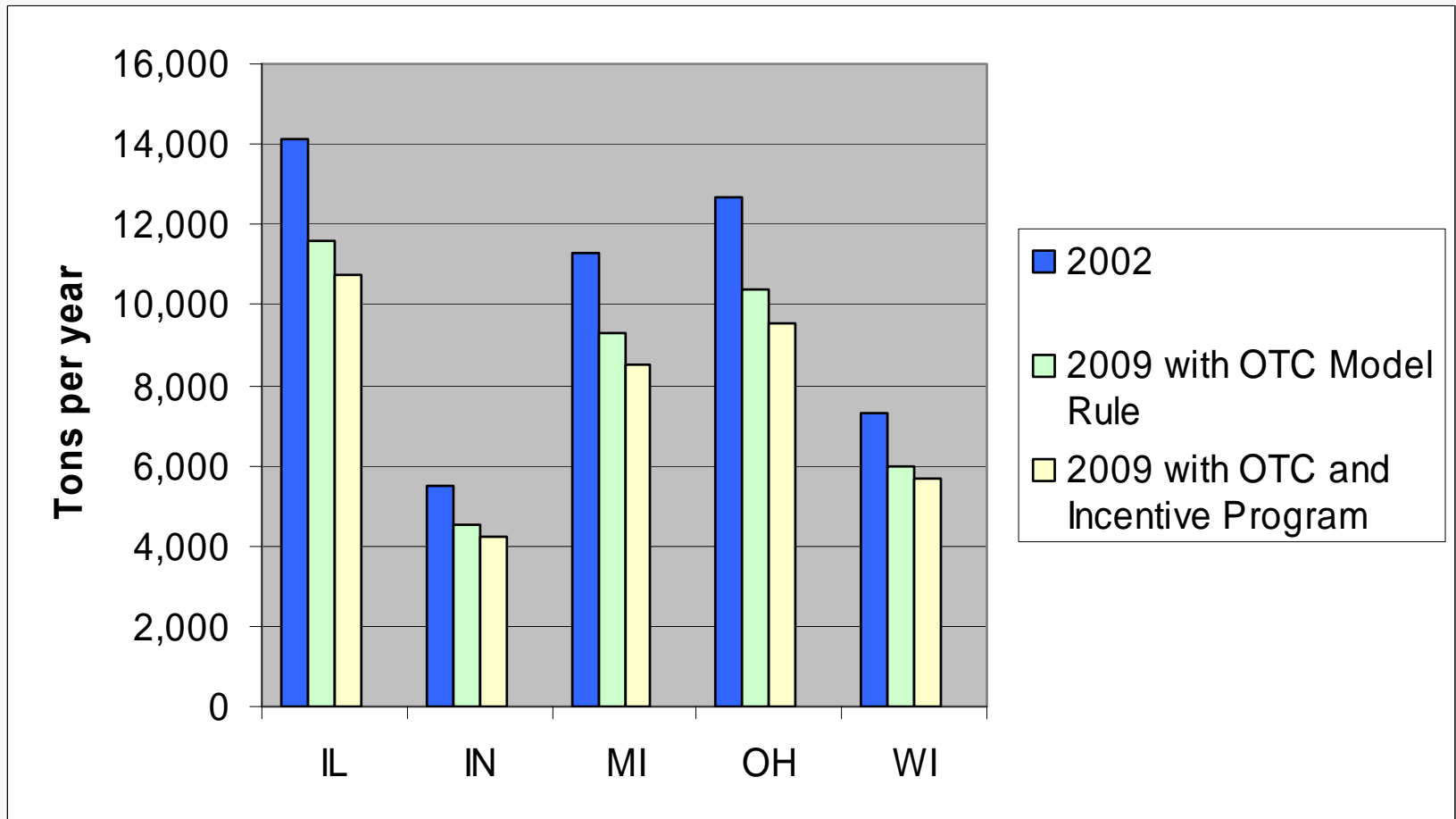
Candidate Control Measures: PFCs

- *Measure SOLV3A – Adopt OTC Portable fuel Container Model Rule Performance Standards*
 - Includes CARB performance standards
 - Assumes a conservative 10-year turnover rate
 - Overall effectiveness is 65% reduction in VOC
 - Geographic applicability
 - All 8-hr nonattainment counties
 - All counties in or adjacent to an 8-hr nonattainment area
 - All counties in the MRPO region

Candidate Control Measures: PFCs

- *Measure SOLV3B – Provide an Incentive Program to Accelerate Turnover to PFCs Meeting the CARB Performance Standards*
 - Encourage residents and commercial operators to remove old containers from service in order to accelerate the timeframe for achieving emission reductions
 - Designed to increase the attrition rate from 10 to 15% turnover per year in ozone nonattainment areas
 - Obtain emission reductions sooner
 - Emissions reductions expected from an incentive program are dependent on the funding available for implementation

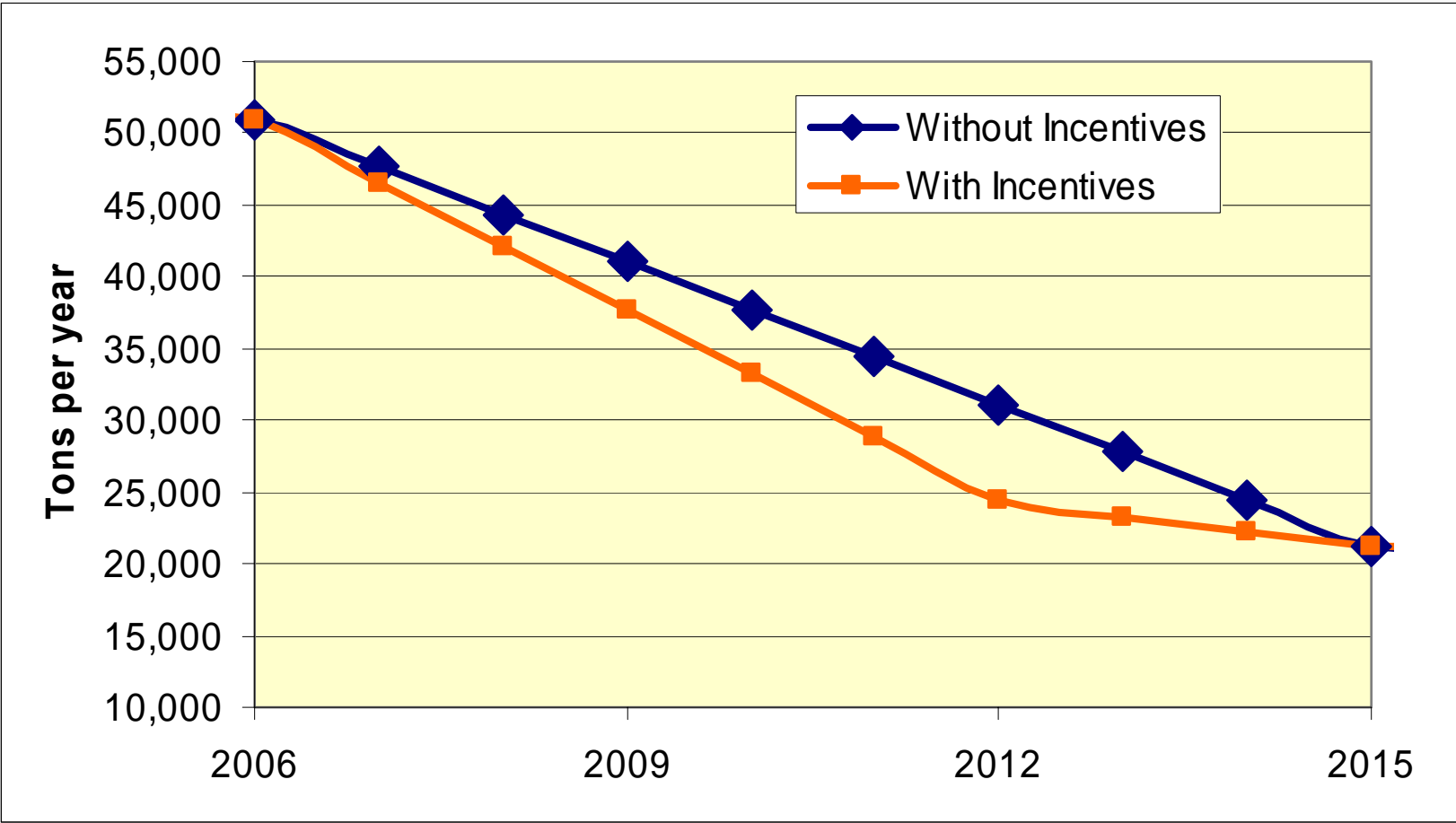
VOC Emissions in 2009 For PFC Candidate Control Measures



Timing for Implementation: PFCs

- Estimated useful life of a portable fuel container is an important factor in determining when emission reductions will be achieved
 - CARB selected average useful life of 5 years
 - OTC assumed more conservative 10 years
- Incentive programs to accelerate the replacement of conventional PFCs with spill-proof containers
 - Illinois has funded “Gas Can Exchange Events” which provides individuals and business with a free, new less-polluting PFC in exchange for an old gas can

VOC Emissions 2006-2015 For PFC Candidate Control Measures



Cost Effectiveness: PFCs

- OTC Model Rule - \$450 per ton VOC
- Illinois estimated \$250-400 per ton VOC using a different set of assumptions
- Trade-in incentive program - \$4,600 per ton
 - Container costs
 - Advertising
 - HazMat services
 - Staff labor

Other Issues: PFCs

- Geographic applicability – options:
 - Compliant PFCs required in all counties in the MRPO region
 - Incentive programs only in nonattainment areas?
- Incentive programs:
 - Well-promoted public outreach program could encourage homeowners and recreational vehicle owners to change out their gas cans with lower-polluting cans and nozzles
 - Funding and support from the state, as well as suppliers and retailers, would be needed to implement such a program
 - Each state agency would need to develop and implement a program to publicize, administer, and evaluate the program
- States could wait for EPA national rule
 - EPA OTAQ staff does not anticipate proposing a national rule until at least October of 2005, with a final rule expected by the end of 2006.

Questions? PFCs



Ohio Draft Rule

- Ohio EPA currently drafting PFC rules [OAC Rule 3745-21-17] .. will be based on CARB amended PFC rules.
- Currently going into IP review
- Estimated emissions reductions in Ohio would be 2,284 TPY (6.25 tpd) by year 2009.