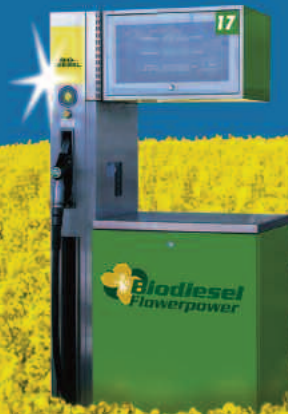


Fuels made from biomass

UFOP e. V.



Biofuels can be used both as substitutes for fossil fuels in present-day vehicles and to supply fuel cells in mobile and stationary applications. The extraction of hydrogen-rich energy sources from biomass can thus be seen as one building block in the long-term wider prospects for hydrogen.

When biomass is used as a source of energy, carbon derived liquid fuels can be extracted in conversion processes which are practically carbon-neutral. Biomass as a source of heat, fuel, and electricity has great development potential thanks to its high overall degree of efficiency. The optimized supply of electricity, heat, and fuels – called “polygeneration” – is especially promising because it provides a carbon-neutral energy source for the transport sector. Some 75 % of the energy stored in biomass can be made available as chemical energy – hydrogen – when biomass is gasified into synthesis gas. Compared to the use of biomass as vegetable oils (such as “biodiesel”) or in biochemical processes (such as bio-ethanol), this method is a very efficient way of converting bioenergy into fuels. Biomass is therefore an excellent first step towards a sustainable scenario for the liquid fuel sector.

Research and development requirements

- Production methods for carbon fuels from biomass
- Synthesis gas with the highest possible hydrogen content from biomass
- Gas reformation for the use of synthesis gas and fuel cells
- Optimization of energy efficiency through the cogeneration of electricity, heat, and fuels
- Investigation of suitability for various energy systems such as internal combustion engines, fuel cells, combined heat and power (CHP) plants
- System technology investigations, optimization of process management and heat management
- Better consumer acceptance thanks to lower toxicity of processes and a greater overall safety
- Basic research into the production of hydrogen from bio-resources
- Interface technologies for a future hydrogen economy

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