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Travel Habits Must Change To Make a Big Difference In Energy Consumption

By MATTHEW L. WALD

The Environmental Protection Agency kicked off Energy Awareness Month in October with the slogan "change a light, change the world," and encouraged Americans to buy compact fluorescent lights instead of conventional incandescent bulbs.

Useful as that may be, picking a large sport utility vehicle that goes two miles farther on a gallon of gasoline than the least-efficient S.U.V.'s would have an impact on emissions of global warming gases about five times larger than replacing five 60-watt incandescent bulbs. The dollar savings would be about 10 times larger. And the more-efficient light bulbs would have a negligible effect on oil consumption.

Almost everything Americans do uses energy, making the earth warmer and purses thinner, and often raising demand for oil from unstable places. People eager to reduce their consumption can take many steps, but the size of their benefit -- or cost -- is not always evident.

The New York Times compared a number of such steps by three standards -- reduction in global warming gases emitted, reduction in oil consumed and the dollar savings.

The calculations, shown in the accompanying chart, found that while choosing energy-efficient lighting and appliances makes a difference, changing how we travel would make by far the biggest difference.

Energy-saving light bulbs, the experts say, are relatively easy to adopt, and if everybody used them, the collective difference would be large. But they do not rival vehicles in potential savings.

Changing to a light bulb that gives three times as much light per watt of electricity means reducing energy use by cutting "a big share of a small thing," said Lee Schipper, research director of the World Resources Institute, an environmental group. But picking a better vehicle, or using it less, is "a small share of a big thing." And that has more potential, he said.

The larger the vehicle, the bigger difference even a small increase in fuel economy makes. For example, buying an S.U.V. with fuel economy rated at 16 miles per gallon instead of 14 -- say a Chrysler Pacifica or a Buick Rendezvous, instead of a Chevrolet Tahoe or GMC Yukon -- cuts oil consumption and reduces carbon dioxide emissions by three and a half times more than saving 2 miles per gallon in a typical car -- going from, say, the 23 miles per gallon consumption of a V-6 Camry to the 25 miles per gallon of a Saturn Ion or a Honda Accord hybrid.

Of course, driving a car far more fuel-efficient than an S.U.V. saves the most of all. But many people will not consider such a vehicle, so they can help by picking a better model in the class they prefer.

Two miles per gallon may mean nothing more than picking a vehicle with the standard engine instead of the souped-up version, or picking the vehicle that has the best fuel economy in its size class.

The 16-mile-per-gallon models (as measured in road tests by Consumer Reports magazine) are very big S.U.V.'s, although not as large as the 14-mile-per-gallon models. Mr. Schipper said it was a change "that your

neighbors won't notice. They won't look down on you."

There are lots of choices available beyond compromising on the size of an S.U.V. Some of the biggest also involve travel.

Commuting by train or bus, when that choice is available, will make the biggest difference. Consider the average round trip to work -- 23 miles. In the average sedan, which gets 23 miles to the gallon, that is 250 gallons of gas a year and about 5,000 pounds of carbon dioxide emissions.

In cutting emissions of carbon dioxide, consumers can help by saving either gasoline or electricity. But as for cutting consumption of oil, saving electricity provides little help, because only 3 percent of electricity comes from burning oil.

That said, there are changes around the house that make a big difference. In many parts of the country, for example, heating a home for a winter takes about as much energy as running a car for a year. In a climate like Boston's, replacing single-pane windows and storm windows with new thermal windows in a two-story, 2,000-square-foot house would save about 100 gallons of heating oil (about two-thirds as much oil as the switch to a 16-mile-per-gallon S.U.V). It would also reduce carbon dioxide production by more than 2,000 pounds. If the heating fuel is natural gas, the savings is about 1,600 pounds.

The next biggest energy user at home -- again, depending on climate -- is the air-conditioner. Replacing a 10-year-old air-conditioner with a new one would save about 871 pounds of carbon dioxide a year, although only a little more than a gallon of oil.

Even the most significant energy savings mentioned here are modest when compared with what it would take to limit global warming. Joseph J. Romm, an analyst at the Center for Energy and Climate Solutions and a head of the Energy Department's efficiency and renewable energy program during the Clinton administration, said American carbon dioxide emissions come to about 44,000 pounds per person per year. Stabilizing the atmospheric concentration of carbon dioxide would require cutting that by 26,000 pounds to 35,000 pounds.

But the more modest goal set by the Kyoto Protocol, which would have required the United States to cut emissions by about 3,100 pounds per person annually, are well within reach.

Mr. Romm, the author of a new book about energy and climate change, "Hell and High Water," said that eventually the world's industries would have to switch to lower-carbon fuels, but before that time individuals and industries could take plenty of action. "You use efficiency to stop demand growth," he said.

Correction:
January 9, 2007, Tuesday An article in Business Day on Dec. 30 about energy efficiency and carbon dioxide reductions misstated the relative savings a driver could achieve by switching to a large sport utility vehicle that got an additional two miles per gallon compared with switching to a car that got two more miles per gallon. Savings in the large S.U.V. are two and a half times larger, not three and a half times.