

The EUROPEAN INTEGRATED HYDROGEN PROJECT

Background:

A significant reduction or even elimination of local greenhouse gas (GHG) emissions from vehicles can be achieved by the use of hydrogen as a vehicle fuel, particularly when it is produced from renewable energy sources. Vehicles using hydrogen as a fuel either in a fuel cell or in a hydrogen optimised internal combustion engine provide a solution for the reduction of local and global pollutants.

The results of the project "Transport Energy Strategy" (also referred to by its German initials VES) are indicating that hydrogen is the most promising fuel in the long term.

Current situation:

Several hydrogen vehicles are already on the road. They are licensed as single vehicles in different countries.

Current situation regarding the legal requirements for hydrogen vehicles in Europe:

In total 47 EC directives are applicable for vehicles. The directives for emissions, fuel consumption and engine power cannot be fulfilled by hydrogen vehicles because of the absence of a standardised reference fuel or the absence of a procedure for testing the engine power.

Requirements regarding the safety of the hydrogen on board storage system however are missing. Therefore each country is applying their national requirements regarding the safety of the hydrogen onboard storage system. These national requirements are differing significantly.

The European Integrated Hydrogen Project

In order to enhance the safety of hydrogen vehicles and to facilitate the approval of hydrogen vehicles, the European Integrated Hydrogen Project was established. The project was starting in 1998 and was co-sponsored by the former GD XII Science, Research and Development under Contract N° JOE3-CT97-0088.

The objectives of the project were as follows:

- To create a Pan European database of existing regulations and codes of practice
- To contact other pertinent authorities outside Europe
- To identify weak spots in today's technology
- To define the areas requiring regulation
- To create a basis for an ECE regulation for hydrogen vehicles

The project partners are portrayed in the annex.

Results of the European Integrated Hydrogen Project

The EIHP partners finally developed 2 drafts for new ECE regulations, one for the onboard storage system for liquid hydrogen and one for the onboard storage system for gaseous hydrogen. The elaboration of the drafts was in close co-operation with some Technical Services. Some approval authorities were informed about the results accordingly. The drafts are available in the Internet under <http://www.eihp.org/>.

The EUROPEAN INTEGRATED HYDROGEN PROJECT

Partners

Air Liquide S.A., Sassenage, France

Bayerische Motoren Werke AG, BMW, Munich, Germany

EC-Joint Research Centre, Ispra, Italy

Hamburgische Elektrizitäts-Werke AG, HEW, Hamburg, Germany

Hydrogen Systems N.V., Turnhout, Belgium

Instituto Nacional de Técnica Aeroespacial, INTA, Madrid, Spain

Ludwig-Boelkow-Systemtechnik GmbH, LBST, Ottobrunn, Germany

Messer Griesheim GmbH, Krefeld, Germany

Renault – Direction de la Recherche, Guyancourt cedex, France

AB Volvo, Göteborg, Sweden