

# Biofuels and Hydrogen Comparison Information

© Future Perfect Limited 2011

Future Perfect Limited  
Arden House, Hampton Court, Marsh Lane,  
Hampton in Arden, Solihull, West Midlands B92 0AJ  
Main Office: +44 (0)1675 446321  
Email: [futureperfecttraininguk@gpworldwide.com](mailto:futureperfecttraininguk@gpworldwide.com)

# Quick Biofuels and Hydrogen Comparison

	Biofuels	Hydrogen tech
Fuel source	Sugar, starch, vegetable oil from food-stuff seeds, such as wheat, or animal fats that are either converted by fermenting or transesterification. Both methods can require fossil fuels in their production to create the heat required; reducing their sustainable life-cycle. However, alternatives to fossil fuels, such as plant matter, are also being looked into.	Electricity is passed through water to separate hydrogen and oxygen cells. This process requires electricity to be produced which, as with biofuel production, is mostly created with fossil fuels currently.
Availability	Is currently being added to fuel to be used in existing diesel and petrol engines which are already in use. Further changes would be required to completely switch from fossil fuel mix to biofuel only.	New engines are currently being worked on by a number of transport manufactures but all transport would need to be changed. Technology is believed to be years away, with the DECC department of the UK Government recognising that a number of hydrogen energy chains will available by 2030.
Supply infrastructure	Currently being added to existing fuel and can be supplied by existing petrol stations.	Distribution system would need to be altered to accommodate new supply pumps.



Efficiency	Bioethanol being added to petrol can increase the thermal efficiency while biodiesel being added to fossil diesel can clean the engine of deposits as well as the combustion chamber leading to improved efficiency.	Because fuel cells convert the fuel to energy in one process they are able to achieve high conversion efficiencies. With only water, electricity and heat being produced during this process, maintenance is reduced; for example no oil change would be required etc.
Safety	Biodiesel has a flash point of biodiesel is over 300° F and is considered not flammable. Bioethanol is highly flammable.	Highly flammable, though not harmful to the environment, producing minor CO2 emissions when burnt.
Reliability	Very reliable.	Very reliable.
Emissions	Has a sustainable life-cycle when created using existing biomass rather than fossil fuels in its creation. Biodiesel is also an oxygenated fuel, it contains a reduced amount of carbon and higher hydrogen and oxygen content than fossil diesel reducing CO2 emissions.	Releases water, heat and electricity and with no combustion, there are reduced CO2, Nitrous oxide or sulphur dioxide emissions and no particulate emissions.