



Government policy in favor of ultra-low emission vehicles

This is a foreword of the report 'Government policy in favor of ultra-low emission vehicles', to be published on the France Stratégie website. The report was produced by Dominique AUVERLOT, Nicolas MEILHAN, Bérengère MESQUI and Aude POMMERET, and is based on documents provided by the Treasury DG's regional economic services in Berlin, The Hague, London, Madrid, Oslo, New Delhi, Beijing and Washington.

FOREWORD

The advent of the electric vehicle represents a major challenge for sustainable development policy; it is also an industrial opportunity that France should pursue. Annual sales, half of which were in China, saw an increase of some 60% in 2017 and have exceeded the one million mark worldwide. These even exceed 10% of the sales of new vehicles in Norway, the Chinese cities of Beijing, Shanghai and Shenzhen and some thirty Californian cities. Although projections in this field continue to pose a problem, it is nonetheless likely that the number of electric vehicles will reach the tens of millions by the year 2030, with an annual market share of several tens of billions of dollars. Changes are underway and could soon accelerate.

Until recently, the autonomy of electric vehicles was in the region of 150 km, which confined their use to daily commuting. As a result of technological progress and a reduction in the cost of batteries, we are entering a new phase of electric mobility over longer distances. The new models will soon be capable of journeys of 300 km, with almost full recharges taking less than half an hour. Rechargeable hybrid vehicles already make it possible to combine using electricity for commuting with using a combustion engine for longer distances. As such they represent an intermediate solution and should be promoted, providing they have sufficient autonomy in electric mode.

A revolution of this kind requires rethinking how automobiles and the systems for supplying the energy they require are interconnected. The production, transmission and distribution of electricity, and electric vehicles themselves must all form part of a single system. Batteries will not be passive objects like fuel tanks, rather they will help the grid function efficiently by adjusting the amount of power they use for recharging to meet supply and participating in regulating the grid's frequency. Looking to the long term, they may even supply energy to the grid or homes at peak times.

This fundamental transformation will be made possible through the concomitant development of digital technology, artificial intelligence and autonomous vehicles. But France will only be able to Government policy aimed at promoting ultra-low emission vehicles exploit these momentous innovations if it starts actively investing in research and the necessary expertise today. This primarily relates to the development of batteries, but it also concerns a number of more cross-cutting sectors (new engines, new materials and recycling, electricity management, digital technology and artificial intelligence) and vocational training (in all these fields, plus in high-voltage grid management and mechatronics), allowing businesses and their staff to harness these innovations.

This report reveals that in the three geographical areas where electric vehicles have gained ground most rapidly this boom is the result of proactive government policy initiatives. These are initially based on substantial – and sustained – financial incentives, which offset the additional costs involved in investing in electric vehicles. These proactive policy initiatives are also based on indirect benefits – no toll charges, the option of using restricted traffic lanes, etc. – and in two out of three cases on imposing sales quotas for electric vehicles on manufacturers.

In addition to these R&D and training initiatives, over the next few years France must therefore pursue its policy of direct and indirect incentives for electric vehicles, particularly in the form of bonuses for the purchase of such vehicles. The amount of assistance could depend on the effective autonomy of the vehicles so as to promote electric mobility over medium-to-long distances. The aim would be to gradually reduce this aid as investment in electric vehicles becomes more widespread and the costs associated with them come down.

At the same time, France must pursue the installation of charging points, all the while maintaining a good relationship between the general public and the companies involved. This project, which is still in its early stages, is based on there being three to four million electric vehicles on the roads in fifteen years' time – no less than twenty times the number today. As a result, not only will these charging points need to be able to provide increasing amounts of power to meet the increase in battery capacity, but they will also have to be affordable and universally available. That this is an ambitious project there is no doubt. But achieving sustainable development requires nothing less.

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