

Alternative strategy for introducing electric vehicles

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Abstract

Faced with the saturation of urban traffic, its drastic consequences for the environment and the increasingly outrageous waste of energy involved, city officials and national authorities are under an obligation to rethink the question of urban mobility, taking into account the potential of electric cars. Clearly defined policies are required to achieve the reinstatement in our culture of the major innovation of the 19th century: *on May 1, 1899, Jenatzy's 'jamais contente' officially registered a speed of over 100 km/h.*

Electric vehicles, whose invention is one of the earliest pages in the automotive history, have been the object of disdain for decades: cheap petrol was easy to use, and massive technological efforts in developing complex, inefficient internal combustion engines were thought to be justified. Interest in electric engines only revived during the petrol shortages of the Second World War, and following the petrol crises of the past twenty years.

Unfortunately for the internal combustion engine, which has made such spectacular progress over the past few years, urban traffic saturation, has had disastrous side effects in the form of air and noise pollution as well as an outrageous waste of energy. City officials and national authorities are going to have to take a critical look at the urban traffic conditions they have inherited from their predecessors.

In spite of the obvious advantages of electric vehicles, it would certainly not be possible to use them simply to replace internal combustion vehicles, even though they have made tremendous technological progress.

This is why there is an urgent necessity to carry out in-depth studies and proper experiments to define coherent future urban traffic schemes, so that our cities will provide their inhabitants with the congenial atmosphere and quality of life they demand.

For several years now, public authorities and car manufacturers have been looking at the new future for electric vehicles in an urban environment.

As far as France is concerned, it is worthwhile noting that, as early as 1974, a report by Engineer General Saulgeot concluded that it was necessary to promote the use of electric urban utility vehicles. In 1975, the Prime Minister decided to set up the Interministerial Electric Vehicle Group (Groupe interministériel véhicules électriques, GIVE) presided by Engineer General Jacques Lys until 1990.

On a European level, we should also mention AVERE, an association under Belgian law, which was set up on April 17, 1978, to promote wider use of electric power for road transport. Sections in several countries include AVERE France, which, in conjunction with the GIVE, has maintained a close watch on psychological and

technological developments, in the absence of any significant support from the public authorities.

Last, but not least, in 1988 the COST 302 Commission reminded the European Community of the realistic advantages of electric vehicles, and sponsored the CITELEC Association, which was set up in 1990.

At the beginning of the 1990s, the joint efforts of the French Ministers of Industry and Environment, approaching the problem from very different, though complementary, perspectives (respectively: trying to reduce reliance on imported fuels and protecting the urban environment), have given a new and highly justified political impetus to electric vehicles.

Since 1990, there has been increasing interest in French and European policy in favour of electric vehicles, along the lines laid down by the COST 302 Commission, and their conclusions and recommendations are a constant inspiration to promoters of electric city vehicles.

Work done by the GIVE, which includes representatives from the various Ministries involved with urban transport, in conjunction with automobile manufacturers, the electricity authority and local authorities, has resulted in the development of realistic guidelines for promoting electric vehicles, whose success is still subject to a clear expression of political intent.

This political determination is made quite clear in the following: the Prime Minister's letter dated February 2, 1991, the official declarations of the Ministers of Industry, the Environment and Transport at the French seminar entitled 'Electric vehicles – An opportunity for our cities' on April 11, 1991, and the Prime Minister's televised speeches during the autumn of 1991.

Conclusions published by the GIVE include:

(i) *The analysis of the 'socioeconomic' context of the 'electric vehicle system' in plans for urban traffic.* This analysis has given rise to several surveys, and the first results are being studied by a special commission, made up of a representative sample of French cities, with preference given to those who are members of the European organization CITELEC. This group, organized by CETUR (Urban Transport Research Centre), will present recommendations on the components of the 'electric urban vehicle' system (infrastructures, regulations, electronic payment, etc.) and the conditions for including these measures in urban traffic plans.

(ii) *Incentives for research and technological development.* Government incentives, proposed in the context of the PREDITT programme, are by no means negligible, but are insufficient for the development of a full-scale 'electric vehicle plan', which would integrate all the components involved in electric vehicles (batteries, electronic control and recharging systems, motors, and transmissions for the 'electric vehicle system') and experimentation in specialized test centres. This is why a French 'electric vehicle plan' is still under discussion. It should fit in with the European 'electric vehicle plan', which the European Parliament has declared to be an absolute necessity.

(iii) *Incentives to use electric vehicles in all circumstances where they are comparable or even more efficient than internal combustion vehicles.* In accordance with directives issued by successive Prime Ministers, these incentives involve campaigns to improve awareness, communication, training, and demonstrations under controlled conditions to provide information for analysis, in which the fleets of vehicles run by national organizations and city authorities will play a major role. It is worth noting that the initiative by the EDF (Electricité de France) in setting up a national electrical vehicle training centre in La Rochelle, for staff from all over France, has been greatly appreciated by the first trainees.

(iv) *Incentives to buy electric vehicles during the transition period prior to the mass-production models expected in 1994–1995.* The symposium held on April 11, 1991, confirmed the interest shown by major government organizations and local authorities in electric vehicles, but also emphasized their reservations, in view of the additional cost involved at the present time. The government has issued an exceptional authorization to amortize electric vehicles in just one year, and has set up a 15-million French franc ‘support fund’ to assist local authorities with the additional expenditures involved in purchasing their first 1000 electric vehicles.

(v) *The use of electric vehicles is becoming inevitable, and this fact is beginning to be recognized.* This explains why the major automobile and electrical equipment manufacturers all over the world are preparing for what must be described as a ‘cultural revolution’ by engaging in reflection on products for urban transportation over the next few years. Indeed, in the current state of urban infrastructures, the increase in private cars from 21 to 32 million which is expected in France over the next twenty years is quite unacceptable, especially from the point of view of the environmental quality and livability of our cities.