

Alternative Motor Fuels – European and International Perspectives

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In Europe, alternative fuels receive considerable attention. There are numerous reasons to promote alternative fuels, reasons such as security of supply, reducing greenhouse gas emissions and reducing urban pollution. In general, the issue of climate change is taken very seriously in Europe. The challenges facing the European transport and energy sectors were written down in two documents, “White Paper- European transport policy for 2010: time to decide” and “Green Paper- Towards a European Strategy for the Security of Energy Supply”. Both documents pinpoint the dependency on imported oil. The Green Paper aims at a 20% substitution by alternative transportation fuels in 2020. Natural gas, biofuels and hydrogen (hydrogen with a question mark) are listed as the main alternatives.

In 2003 Directive 2003/30/EC, on the promotion of the use of biofuels and other renewable fuels for transport, was adopted. The Directive presents indicative targets for the minimum proportion of biofuels. The indicative targets are 2% for 2005 and 5.75% for 2010 (on energy basis). Biofuels currently contribute to less than 1% of the total European transport fuel consumption. The Member States are required to report back to the Commission on national targets. The national targets for 2005 vary from 0 to 3% (Sweden is reporting 3%). The Commission has stated that mandatory proportions may be introduced if progress is not satisfactory.

Close to 2 million tonnes of biodiesel was produced in 2004, mainly in Germany, France and Italy. Production has increased by approximately 35% since 2002. The fuel ethanol production amounted to some 450 000 tonnes in 2003.

One dilemma with conventional biofuels is that it is impossible to reach 5.75% substitution (by energy) if the current European fuel specifications (EN 228 for gasoline, EN 590 for diesel) are to be met. RTD activities focus on second generation biofuels like synthetic fuels and wood based ethanol. Shell recently announced that they will invest in Choren gasification technology to produce BTL diesel out of biomass. Neste Oil is building a 170 000 tonnes/a biodiesel plant in Finland to produce GTL-like hydrogenated biodiesel.

There are currently some 550 000 NGVs and some 2 000 CNG filling stations in Europe. The leading country is Italy with some 400 000 NGVs. The fastest growing market is probably Germany. Biogas receives attention in, e.g., Sweden. Biogas is used both in stand-alone systems and for feeding into the natural gas grid. The preferred alternative for Volvo Trucks is DME. DME could be produced by, e.g., gasification of black liquor.

IEA – A platform for international cooperation

The International Energy Agency IEA is running a large number of Implementing Agreements for cooperative R&DDD efforts on specific tasks. One of the agreements is the Implementing Agreement on Advanced Motor Fuels. Advanced Motor Fuels have been

defined as fuels fulfilling one or more of the following, partly overlapping criteria: low toxic emissions, improved life cycle efficiency, reduced greenhouse gas emissions/utilisation of renewable energy sources, fuels contributing to sustainability in transportation or fuels contributing to security of supply

The Vision of AMF is to see the results of AMF projects contribute to the growing market penetration of advanced motor fuels and the widespread deployment of sustainable technologies for transport. This will result in reduced emissions, improved energy efficiency and improved energy security.

Currently 11 countries are participating in AMF, with one additional country pending. AMF started up as early as 1984. Over the years, 25 Annexes (projects) have been completed, and 7 Annexes are currently running. Recent activities include altogether six different Annexes on biofuels. The average budget is some 200 000 USD per Annex, with an average of six participating countries per Annex. The work is mostly carried out on a cost-sharing basis.

Information on AMF can be found both at IEA's website and at the website of AMF at: www.iea-amf.vtt.fi

AMF is producing a quarterly newsletter AMFI (newest issue September 2005) which can be downloaded from the website.