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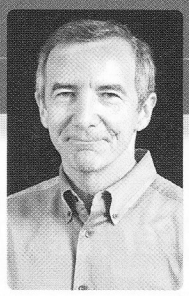

Taken for a **ride**

One of the most active topics on the MACHINE DESIGN forums has been the pros and cons of rail lines. Now that gas prices have begun to creep up again, it might be a good time to revisit the idea. It is all the more interesting in light of the Obama administration's plans for a new national network of high-speed passenger rail lines. Proponents want to put up 10 intercity lines running between 100 and 600 miles long. They say the result will be less traffic congestion, less dependence on foreign oil, and an improvement in the environment.

Yet if the experiences of Europe and Japan are any guide, high-speed rail lines will do none of those things.

Wisdom on this subject comes from Randal O'Toole, an economist and public policy analyst who has studied rail use. He points out that mass transit carries only 1.5% of all urban travel in the U.S. Transit ridership did indeed rise slightly last year when gas prices went to the moon, but the increase was a meager 3.4% over the year before. The effect on traffic congestion was insignificant.

Adding high-speed trains to the mix is unlikely to change things. For proof, says O'Toole, look at Europe and Japan. The average resident of Japan logs only 400 miles/year on bullet trains. In France the figure is 300 miles/year. And despite a lot of subsidized train lines in Europe and Japan, the car is still the preferred mode of transportation in those parts of the world. Europeans drive for 79% of their travel; residents of Japan, over 60%. In the U.S. the figure is about 85%.

Such statistics tend to shatter the American stereotype of Europeans as inveterate train riders. The reality is that in Europe, bus and rail lines are becoming less popular. Between 1970 and 2000, bus and rail travel there lost "market share," dropping from 23.2 to 14.9%, with the difference made up by more travel by air and by car.

And it turns out that rail transport isn't particularly "green." Light rail consumes about as much energy per passenger mile as the average passenger car. Measured this way, neither heavy rail nor commuter rail is as fuel efficient as an ordinary Prius.

The situation is similar for emissions of greenhouse gases. Electric-powered transit is "green" only when its electricity comes from nuclear, hydro, or renewable sources. In places where most electricity comes from burning fossil fuels (as is the case in the vast majority of U.S. locales), rail transit generates more greenhouse gas than cars.

Surprisingly, there is a much simpler way to reduce greenhouse gases and use of petroleum than with expensive and hardly used rail lines: Stick with ever more fuel-efficient cars and coordinate traffic signals. The Federal Highway Administration claims three out of four traffic signals aren't properly coordinated with their neighbors. In fact, one signal coordination project in Silicon Valley that cost $500,000 saved motorists about 471,000 gallons of fuel annually, more than paying for the project in the first year. Figuring 19.5 lb of CO_2 emitted/gallon, estimates are the project cut greenhouse-gas emissions at a savings of about $200/ton.

The problem with such common-sense ideas, of course, is that they can't generate the kind of front-page news that trumpets boondoggle rail projects.

— Leland Teschler, Editor