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SACHTUSSETTS

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 New Mexico on the mandated use of oxygenated fuels in vehicles as a carbon-monoxide 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: Tuning up the small minority of dirty cars is 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 in the EPA's national database and other available studies. The results from all the studies are striking in their similarity.

Half the carbon monoxide emitted comes from about 10% of the vehicles tested. Half the improvement in the per-mile 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, an EPA study of 84 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 203 pounds, with the dirty four contributing 107 pounds of that improvement. If the dirty four were tuned to emit the average of the rest of the fleet, they would emit a total of 20 pounds—a 318-pound reduction in emissions from the tuning up of only four vehicles.

Oxygenated fuels cost more, decrease gas mileage and damage vehicle components. Therefore, a program that identifies and mandates tuneups for just the gross polluters offers major advantages.

An actual tuneup study of 10 vehicles was conducted in 1978 by the Colorado Department of Health. The 10 vehicles studied emitted a total of 434 pounds of carbon monoxide using normal gasoline. When 10% ethanol fuels were used, the fleet emission dropped to 335 pounds. When only the two dirtiest cars were tuned up, and the normal fuel retained, 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 remote sensing device that can detect carbon-monoxide emissions 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 now 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 every-

one. Mandated oxygenated-fuel programs cost an estimated \$500 per ton of carbon monoxide removed, according to a study prepared for the EPA last September by RCG/Hagler, Bailly Inc. (The estimate does not include a realistic assessment of gas mileage lost, or any estimate of vehicle-parts damage.) Annual exhaust-pipe inspection and maintenance programs cost more than \$780 per ton of carbon monoxide removed. A program based on remote sensing and tuneups of the gross polluters would cost, I estimate, only \$40 per ton.

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

Mr. Stedman is a professor of chemistry at the University of Denver.

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amilies and massive medical bills to health insurance plans. Consultant Wyatt Co. figures one in three large companies now offers prenatal care. Aetna Life & Casualty introduces a program for plans it serves.

Health Management Corp. says prenatal training and early medical intervention can reduce premature deliveries as much as half. Counseling, adds consultant Towers Perrin, also can lessen the number of Cesarean sections, which are both riskier and more expensive than normal deliveries. "All you have to do is avoid one difficult premature delivery and the program will more than pay for itself," Illinois Bell asserts.

BUSINESS ETHICS get renewed push. But does punishment exceed reward?

United Technologies Corp. unveils a 21-page Code of Ethics and names a vice president of business practices. Trusting employees to do what's right is "simply not good enough any more," Robert Daniell, chairman, declares. Colgate-Palmolive Co. Chairman Reuben Mark says he encourages workers to come forward with ethical dilemmas by meeting with them in 80 breakfast meetings a year. A Chase Manhattan Bank committee monitors company policies to make sure they don't pressure workers to "take imprudent risks."

Harris Corp. warns that failing to report a violation by others could bring discharge. Indeed, virtue often has to be its own re-

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U.S. auto sal y as the indu ver some mon. uary were 10% from a ong year-earlier period. Chrysler d record sales for the month. Chrysler is seeking a tie-up with ndra Motor to help sell some rrysler models in Japan. (Stories on Page A2)

A Social Security tax-cut plan ran o strong Republican opposition and me Democratic skepticism as the nate Finance panel opened hear-ys on Sen. Moynihan's proposal. (Story on Page A20)

Dallas investor Harold Simmons id the SEC is looking into his pur-ases of Lockheed and Georgia Gulf ck, though the inquiry won't stop moves on both companies. (Story on Page A3)

GM announced a 2-for-1 split in ass E stock, a 17% dividend in-ease for the shares, and a repur-ase of more of the stock. (Story on Page C9)

overhauling industry in addressing the problem. (Story on Page A20)

South Africa's government urged jailed black activist Nelson Mandela and the newly legalized African National Congress not to delay power-sharing talks by imposing last-minute conditions. The main right-wing political party, meanwhile, called on whites to act against Friday's "revolutionary" announcements by President de Klerk.

East Germany's legislature added eight members of pro-democracy groups to Communist Premier Modrow's government, giving the opposition seats in the cabinet for the first time in the country's 40-year history. The Communists currently hold fewer than half of the 36 cabinet posts.

Romania's provisional leaders issued a decree legalizing free enterprise on a larger scale than ever existed under Communist rule; The law, aimed at improving living standards, took effect immediately.

Serbia's president threatened to send thousands of Serbs to take control of Yugoslavia's province of Kosovo, scene of an ethnic conflict. He also accused two rival republics of aiding Kosovo's ethnic Albanians, who gathered in Pristina to mourn 25 activ-

to save on clothing, Ms. Capetillo dresses herself plainly in thrift-store finds. To cut her grocery bill, she stocks up on 67-cent boxes of saltines and 39-cent cans of chicken soup.

When Ms. Capetillo's five-year-old daughter, Michelle, asked for "Li'l Miss Makeup" for Christmas, her mother bypassed Toys "R" Us, where the doll retails for \$19.99. Instead, she found one at Goodwill—for \$1.89. She cleaned it up and tied a pink ribbon in its hair before giving the doll to Michelle. Ms. Capetillo found the popular Mr. Potato Head at Goodwill, too, assembling the plastic toy one piece at a time from the used toy bin. It cost her 79 cents, and saved \$3.18.

Whose Money?

Ms. Capetillo's stingy strategies helped her build a savings account of more than \$3,000 in the last four years. Her goal was to put away enough to buy a new washing machine and maybe one day help send Michelle to college. To some, this might make her an example of virtue in her gritty North Side neighborhood, known more for boarded-up houses than high aspirations. But there was just one catch: Ms. Capetillo is on welfare—\$440 a month, plus \$60 in food stamps—and saving that much money on public aid is against the law. When welfare officials found out about it, they were quick to act. Ms. Capetillo, they