Converting cars to all-electric is catching on, but slowly

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Does that old Honda in your driveway need a valve job? Transform it with an electric conversion. A team at Carnegie Mellon University in Pittsburgh has come up with a kit to make your 2001-2005 Civic a zero-emission battery car. Converting an existing car instead of buying a new one is good for the planet, and the old beater will have a new lease on life.

Your mechanic can probably install the kit in 2 half days. It's not a difficult job, and you can sell the used engine and transmission on Craigslist. That's the good part.

Here's the bad part: The conversion kit costs $24,000, plus the cost of the Civic (if you don't already have one). Your total bill is likely to come in at $30,000. And you're not eligible for the $7,500 tax credit that new EV buyers get. In fact, buying a new Nissan Leaf is actually cheaper than converting a 7-year-old used Civic.

Conversions are likely to catch on first in the fleet market, where what matters most is the long-term cost of keeping vehicles on the road.

Felix Kramer of CalCars said waiting for the automakers to market new EVs is going to take a long time. "There will be an insignificant impact in terms of petroleum reduction from the new plug-in hybrids and electric vehicles for more than 15 years - even if they come in at a rate 10 times faster than hybrids came into the market," Kramer said. "That's because we have 250 million vehicles in the United States and 900

million in the world." Cars already on the road have a lot of "embedded energy," he said., and about 15 percent of the total energy used by a car or truck in its lifetime was used to build it.

"We're not manufacturers or price optimizers," said Illah Nourbakhsh, who co-directs Carnegie Mellon's ChargeCar project. "The cost would come down if we could buy 100 kits at a time." Indeed they would. And that's the central issue and catch: The price comes down with volume, but the volume isn't going to increase much with such a high initial cost.

H. Ben Brown, a project scientist at Carnegie Mellon's Robotics Institute and the other co-director of ChargeCar, said the kit is comprehensive, including the electric motor, control electronics (including an electric heater and pumps), lithium batteries, a computer display unit that provides information on battery health, and all the adapters you'll need to fit the parts into a Civic.

The battery pack fits into the Civic's spare-tire well and costs only about $5,000, which is cheap for lithium. Charging takes 10 hours on 110-volt house current, but you could halvethat by installing a 240-volt garage unit. The team has converted a pair of Civics, which have a range of about 40 miles.

"It's difficult to get the price any lower," Brown said. "On the positive side, your impact on the planet is small compared to that of building a new vehicle."

Converting cars to electric could be a big business, and some companies, such as ALTe, have been trying to make it one. Michigan-based ALTe developed a turn-key plug-in hybrid conversion for fleet and niche vehicles. For the Ford F-150 pickup, they take out the V-8 engine, and replace it with a four-cylinder engine, battery packs, and two 60-kilowatt electric motors. As with other plug-in hybrids, the all-electric range is 25

to 40 miles. The company says converting light to medium use trucks to plug-in hybrid results in an 80 to 200 percent fuel economy improvement.

ALTe, founded by three Tesla Motors refugees, focuses on converting 3- to 5-year-old Ford vehicles. The downside, as with ChargeCar, is the price - an average of $30,000. The category is heating up, though, with the entry of VIA Motors, which is focusing on plug-in hybrid conversions of large General Motors vans, trucks and SUVs. It says its price for converting a Silverado will be about $79,000 "in volume." It really needs big orders to make it work, and it might get them from its tight relationship with GM (former Vice Chairman Bob Lutz is an adviser and spokesman).

VIA and ALTe are focusing on the fleet market - individual consumers might come later. VIA says that over eight years of typical ownership, you would save $23,000 with one of their 100-mpg conversions, and those are the kind of numbers that hit home with fleet managers. The more you drive, the more you'll save.

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