OPTFUEL

Optimised fuels for sustainable transport in Europe

Motivation and Objectives

OPTFUEL undertakes a first large scale demonstration of the Biomass to Liquid (BtL) production chain from biomass supply to the final fuel in the consumer's car. All production chain components including the optimisation of fuel production via biomass gasification and fuel synthesis (Fischer-Tropsch) and market-ready blended fuels containing BtL will be demonstrated.

The motivation of the project is:

- Demonstration of BtL fuel production by the Fischer-Tropsch process is urgently needed, being the prerequisite to full commercialisation,
- Optimized fuel blends containing BtL products must be demonstrated in engine and vehicle applications to provide market direction for effectively utilizing BtL blend components.

The objectives of the project are:

- Demonstrate BtL production at an industrial scale,
- Develop the basis for large scale BtL production including biomass supply strategies,
- Develop proposal for BtL-blend specification,
- Produce up-to-date Well to Wheels (WTW) data in terms of fuel costs and CO_2-emissions.

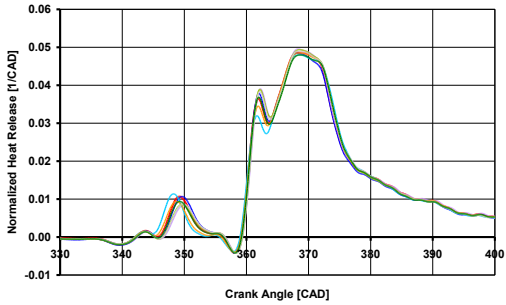
Project Plan, Milestones and Deliverables

Technical Approach

- Demonstrate BtL feasibility by producing 15.000 t BtL/a in a 45 MW plant environment.
- Model the BtL process including model validation and dynamic calculations for a large scale BtL plant.
- Utilise BtL products as blend components for diesel and HCCI combustion performance evaluation.
- Derive the most suitable fuel blend formulations to maximise fuel consumption and emission benefits from BtL products.
- Demonstrate benefits of BtL fuel blends in show cars.

Achievements

WP1: successful plantation and growing of 200 ha of energy crops (willow, poplar).
WP2: stable syngas production in test campaigns has been achieved.
WP3: steady state simulation of 45 MW-plant completed; dynamic simulation ongoing; steady state simulation of 500 MW.
WP4: fuels to be tested in a single cylinder engine that has been defined and delivered.
WP5: fuel screening tests have been finished.
WP6: need for standardisation of BtL has been clarified.
WP7: update of WTW evaluations initiated, tools agreed.



2500 rpm – IMEP 11 bar
Test fuels evaluated at the same engine settings as reference diesel fuel
small influence of Cetane Number on combustion processes
similar energy conversion (CA50) for different test fuels

Budget	13.6 M€	Funding	7.8 M€
Duration	42 months (+18 months ext. req.)	Start	January 2009
DG	TREN / Renewable energies	Contract n°	218890
Coordinator	Michael Bippes, Volkswagen AG	Contact	michael.bippes@volkswagen.de
Partners	10 partners, among them Ford, Renault, VW, CONCAWE, CHOREN, IFPEN		
Website	www.optfuel.eu		

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SEVENTH FRAMEWORK PROGRAMME