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The car industry

Plugging in

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Carmakers demonstrate a new enthusiasm for electric vehicles

ANY good mystery must eventually uncover a villain, and in a recent documentary, "Who Killed the Electric Car?", the filmmakers duly pointed the finger at General Motors. The reality is not quite so simple, but there is little doubt that when GM pulled the plug on its EV1 battery-powered car a decade ago, other manufacturers followed the giant carmaker's lead.

Yet GM has now recharged its enthusiasm for electric vehicles—or at least for their close cousins, hybrid cars. At the North American International Auto Show, which opens in Detroit on January 7th, the company, hitherto an also-ran in the fast-growing hybrid market, is expected to unveil a prototype that overtakes existing hybrids, such as Toyota's popular Prius. Today's hybrids capture energy normally lost during braking and coasting and use it to power an electric motor that can provide extra bursts of acceleration when needed. The Prius and other hybrids can also run on battery power alone at low speeds over short distances, such as in stop-start traffic.

AFP

**Carlos is still not convinced**

But GM's new car is expected to be a "plug-in" hybrid, which, as its name implies, can be recharged by plugging it into the mains. Together with a big battery pack based on lithium-ion technology, this gives plug-ins a much larger range in all-electric mode, after which the petrol engine kicks in. GM's car is expected to go around 50 miles (80km) in all-electric mode, more than enough for most American commuters, who would need to use the petrol engine on longer trips only. The drawback is that plug-in hybrids need a much larger and more costly battery pack. Modifying a Prius to operate as a plug-in hybrid, as some enthusiasts have done, costs around \$12,000.

Yet speaking at the Los Angeles Motor Show in November, GM's boss, Rick Wagoner, hinted strongly that his company planned to put a plug-in into production. It is an indication of how the pace is picking up in the race to develop more eco-friendly cars that a decade after the fiasco of its all-electric car, GM is challenging Toyota to go further than it already has with hybrids.

Others are more cautious. Carlos Ghosn, the boss of Renault and Nissan who is known for his scepticism towards hybrids and all other alternative engines, said in December that he still had doubts that hybrid technology was ready for the mass market. Nevertheless, this year Nissan will start to sell a hybrid developed in conjunction with Toyota. It has also started to develop its own technology, though Nissan officials stress that plug-in hybrids will have to wait until battery technology improves. Toyota has also been sceptical about plug-ins, insisting that the Prius's approach is more convenient, since it never has to be plugged in. But last July the firm confirmed that it too was developing a plug-in, though it has not committed itself to a commercial launch.

The difficulty, says Jim Hall of AutoPacific, a consultancy, is that lithium-ion battery technology is not quite affordable or reliable enough to meet the demands that will be placed on it over the seven to ten years of a typical car's life. But things are improving "quite quickly", says David Cole of the Centre for Automotive Research in Ann Arbor, Michigan. The first plug-ins could go on sale by 2010, he says.

And as batteries improve, all-electric vehicles will become more feasible. Several big carmakers are revisiting the technology, says Mr Cole, along with some innovative small firms such as Tesla Motors, a Silicon Valley start-up. It has been taking orders for a new all-electric sports car that can accelerate from zero to 60mph in four seconds and has a range of 250 miles. It costs nearly \$100,000, but the firm says better batteries will eventually enable it to sell a four-door saloon for well under half that price. Announcements of the death of the electric car, in short, may well prove to have been premature.