

Health and Science Series

By

Gerald S. Linder, M.D., FACA

Number 11 September 19, 2005

MYTHS AND REALITIES

WAKE UP AND SMELL THE FUMES

By now is there **anyone** among us not aware of the dual **crises of increasing fuel costs and atmospheric pollution** gravely affecting global economies and public health? (1). Fuel production is stretched now to near limits and available supplies are affected by natural disasters and sporadic terrorist attacks.

Do these compelling problems show any signs of abating and improving over the long-term? Not likely through available conventional and unconventional means, **unless** there is a basic change in the **indolence and skepticism** shown by most **individuals** due to numerous failures experienced in the past with products promising reduced fuel costs and emissions and not delivering.

We must make decisions **now**, however, to avert the inevitable **economic and health damage**, which will result if we fail to take immediate action. Fuel costs can be mitigated by more efficient use, resulting in lower demand. Reducing emissions in the air we breathe will improve our health. The **recent relaxation of laws** requiring the addition of emissions lowering chemical additives to fuel, prior to its arrival at the pump, has **exacerbated** this problem and increased the urgency to reduce emissions by other means.

We must examine and evaluate the available choices of products and methods, **separating myths from realities**, in order to make **intelligent and economically feasible** selections and then implementing them without delay.

A commonly proposed solution to our current fuel and emissions problems is the **Hybrid Vehicle**. This has been the subject of many widely reported studies. The hybrid is a good example of myth and reality and not a current or near-term answer to our dual problems of fuel conservation and lower emissions in economically feasible ways.

Hybrid vehicles utilize a gasoline or diesel engine together with a battery pack powered electric motor. There are currently ten different makes and models of hybrid cars, trucks and SUVs, with up to 10 more additional makes and models scheduled for introduction in the next few years. (2).

Hybrids cost \$2,000 to \$11,000 more than the same vehicle with a conventional gasoline engine. Some hybrids run on the electric motor when at slow speeds or stopped, while others use the gasoline engine and electric motor together to increase acceleration. Maximum EPA highway mpg ratings are higher than what is achieved in actual use because of the artificial EPA laboratory test environment.

When all is said and done, hybrids will save you **only one to two miles** per gallon over the comparable straight gasoline engine model unless the gasoline engine **horsepower is reduced drastically**. The Honda Insight has the best fuel economy of any vehicle sold in the United States. The EPA says this 1 liter, 3 cylinder, 65 horsepower gasoline engine and 13 horsepower electric motor powered lightweight, two-seat coupe gets a maximum 66 mpg (not obtained outside the EPA laboratory). This is accomplished by a **great sacrifice of horsepower and passenger space**.

The sticker price difference between a Honda Civic Hybrid with a manual transmission and a comparable conventional Honda Civic EX is \$2,390. It is estimated that driving 15,000 miles per year, it would take about **eight years to amortize** the higher cost of the hybrid. (2).

Since mileage determines the amount of harmful emissions produced, it would appear that conditions being equal, the hybrid, with a better gas mileage rating than a conventional model would emit less. An individual's **driving style**, however, is more of a determinant of actual fuel efficiency, so that a light-footed driver in a comparable gasoline engine model would have lower emissions than a heavy-footed hybrid driver. (2).

Another environmental problem presented by the hybrid is the ultimate disposal of the highly toxic battery packs when they are depleted. The packs are warranted for eight years or 80,000 to 100,000 miles, depending on the manufacturer. Battery packs cost \$2,000 to \$4,000 to replace. Without a track record, hybrid maintenance and trade-in values pose large questions. From the economic standpoint of vehicle ownership, **the hybrid does not yet make financial sense**. (2)

Other approaches by auto makers to increasing fuel efficiency is the utilization of lighter materials in conventional gasoline engine vehicles, providing better tires, improving aerodynamic design, tweaking engine timing, using starter generators so that engines can be completely off at idle and utilizing six speed transmissions (which may become the standard). Each of these methods adds costs, which must be amortized over time. (3).

Every driver should ideally embrace the following fuel saving and emissions lowering measures: (4).

1. Use **lower octane gasoline** if your vehicle's engine can handle it without pinging.
2. Stop **wasting fuel** by topping off. The extra gas will slop around and seep out.
3. Tighten the gas cap to prevent **evaporation**.

4. Keep your vehicle out of the hot summer sun, which evaporates your gasoline.
5. Keep your vehicle **garaged** where it will stay cool in summer and warm in winter.
6. Keep your vehicle's **tires properly inflated**, checking their pressure once a month.
7. Keep your engine in tune.
8. Replace air filters.
9. Use the proper oil.
10. Follow maintenance schedules.

The problem is that most of us don't do many of the items on the list because of our time schedules, priorities and inclinations. What **practical choices** are we then left with to immediately address our fuel and emissions problems?

There are several device and additive products currently claiming to increase engine fuel efficiency and lower emissions. I urge you to examine the supportive evidence for their claims and consider their costs in your evaluations. Under close scrutiny you will find **many are mythical**.

On the other hand, as attested to by the test and field performance evidence presented in previous papers in this series and on the Fuel FX, International, Inc. web site, the **Reactor realities** are clear. Not only does the Reactor significantly increase **fuel efficiency** while lowering **emissions**, but it provides the added benefits of allowing the use of **regular gasoline** in vehicles designated as requiring premium grade, **increases horsepower** and decreases **noise and vibration**, thereby providing a smoother ride.

The Fuel Fx Reactor is available now for diesel and gasoline engines, vehicle and otherwise, at costs that make it **economically feasible for purchase or lease**. Expenses are rapidly recovered by the savings realized. It is high time to **wake up, smell the fumes** and take **action!**

REFERENCES

1. USA TODAY.com: *Gas shock echoes across USA*. September 2, 2005.
2. Jackson, T.: *Hot for a hybrid? 9 things to consider*. Bankrate.com, September 2, 2005.
3. Aston, A.: *Getting more miles to the gallon – fast*. BusinessWeek Online, September 19, 2005.
4. Lazarony, L.: *10 car-care tips that save gas*. Bankrate.com, June 23, 2005.