



Interview Jean-Jacques Chanaron

'A billion electric cars? That's a long way off'

Jean-Jacques Chanaron, an economist specialising in innovation management and director of studies at the French research organisation CNRS, is a firm believer in the electric car. But he sounds a cautious note: it took decades to perfect the petrol-driven car and it is going to take at least 20 years to develop a truly competitive electric car.

| by Yves de Saint Jacob

'The environment is very much in vogue at the moment, which is perfectly understandable given the climate problems the planet faces. But we have to be careful because blindly following fashion can be misleading. We let the people believe that all the obstacles have been overcome when they haven't.'

Jean-Jacques Chanaron, like many other French experts, highlights the obstacle course ahead for the electric car – at least if the intention is to progress beyond a town car, with a fixed geographic range, an autonomy restricted to 150 to 200

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km and from which we aren't asking high performance. Because the "urban" electric car is not really a problem. Progress is rapid in the urban environment. Take Paris, for example, where the town hall has given a new impetus to its "Autolib" scheme, destined to repeat the success of its popular bicycle-sharing "Velib" programme. Planned for 2010, Autolib will be a public electric car rental scheme, with 700 pick-up and return points (500 of them above ground, 200 underground). It will involve 2,000 cars in Paris and as many in the inner suburbs. Similar

car-sharing schemes are in place in a number of French provincial towns, but Autolib is fundamentally different in that the vehicle can be returned to a different point from which it was hired – which radically alters the nature of its use. It also draws the wrath of many ecological groups who have the impression that the scheme will herald a new emphasis on the personal individual car. The idea of hiring this type of vehicle, as opposed to the traditional outright sale, is also attracting one of the big industrial players, Bolloré, who, with the Italian firm Pininfarina, has launched a Blue-car model which will be available for hire in a few months at a cost of €330 a month. It allows the consumer to find out what electric cars are like without a financial commitment. The car will initially be available in six European countries (Britain, France, Germany, Italy, Spain and Switzerland) and then in North America and Asia, backed by a 24-hour technical assistance network.

CIA estimates |

But if the plan is to progressively electrify the entire world contingent of petrol-driven cars – nearly a billion vehicles in all – and in doing so to put on sale cars capable of being driven fast and for a long time, then the problem becomes considerably more complex, says Chanaron. First, there are the batteries. 'With a market penetration rate of only 1%, we are talking about 10 million vehicles and to produce 10 million batteries a year means transforming a large number of existing factories as well as building quite a lot of new ones', Chanaron comments. 'Not



Renault's Z.E. concept car Photo: Car Culture/Corbis

to mention the doubts over which is the best model of battery. Everyone thinks they have the right answer. Or maybe there is no single "right" answer on its own. In recent months, I have gone around the world visiting manufacturers and developers. The zinc-air and Zebra batteries some people favour are by no means entirely convincing as far as the manufacturers I have spoken to are concerned. They feel that millions of dollars have been spent on research without bringing any significant progress. It is the lithium-ion model which gradually seems to be emerging as the standard battery. Renault Nissan, for example, has invested greatly in the lithium-ion battery and plans production at three factory units in Portugal, Britain and France, with the aim of producing 60,000 a year at each plant. But at Toyota, for example, they told me not to believe it was the only solution for the future and they have concentrated all their research efforts into setting up a laboratory with 1,500 engineers and researchers committed to developing new advanced batteries.'

If the lithium-ion battery will win out, is there enough lithium to go round? Experts have been debating this question for some months. 'I tend to have faith in the CIA estimates that there are 10 million tonnes of lithium in the world,' Chanaron says. 'But that is not taking into account recycling. If we achieved a recycling rate of 90%, which is not enormous, then we should be able to keep going for a good few years. Only, here's the catch: we don't yet have an industrial level recycling capacity.

As it involves collecting the lithium, transporting it and then treating it, there is a whole system to put in place, which will weigh heavily on the cost. At present, the cost is €3,000 a ton, but if lithium becomes very much in demand, and you have to go along way to collect it, the price will soar.' And once the question of supply is resolved, there remains the matter of finding a satisfactory solution to the problem of recharging the batteries and distributing them. Jean-Pierre Coniou, from the consultants SIA-Conseil and a former manager with Renault, believes 'we are not only working in the field of technological innovation but social innovation, as well. We need to set up networks and new operators to manage the fleets of vehicles and the batteries, in short, a whole new eco-system. At present we have service stations, fleets of tanker lorries, petrol pump attendants and mechanics, all the experience gained in 120 years of the internal combustion engine, an entire system which didn't come into being overnight. It will take several years to test out the new system and there are sure to be setbacks; mistakes made, but there is a whole world to invent.'

Chanaron believes that 'if the batteries do not make substantial progress and the idea doesn't catch on, then we'll have to move towards developing hydrogen power.' Hydrogen could be used to run a combustion engine or to power a form of battery, but that in turn raises the problem of cost, storage and transport of the hydrogen, which would mean a real change in the model of society. In short, according to Chanaron, the electric car may have good prospects – the race is by no means over. ■