

# WHY ELECTRIC CARS MAKE NO SENSE

With California in the lead, a dozen states want the Big Three to sell nonpolluting battery-powered vehicles. But at \$100,000 each, who will buy them?

■ by Alex Taylor III

**N**OW THAT General Motors, Ford, and Chrysler are getting close to an agreement to cooperate on an electric vehicle, does that mean battery-powered cars are an idea whose time has finally come? Not by a long shot. California and some other environmentally minded states are forcing automakers to build something few consumers will want to buy: expensive, limited-use vehicles. Says Ralph Colello, a vice president at Arthur D. Little consultants who has studied electric vehicles (known as EVs): "Gasoline vehicles do everything better, cost less, and don't give you a refueling hassle. I don't think you can ever make an EV for the same cost as a gasoline vehicle."

California's worthy goal is to reduce air pollution caused by exhaust emissions in the Los Angeles basin. But the state's demands for cars that produce zero emissions demonstrate the disruptive and perverse effects of government regulation on free markets. This also shows the folly of trying to force technological advances—in this case, a stronger, longer-lasting, cheaper battery.

Electric vehicles actually predate gasoline-powered ones, but they've been in eclipse for 70 years because of limited range and speed. Their revival is almost entirely due to government efforts to cut exhaust emissions. But instead of producing pollution at the tailpipe, an EV dirties the air near the power plant where the electricity to charge the battery is generated.

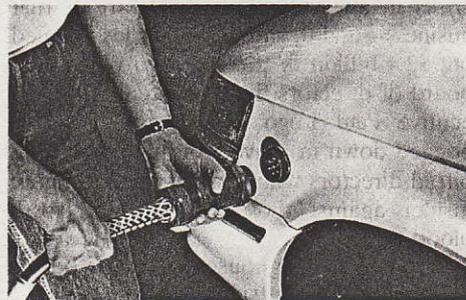
California officials concede that new cars are 12 times cleaner now than 25 years ago and are getting cleaner still, thanks to improved gasoline and computer-controlled engines. Yet state and federal clean-air laws mean they must keep raising the standards for such pollutants as carbon monoxide and nitrogen oxide. So California has ordered major automakers to convert 2% of their yearly sales—about 40,000 autos—to zero-



**Yes, electric autos like this modified Chrysler van run in the rain. But batteries must be recharged on a 220-volt line every 80 miles (inset).**

emission vehicles by 1998, 5% by 2001, and 10% by 2003. Eleven other states, mainly in the Northeast, Illinois, and Texas, are close to enacting similar requirements.

Since it takes four years to engineer a new car, automakers must lock in their EV designs about 12 months from today. Already it's clear that the much heralded EVs will be severely limited. Drive time, for example, will be restricted to just 90 minutes or so at a maximum 65 miles per hour, and even shorter periods if the air conditioner, heater, or headlights are also running. After that, owners will have to recharge the batteries for up to eight hours. The cost of batteries, electric motor, and other new components, as well as the small-scale production, will cause a price premium on a typical \$16,600 car of anywhere from



\$1,350 (California's estimate) to \$20,000 (one Detroit auto executive's).

At the California Air Resources Board, the state agency that dreamed up the zero-emission car requirement in 1990, no one acknowledges that battery power is impractical. Instead, the agency takes credit for setting high standards for clean air, claiming it must "create a vision" for automakers that enables them to "push back the edges of technology." When GM announced it would unveil an EV *ahead* of the California

timetable, agency board leader Jananne Sharpless, a former legislative aide, applauded GM for having "shown the courage as well as the confidence in their technical ability."

That's a sore point with other automakers. Says a competitor: "GM did a lot of disservice to the rest of the industry." In 1990 then-GM chairman Roger Smith proclaimed that GM had developed a zippy two-seat electric car called the Impact that accelerates to 60 mph in eight seconds and has a range of 150 miles. GM outfitted an old Buick plant in Lansing, Michigan, and hinted that it would put the car on sale in 1995 for about \$20,000.

But Roger was wearing rose-colored glasses. According to a confidential analysis prepared for GM's board of directors last December, GM would have to spend \$600 million on Impact over the next two years, with the prospect of only a "marginal long-term return." That hardly seemed sensible for a cash-starved company, so the board scrubbed the plan in favor of a \$130 million program to assemble 30 test cars between now and 1995.

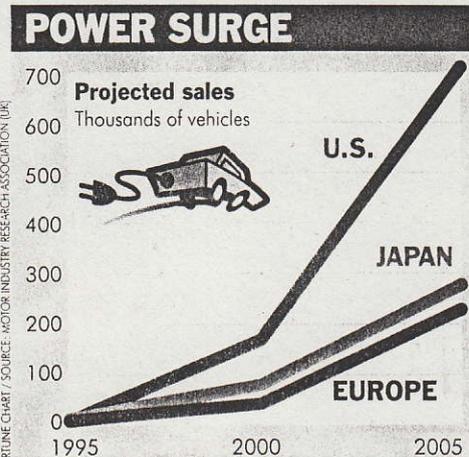
Ford and Chrysler declined to join in the electric sports car hype. Ford is adapting a tiny British van for battery power. It plans to build 105, which it will lease in the U.S. for 30 months at \$100,000 each. Chrysler bolted 30 60-pound nickel-iron batteries into the floor of its popular minivan and put it on sale for what it says is its cost—\$120,000. Exactly 50 have been sold to electric utilities. The batteries alone cost \$50,000. Says vice president Ronald Boltz, who oversees regulatory affairs: "We sell conventional minivans in California for one-fifth the price of our electric minivans, which are perfect substitutes. I can't imagine we can sell an EV for a premium."

**I**F EVENTUAL mass production makes them cheaper, electric vans may find customers among utility companies, package delivery services, and others who use vehicles for short, clearly defined trips. Almost no one will want an EV as a personal car because it is unsuitable for vacation trips, Sunday drives, or emergencies. Even environmentally sensitive owners will find the short range and recharging duties of EVs a pain.

EV backers argue that only battery technology keeps the cars from competing with—or even replacing—gasoline-powered autos. That's like saying only a lack of wings keeps pigs off the runway. At least a dozen

kinds of batteries are under development, but improvements in power, weight, and cost have been incremental, not exponential. Says Arvin Mueller, GM's top engineer: "Batteries have been worked on for centuries, and the basic chemistry has stayed the same. It doesn't look like we're going to have a better battery for 1998."

Conducting the most highly charged effort is the U.S. Advanced Battery Consortium, formed by the Big Three. It aims to develop batteries that will last five years and cost \$6,000. Even so, Ford figures their



Forecasts for sizzling sales of EVs are based on regulations in the U.S. and subsidies abroad.

operating cost would be equivalent to gasoline at \$3.72 a gallon (assuming a penny a mile for recharging). As Ford alternative-fuels specialist Roberta Nichols said recently: "When the cost of periodic replacement of the battery is added to the operating cost of the vehicle, it does not come even close to being competitive."

Around Detroit, there is a joke that goes: "Electric cars are wonderful. I hope my neighbor buys one." But even neighbors are scarce. Toyota figures only 1% to 2% of the adult car-buying population cares enough about clear air to pay the stiff premium and suffer the restrictions of EVs. When J.D. Power & Associates, the automotive research firm, posed the question to 4,152 car owners a few months ago, only 6% said they would even *consider* purchasing an EV. Worse, they expected to pay \$2,400 less for one than they would a gasoline-powered car.

So auto companies, already locked in a fierce struggle for global market share, figure they will have to subsidize EVs to meet California's 2% requirement. That will be expensive for Detroit, and it may be illegal for Japanese automakers like Toyota. To keep

doing business in California, Toyota must sell 32,200 EVs by 2003. Says group vice president James R. Olson: "We're required by law to introduce this new technology, and yet we subsidize it, we open ourselves to dumping charges for selling below cost."

Not surprisingly, California's electric utilities are big EV supporters. So are California politicians, who see a windfall of new investments for their state's faltering economy. The government is cooperating with such electronics manufacturers as Hughes and ITT in a nonprofit association called Cal-Start to promote EV suppliers. Among its goals: to utilize now idle capacity in the aerospace and defense industries. The grand prize would be enticing a manufacturer to build an EV assembly plant for say, \$500 million. GM CEO Jack Smith was asked about such an investment when he visited California last spring. Since GM is still in the business of closing plants, not opening them, he demurred.

EVs are catching on elsewhere around the world, but mostly because of hefty government subsidies, according to Britain's Motor Industry Research Association. Nearly 25,000 are already on the road in Western Europe. In France, where 90% of the electricity is produced by hydroelectric or nuclear power, the government provides funds for research, infrastructure development, and purchasing. Japan also gives incentives, and the government hopes to have 200,000 EVs running by the end of the decade.

In fact, there are faster and cheaper ways to clean the air than building EVs. Raising the gasoline tax would cut fuel consumption along with emissions. Banishing 1970-era junkers, which are particularly long-lived in sunny Southern California, would also pay big dividends. Says GM's Mueller: "Eighty percent of the pollutants come from 20% of the cars. The biggest thing we could do immediately would be to take old cars off the road."

It's easy to suspect that Detroit, never known for embracing new technology, is sandbagging yet again. Over the years automakers have balked at many worthwhile innovations, ranging from multivalve engines to air bags and radial tires. This time, however, their case is valid: Technology and government regulation are distorting the market. Even if the Big Three combine their engineering, they are unlikely to overcome the twin barriers of cost and utility. Unsold, sitting on dealers' lots and priced to stay that way, EVs will do nobody any good—least of all the environmentalists. **I**