

Technological Breakthroughs: How to get Electric Vehicles onto the Market

A Panel Discussion with input from an Internet Discussion

Organisers:

Johan Schot, Remco Hoogma and Boelie Elzen
Centre for Studies of Science, Technology and Society
University of Twente
Enschede, The Netherlands

Contact:

Remco Hoogma (tel +31 53 489 4132; fax +31 53 489 4775; r.j.f.hoogma@wmw.utwente.nl)

Introduction

The Californian Zero Emission Vehicle (ZEV) mandate of 1989 has made the state of California the world's focal point for introduction of electric vehicles. The original mandate specified that by 1998 2% of the vehicles sold in California would have to be ZEVs, i.e. electric vehicles, and that the sales would have to have risen to 10% in 2003. The ZEV mandate triggered a lot of controversy among various actors involved. Start-up firms started to build electric vehicles by the tens to hundreds annually, many of which were used by electric utilities who also set up subsidy schemes for private and fleet EV users. Early users also included local authorities, such as the Santa Barbara transport authority which runs several electric busses. Strong opposition from the car industry, who claimed that their EV technology was not ready for the market, resulted in a change in the mandate. The 1998 step was removed, but the industry agreed to a memorandum of agreement with the state government with the aim to start introducing electric vehicles onto the market. The first to do so was General Motors, who offer the high-tech EV1 for lease since last year. This car's prototype was first presented in 1990, then named Impact. Other major car makers have announced to follow soon.

Whereas strong legislation has been a major force to get EVs onto the market in California (and other states who have followed California's lead), such legislation is absent in Europe. Yet there are promising EV introduction schemes in some European countries, notably France and Switzerland. The French developments are carried by strong cooperation between the national government, the state electric utility, the French car makers and a number of cities and towns. In Switzerland, years of grass-roots activities have culminated in a large field-trial in the small town of Mendrisio, where by the year of 2002 8% of the vehicles in the region should be electric.

Costs of using EVs are kept relatively low in both countries: the EVs on offer are based on regular cars, and users can get large subsidies. Compared to California, gasoline is expensive in Europe so that running on electricity offers a larger advantage. Contrary to French and Swiss EV introduction, the developments in Germany seem less successful. Electricity is largely generated with coal and nuclear energy, so that the EV is associated with environmental damage. This obstructs government support for EVs. On the other hand small firms linked to the environmental movement offer EVs that can be powered with solar electricity.

Objective

One conclusion from this short and very limited overview is that there are distinct differences between the strategies followed in the U.S. and European countries to get electric vehicles to the market. In the discussion we propose to organize we seek to identify the main factors that could stimulate the chances for successful introduction of EVs, as well as the main barriers to this introduction. Comparing the European and U.S. situation could give a closer view on the context-dependence of these factors.

In the process, we also seek to test the theory on technological breakthroughs we are developing together with a group of partner institutes in the project 'Strategic Niche Management as a Tool for Transition to a Sustainable Transportation System' (supported by the CEC DG-XII Research Programme Environmental and Climate, Area "Human Dimensions of Environmental Change") and other research projects on technological breakthroughs in transport the discussion organizers are involved in.

Format for the discussion

We will organize a discussion on the Internet among a selected group of stakeholders. The Internet discussion will be of a 'Delphi'-type nature. The aim is to articulate various aspects of the problem at hand, identify commonly shared opinions as well as differences of opinion, and generate ideas for new approaches.

The discussion will be concluded at the Santa Barbara GIN conference (Nov. 16-19) with a discussion among a panel of (partially the same) stakeholders and between the panel and the conference participants. Input for the panel discussion will be the main results of the Internet discussion, as well as a presentation from the research project 'Strategic Niche Management as a Tool for a Transition to a Sustainable Transport System.' The presentations will be round up with a discussion between a panel and the conference participants.