

Development and implementation of 2nd generation biofuels for transport in Europe

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The transport sector is looking intensively for methods and practices for significant GHG reduction. In Europe, biofuels for transport is one of the key portfolio elements by the Commission and Member States. IEA WEO 2006 predicts that usage of biofuels will rise from 20 Mtoe in 2005 to 92-147 Mtoe in 2030 depending on scenario model used, and will supply 4-7% of world transport fuel demand in 2030. The European Council has announced a support in its Conclusions in March 2007 a 10% binding minimum share of biofuels to be achieved by all Member States in the overall transport petrol and diesel consumption by 2020. In Europe, the 'Biofuels for Transport' platform vision report estimates that biofuels could account for 25% of transport fuel in Europe by 2030. Raw material competition will increase with power and heat generation on top of material, paper and food production.

The EU directive has been implemented by tax incentives or law for obligation in various member states. Ethanol and biodiesel are used mainly as biocomponent in existing vehicles. The future biofuels strategies will call for additional benefits in large scale biofuels implementation. 2nd generation biofuels are introduced for this development with significant RTDDD activities. Significant activities are carried out e.g. in France, Germany, Sweden and Finland. The target is high reduction of GHG emissions in WTW chain, toxic vehicle emissions and production cost with improved sustainability in the whole chain.

The Finnish parliament has recently approved the law of obligation for 5.75 % by 2010. Based on existing industrial investment decisions, 10 % production capacity will be in operation already by 2010. New synthetic biodiesel will be produced 340 000 t/a from various vegetable oils by hydro treating and 60 000 t/a EtOH for ETBE production will be produced. Additionally a RTDD programme has been launched in 2007 by the Finnish Ministry of Trade and Industry for 2nd generation biofuels production and implementation. Demonstration plan for syngas based FT-diesel is planned to start in 2008. In the Helsinki capital area a large scale demonstration is planned to be started in 2008 where 50 % of the city busses will use 30 and 100 % synthetic biodiesel blends. A significant reduction of fine particles and NO_x is achieved.

The selected strategies, the development and implementation programme in Finland will be discussed in detail with additional examples from other European activities.