



Hybrid vehicles

The problem that has to be solved is combining high efficiency with minimal environmental impact. The ideal fuel has to be available in sufficient quantities and at acceptable costs. An adequate distribution network is also needed. Research is called to play an increasing role in developing new propulsion technologies. No vehicle can meet all society's needs. We are probably heading towards a diversification of solutions. Hybrid technology seems to be a promising one.

The internal combustion engine is still the predominant means of propulsion. In the past twenty years tremendous progress was made in reducing its impact on the environment. Lots of practical problems linked to electrical vehicles have been solved. New applications have been found that make full use of their potentialities.

In a hybrid vehicle, the power and self-contained mobility of the internal combustion engine are combined with the clean efficiency of the electric motor. The result is a car that is the equal of conventional vehicles in range and performance, with fewer harmful emissions. Fuel efficiency comprises both conserving resources and releasing less noxious gases in the atmosphere.

Hydrogen powered fuel cells, which produce electricity and have water as the only waste product, may become the power source for the 21st century. Hydrogen poses some storage and distribution problems. This can be overcome by using easy to store hydrocarbons (methanol for instance). Using an on-board converter one gets hydrogen and CO₂, but at levels far lower than those of current petrol engines.

Fuel cells work on the principle of reverse electrolysis. Just as you can apply an electric current to water and split it into hydrogen and oxygen, one can also reverse this process to make electricity. Recent developments shrunk the fuel cell overall dimensions, so now it fits into a bus.

Once more cost is one of the impediments, and once more mass production looks like one way of cutting down costs in such a way as to make it attractive to the motorist.