

Fuel cells Application - 2

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Outline

- **Comment on the Application**
- **FCV in the future**
- **My opinion**

Comment

- **The Potential Benefits of Driving a Fuel Cell Vehicle:**
 - Emissions : Using pure hydrogen to power fuel cell vehicles offers the distinct advantage of zero emissions, but only on the vehicle, not at the hydrogen production source. A fuel cell vehicle running on pure hydrogen produces only water vapor—using any other fuel will produce some carbon dioxide and other emissions, but far less than what is produced by a conventional vehicle.

Comment

- Efficiency : Fuel cell vehicles are highly efficient. Today's internal combustion engines convert less than 20% of the energy in gasoline into power that moves the car, and fuel cells can capture 40%-60% of the energy, depending on the fuel used. Fuel cell vehicles can run on any hydrogen-rich liquid or gas, as long as it is suitably processed. Gasoline is one possibility, but in addition to pure hydrogen, alternative fuels such as ethanol, methanol, natural gas, and propane can also be used.

Comment

- Domestic Production : Hydrogen is the most abundant element in nature and can be found throughout the world in virtually unlimited quantities. Using hydrogen or other domestically produced alternative fuels to power fuel cell vehicles will help reduce our nation's dependence on imported oil.

Comment

- **Barriers to fuel cells vehicles:**
 - Today the biggest obstacle to fuel cell vehicle commercialisation is cost. Research is being focused on improving cell performance and developing low cost materials which will enable fuel cells to compete on price first against batteries and later against conventional engines and generating plant.

FCV in the future

(Fuel Cells Vehicles – FCV)

- Fuel cells will replace all alternative fuels in the future
- FCV would be based on a gasoline or diesel on-board reforming FC technology, currently under development. A methanol concept is also regarded as being likely. These opinions are based on the argument that the existing fuel distribution infrastructure is available for these fuels, additionally, that the oil companies have a strong lobby which is unlikely to accept any other method of distribution in the near future. For the more distant future hydrogen is evaluated to replace the fossil fuels. There are still critical problems that are not near to a solution concerning the on-board storage and safety issues

FCV in the future

- The advantages of fuel cells for transport are both environmental and economic. The only emissions from a fuel cell vehicle come from the generation of hydrogen. These emissions are hardly measurable, making fuel cell vehicles virtually equivalent to zero-emission vehicles.
- Fuel cells were first used in space travel, but it was the automobile manufacturers who paved the way for this technology around ten years ago. In their continuing search for new drives for their vehicles, the automakers regarded the fuel cell as a true alternative in view of growing environmental problems and

FCV in the future

declining resources. With its high efficiency, the fuel cell provides the power to drive an electric motor in a car. Moreover, if hydrogen is used, the system emits no exhaust fumes whatsoever. Meanwhile, almost every automaker is working on prototypes and investing many millions of euros annually to bring the technology to the series-production stage. And despite unequivocal announcements by many companies, the experts nevertheless forecast a market launch not before the next decade.

FCV in the future



Conclude

- Fuel cells can promote energy diversity, provide to renewable energy sources, and benefit the environment through their higher fuel-to-electricity conversion. Alternative fuels as hydrogen, methanol, ethanol, and landfill gas can be produced from renewable energy sources such as biomass and wind.
- In the not – too – distant future, fuel cell will change how we live. They will power our vehicles, homes and office buildings more efficiently and with significantly less impact on the environment than internal combustion engines.

Conclude

- Additionally, a fuel cell is flexible because it can be small and portable or larger and permanent. The cost to convert to a fuel cell-driven power grid may initially be high, but over time it will significantly reduce the costs of maintenance, repair, and fuel compared to conventional electricity generators. If one can use the resulting heat, say, to warm a house during winter, the fuel cell becomes even more cost effective.

My opinion

- I find the application of fuel cells vehicle is the most successfully and useful in industrial energy by Fuel cells.
- At the moment, amount of vehicles increases extremely over the world while there are many problems about rare energy resources and pollution. So finding new fuels which replace all alternative fuels satisfy under the present conditions is very necessary. Then I see Hydrogen fuels is the fuel that we are looking for. Although now the price to use it is high, I believe that in near future it's possible to find the solution for that problem with our best.