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NEWS & FEATURES
By Bradley Berman

The Top Ten Hybrid Myths

With more of the gas-electric cars on the road, it's time to dispel some of the misinformation surrounding these alternative vehicles

Five years ago hybrid cars were an unknown commodity. Today vehicles powered by a combination of gasoline and electricity are all the rage. Like any new technology, until you get your hands on it -- in this case, on the steering wheel -- it's hard to get your mind around it.

If you are having a tough time separating hybrid truth from reality, you're not alone. The warp-speed adoption of hybrids into popular culture -- and into hundreds of thousands of American driveways -- has produced more than a little confusion and misinformation. Most industry analysts predict the continued growth of gas-electric vehicles, with estimates ranging from 600,000 to 1,000,000 hybrid sales in the U.S. by 2010, so this is a good time to debunk the 10 most prevalent myths about hybrid cars.

1. You need to plug in a hybrid car.

As soon as the word "electricity" is spoken, you think of plugs, cords, and wall sockets. But today's hybrid cars don't need to be plugged in. Auto engineers have developed an ingenious system known as regenerative braking. (Actually, they borrowed the concept from locomotive technology.) Energy usually lost when a vehicle is slowing down or stopping is reclaimed and routed to the hybrid's rechargeable batteries. The process is automatic, so no special requirements are placed on the driver.

Car companies explain that drivers don't have to plug in their vehicles, but a growing number of them wish they had a plug-in hybrid. The ability to connect a hybrid into the electric grid overnight to charge a larger set of batteries means that most of your city driving could be done without burning a single drop of gasoline.

Can you say 100 mpg? So far, auto makers have been reluctant to bring plug-ins to the mass market, claiming that today's batteries can't take the extra demand. Until a car company takes a chance on the great potential of plug-in technology, hybrids don't require plugging into the grid.

2. Hybrid batteries need to be replaced.

Worries about an expensive replacement of a hybrid car's batteries continue to nag many potential buyers. Those worries are unfounded. By keeping the charge between 40% and 60% -- never fully charged and never fully drained -- carmakers have greatly extended the longevity of nickel metal hydride batteries.

The standard warranty on hybrid batteries and other components is between 80,000 and 100,000 miles, depending on the manufacturer and your location. But that doesn't mean the batteries will die out at 100,000 miles. The Energy Dept. stopped its tests of hybrid batteries -- when the capacity remained almost like new -- after 160,000 miles. A taxi driver in Vancouver drove his Toyota Prius over 200,000 miles in 25 months, and the batteries remained strong (see BW Online, 12/28/05, "[Taxicabs Start to Turn Green](#)").

There's little to no information about the cost for replacing a hybrid battery, because it hasn't been a requirement with today's models. When that day comes, owners will replace a single cell -- there are hundreds in a hybrid's battery pack -- or a module, not the entire pack (see BW Online, 1/05/06, "[Pursuing New Power for Hybrids](#)").

3. Hybrids are a new phenomenon.

In 1900, American car companies produced steam, electric, and gasoline cars in almost equal numbers. It wasn't long before enterprising engineers figured out that multiple sources of power could be combined. In 1905 an American engineer named H. Piper filed the first patent for a gas-electric hybrid vehicle.

With the advent of the electric self-starter in 1913 -- making gasoline engines much easier to turn over and get started -- steamers, electrics, and hybrids were almost completely wiped out. The following 80 years, characterized by cheap oil, created little incentive for auto engineers to play with alternatives.

The oil price shocks of the 1970s, and a growing awareness of environmental problems related to automobile emissions, sent engineers back to the drawing board. Research and experimentation by governments and car companies in the 1980s and 1990s led to the reemergence of hybrids in the U.S. in 2000.

4. People buy hybrids only to save money on gas.

Hybrid cars top the list of the most fuel-efficient vehicles on the road. Going farther on a gallon of gas -- and thus reducing a car owner's tab at the pumps -- is a logical advantage of a hybrid car. But car shoppers seldom buy based purely on a logical economic equation. Besides, as critics of hybrid technology frequently point out, those savings seldom add up to the extra cost of buying a hybrid over a

comparable conventional vehicle.

So, if it's not to save money, why are more and more shoppers going hybrid? Many reasons: To minimize their impact on the environment, to help reduce the world's addiction to oil, and to earn technology bragging rights. Who was the first on your block to have a color TV? Who will be the first to drive a hybrid?

The car you drive sends a powerful message about who you are and what you think about the world. Hybrid drivers take pride in letting other drivers -- especially those behind the wheel of gas guzzlers -- know that getting from point A to point B doesn't have to lead us to an uncertain environmental and economic future.

5. Hybrids are expensive.

At the beginning of 2006, hybrids were available in 10 different models ranging in price from \$19,000 to \$53,000. The most efficient models -- the Insight, Civic, and Prius -- are available well below \$30,000. By the end of the decade, more than 50 models are expected. By that point, hybrids will represent the full range of sizes, shapes, and costs.

Rechargeable batteries, electric motors, and sophisticated computer controls do add to the cost of producing a hybrid car. However, as production numbers increase, economies of scale are expected to reduce those costs. Toyota ([TM](#)) plans to offer hybrid versions of all its most popular models and thus cut the incremental cost of hybrids in half.

In the meantime, the hybrid premium -- usually estimated at \$3,000 -- is mitigated by federal and state tax incentives, lower maintenance costs, and extraordinarily strong resale values. In fact, used Toyota Priuses are reportedly being sold at prices approaching the cost of new ones.

6. Hybrids are small and underpowered.

The Honda ([HMC](#)) Accord hybrid is the fastest family sedan on the market. The Lexus Rx400h and Toyota Highlander Hybrid share the same 270-horsepower system. The Lexus GS 450h hybrid sedan, expected later in 2006, will exceed 300-horsepower with 0-to-60 performance below six seconds. And the Toyota Volta concept is a 408-horsepower scream machine. (See [Hybrids](#) for more information).

These vehicles prove that adding an electric motor and batteries to the drivetrain does not intrinsically mean diminished performance. Combining a gasoline engine and electric motors gives engineers more control to emphasize fuel parsimony or speed, urban driving or highway cruising, large vehicles or small.

General Motors' ([GM](#)) two-mode hybrid system, rolling out later this year in the Chevy Tahoe, is designed specifically to give drivers of full-size SUVs a V8 highway cruising experience and towing power -- without draining the gas tank.

7. Only liberals buy hybrids.

The long list of celebrity hybrid drivers includes Leonardo DiCaprio, Cameron Diaz, and Larry David. They zip around Hollywood in their Priuses and appear on talk shows extolling the virtues of hybrid vehicles. These celebrities, and other early adopters of hybrid technology, were primarily motivated by the environmental benefits. As a result, they created an easy target for naysayers to brand all hybrid drivers as tree-huggers.

In the ensuing years, Americans of all political stripes have become more aware of the economic and political costs of oil dependency. Conservative pundits claim that our petrodollars end up in the hands of repressive Middle East regimes and their patrons. As a result, we fund both sides of the war on terror. In addition, auto workers have grown more interested in fuel-saving technologies, recognizing that they bear the brunt of Detroit's reluctance to abandon once-profitable SUVs.

Conserving fuel is now being championed as a way to tackle national security, jobs, and climate change, all at the same time. Frank Gaffney, President Reagan's Under Secretary of Defense, supports bipartisan legislation introduced in Congress to promote the use of alternative fuels and hybrids.

In an interview in National Review Online, he said: "It would stimulate far greater production of such fuels as biodiesel, methanol, and ethanol, preferably in 'plug-in hybrid' vehicles that will permit electricity also to be used as a relatively cheap transportation fuel."

8. Hybrids pose a threat to first responders.

Now that hundreds more hybrid cars take to our roads each day, some critics have wondered if public safety agencies should be concerned about all those high-voltage battery packs zipping along at freeway speeds. Not too much. Turns out that a good amount of training -- and, in case of fire, lots of water -- should be most of what a first responder needs upon arriving at an accident involving a hybrid.

Knowing a few basic things about hybrids -- the location and construction of battery compartments, the color (orange) used to designate high voltage cables, and the location of fuses that will isolate the electrical system -- is enough to help first responders save lives and remain safe in the process.

Firefighters have coped with advancing automotive technologies for years, and they will skillfully deal with hybrid cars.

9. Hybrids will solve all our transportation, energy, and environmental problems.

The hybrid car market is ramping up. In the past five years hybrid sales in the U.S. grew twentyfold, from 9,500 in 2000 to over 200,000 in 2005 (see BW Online, 12/28/05, "[Sales Continue to Speed Up](#)").

The numbers are encouraging but must be viewed in the context of the overall car market. The 200,000 hybrid car sales in 2005 represent 1.2% of the 17 million new cars sold last year. If every new hybrid driver doubled fuel economy from 20 mpg to 40 mpg for 40 miles of daily driving -- an optimistic estimate -- then a gallon per hybrid car would be saved every day. That's a whopping 100,000 gallons per day chalked up to hybrid car drivers. But we've only reduced our daily U.S. consumption from 400 million gallons to 399,900,000 gallons.

Market forecasters predict a continued annual doubling of hybrid car sales for the next few years. We could reach the major milestone of 1 million hybrid cars on American roads sometime in 2007 or 2008. Again, this looks promising until you consider that there are approximately 200 million cars in America today -- and over 700 million vehicles worldwide. If car numbers keep increasing at the present rate, there will be more than a billion cars and trucks on the road across the world in 20 years.

Hybrid cars can only be viewed as a partial solution.

10. Hybrid technology is only a fad.

Hybrid technology is often pitted against fuel cells, diesel engines, and/or hydrogen as the silver bullet approach to sustainable mobility. The greatest hope and investment has been placed in hydrogen fuel cells. Yet on Dec. 1, 2005, the International Energy Agency (IEA) concluded that even under the most favorable conditions, hydrogen vehicles would represent 30% of the global fleet by 2050. The failure of hydrogen-powered cars to materialize rapidly underscores the risk of focusing on a single solution.

The debate over the future of automotive technology has now turned toward finding the best ways to combine systems and fuels in a single hybrid vehicle. The experience of mass-producing hybrid gas-electric vehicles has given engineers the insight needed to develop complex systems needed to combine multiple sources of power.

Jason Mark, director of the clean vehicles program for the Union of Concerned Scientists, told HybridCars.com: "Hybrid vehicles are the bridge between conventional vehicles and fuel cells." In an Associated Press interview, Jim Press, president of Toyota Motor Sales USA, said: "I think everything will be a hybrid, eventually. It will either be a gas hybrid, a diesel hybrid, or a fuel-cell hybrid."

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