Dirty-Car Tuneups Beat Oxy-Fuels by a Mile

By Donald H. Stedman

Every version of the Clean Air Act currently under consideration contains provisions for mandating alternative fuels. Cost estimates reviewed for the Business Roundtable vary from $40 million to several billion dollars a year. Millions of dollars are already being spent in Arizona, Colorado, Nevada and Mexico on the mandated use of oxygenated fuels in vehicles as a carbon-modoxne control measure.

Yet the same Environmental Protection Agency database used to justify the use of oxygenated fuels shows there's a better way to control carbon monoxide emissions: Tune-up the small minority of dirty cars twice as effective as—and much cheaper and simpler than—using oxygenated fuels in the entire fleet.

At the University of Denver, we have analyzed the studies of oxygenated fuel on vehicle emissions. None of EPA's national database and other available studies. The results from all the studies are striking in their similarity.

Half the carbon monoxide emissions come from only 10% of the vehicles tested. Half the improvement in the permit carbon monoxide emissions attributed to fuel oxygenation comes from the same 10% of the fleet. If those few vehicles were to have their emissions systems tuned up to equal the average of the rest of the fleet, the emissions improvement would be almost twice as large as the improvement obtained by using oxygenated fuel for the entire fleet.

As an example, a study of 94 vehicles published last year showed that 80 of them emitted a total of 397 pounds of carbon monoxide, while the dirtiest four emitted 338 pounds. When the entire fleet was put on oxygenated fuel, the total emissions reduction was 260 pounds, with the dirty four continuing to emit 107 pounds of that improvement. If the dirty four were tuned up, they would emit a total of 29 pounds—a 316-pound reduction in emissions from the tuning up of only four vehicles.

Oxygenated fuel costs more, decrease gas mileage and damage vehicle components. Therefore, a program that identifies and mandates tuneups for just the gross polluters offers many advantages. An actual tune-up study of 10 vehicles was conducted in 1990 in the Denver Department of Health. The 10 vehicles studied emitted a total of 343 pounds of carbon monoxide using normal gasoline. When the same vehicles using ethanol fuel were tested, the fleet emissions dropped to 305 pounds. When only the two dirtiest cars were tuned up, the fleet emissions dropped to 294 pounds.

Last summer, there was a widely publicized rally for methanol-fueled vehicles. It was not widely publicized that the emissions from those specially prepared vehicles were essentially identical to those from any new vehicle that could have been bought from any showroom nationwide. It is tempting to suggest that the problem is not dirty fuels, but dirty cars.

The University of Denver has developed a cost-saving device that can detect carbon monoxide from passing vehicles. The results of more than 250,000 measurements agree with the statistics from the government testing programs; namely, half the carbon monoxide emitted comes from about 10% of the vehicles. We have a tool to identify the gross polluters very cheaply. All the data show conclusively that a good tuneup of a few vehicles would be more cost effective than mandating less efficient fuels for everyone.

Mandated oxygenated-fuel programs cost an estimated $500 million per year of carbon monoxide removed, according to a study prepared for the EPA last September by RCG/Hagler, Balling Inc. (The estimate does not include a realistic assessment of gas mileage lost, or any estimate of vehicle cycle parts damage.) Annual exhaust emission testing and maintenance programs cost more than $700 per vehicle of monoxide removed. The EPA program based on remote sensing and tuneups of the gross polluters would cost, in estimate, only $40 per ton.

All the studies point to the cost-benefit advantage of this program. The choice is clear.

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