

New records in oil prices around \$75 per barrel. Narrow excess capacity of oil production and continued fears of crises e.g. in Iran and Nigeria keep prices up.

Source: numerical data from BP's statistical review 2005 (www.bp.com) and US Energy Information Administration (www.eia.doe.gov).

AMFI Newsletter is prepared for the members of the Implementing Agreement on Advanced Motor Fuels of the International Energy Agency (IEA/AMF).

AMFI provides four yearly electronic Newsletters, (in 2006 three issues) describing recent news on advanced motor fuels, vehicles, energy and environmental issues in general are prepared. AMFI Newsletter is available on the AMF website:

www.iea-amf.vtt.fi

CONTENT

GENERAL INTEREST

- ✚ Advanced Energy Initiative in the US
- ✚ US Fuels of the Future – CONSENSEUS update
- ✚ Washington will require alternative fuels
- ✚ New policy actions on energy in Europe
- ✚ Implementation of the Biofuels Directive in Europe

NATURAL GAS AND LPG (and biogas)

- ✚ NREL study: CNG cleaner than diesel
- ✚ HPDI Customer Experiences
- ✚ Hytane demo in California
- ✚ Biogas provides high fuel yields

ETHANOL, ETBE

- ✚ Cellulose ethanol plant in Spain
- ✚ Biogasoline using ethanol in Finland
- ✚ BEST project - Bioethanol for Sustainable Transport
- ✚ Ethanol volumes increasing in US
- ✚ E85 in conventional cars – illegal or not??
- ✚ Brazilian comment on ethanol discussion

BIOESTERS

- ✚ Food industry calls for biodiesel alternatives

SYN- AND SUNFUELS (GTL, BTL)

- ✚ ASFE – Alliance for synthetic fuels in Europe
- ✚ Buses in Helsinki may run on NExBTL
- ✚ Neste Oil and OMV's plan of NExBTL facility in Austria
- ✚ Comparison of Shell Middle Distillate, diesel fuel and RME

OTHER ADVANCED FUELS (HYDROGEN, DME), HYBRIDS

- ✚ German-American Autogroup

MISCELLANEOUS

- ✚ EPA tighten PM2.5 limit
- ✚ Clean vehicle definition in Sweden

IEA & IEA/AMF News

- ✚ Webpage updates

PUBLICATIONS

GENERAL INTEREST

Advanced Energy Initiative in the US

The Energy Policy Act, the energy legislation in the US, was signed in summer 2005 (AMFI August 2005). Now in the State of the Union Address, President Bush outlined "the Advanced Energy Initiative" setting a national goal of replacing more than 75% of US oil imports from the Middle East by 2025. The Initiative provides 22% increase in clean-energy research at the DOE. The work under "Homes and Businesses" focuses on coal technologies, clean and safe nuclear energy, solar and wind technologies. The main focus in transportation sector is given to the following initiatives:

- * The Biorefinery Initiative: advanced technologies for fuel ethanol from cellulosic (plant fiber) biomass, 2007 Budget \$150 million.
- * Developing More Efficient Vehicles: the next generation of battery technology for hybrid vehicles and plug-in hybrids; 2007 \$30 million.
- * The Hydrogen Fuel Initiative: development of hydrogen fuel cells and affordable hydrogen-powered cars; 2007 \$289 million.

The White House, February 2006 www.whitehouse.gov

The new budget gives additional funding for some research areas, but funding is also cut from several environmental programs, e.g. Diesel Emission Reduction Act dedicated to retrofitting and replacing diesel buses. The Union of Concerned Scientist also notices that there are no incentives in the proposed budget for improving the fuel economy of cars. *Source: © Union of Concerned Scientists, 13 Feb 2006 www.ucsusa.org*

US Fuels of the Future – CONSENSEUS update

CONSENSEUS updates information on different transportation fuels and technologies of the future in the U.S. The Table includes the performance, economics, and health and environmental impact of fuels for transportation considering a variety of options: hydrogen, natural gas, ethanol, biodiesel, gasoline, ULS diesel and hybrids. The Table is available on the CONSENSEUS website, www.consenseus.org.

CONSENSEUS www.consenseus.org

ENERGY FOR TRANSPORTATION IN THE U.S. **Fuels of the Future** April 2006

Fuels & Technologies	Petroleum-based	Global Sources and Supply	Best Uses	Vehicles Powered by, Worldwide	Current Availability	Cost per Gallon	NOx Emissions Relative to Gasoline	Federal Incentives ¹
Gasoline	✓	Primary sources are Middle East, Central Asia; crude supply peaked, demand rising	Vehicles of all types	More than 500 million	Widely	\$2.91 ²		
Diesel/Ultra-Low Sulfur (ULSD)	✓	Primary sources are Middle East, Central Asia; crude supply peaked, demand rising	Heavy-duty vehicles and some consumer vehicles	Tens of millions powered by regular diesel, with Western Europe leading	Diesel is widely available; ULSD coming October 2006	\$2.88 ² (regular diesel)	Higher	✓
Biodiesel (B20)	✓	"Bio" part produced in U.S. from vegetable oils, grasses; displaces need for some diesel	Some heavy-duty vehicles and some consumer vehicles	Well under one million	Limited	\$3.40 ³ (B100)	Higher	✓
Hybrid Gasoline/Electric	✓	Electricity supply provided by batteries, displaces need for some gasoline	Some consumer vehicles	Under one million	Widely	\$2.91 ² (for gasoline)	Generally lower	✓
Natural Gas Liquefied (LNG), Compressed (CNG)		95% of U.S. supply is sourced domestically; supply worldwide, much stranded, needs LNG tanker delivery	Medium- and heavy-duty vehicles; some consumer vehicles	More than five million, with Argentina, China, India, Pakistan leading	Fuel is widely available; limited infrastructure for delivery	\$2.12 ⁴ per gas-gallon equivalent (CNG)	Lower	✓
Ethanol (E85)		Produced in U.S. from crops; 85% blend displaces need for some gasoline	Some consumer vehicles	Under one million powered by E85, with Brazil, U.S. leading	Limited; requires high volume of crops, energy to produce ⁵	\$2.41 ¹ (E85)	Lower	✓
Hydrogen Fuel Cell Internal Combustion		Effectively extracted from natural gas; challenge is mass-production/delivery and storage as a gas or liquid on vehicles	Potentially all vehicle types	Two decades from commercialization	Two decades from commercialization	Two decades from commercialization	Lower	✓

¹ For fuel production and/or vehicle purchase

² U.S. Department of Energy, April 24, 2004

³ "Clean Cities Alternative Fuel Price Report," U.S. Department of Energy, Third Quarter 2005

⁴ Ethanol as a gasoline additive is widely used in the U.S., but its use as an alternative fuel remains limited.

Washington will require alternative fuels

In Washington, fuel suppliers are required to ensure that two percent of the diesel and gasoline sold is biodiesel and ethanol, beginning in December 2008. Washington is the first state in US with mandatory requirement for biofuels, and will lead the way by requiring 20% of the state's diesel needs to be met with biodiesel by 2009. *Source: Office of Governor Christine Gregoire, March 30, 2006. (www.governor.wa.gov)*

New policy actions on energy in Europe

A new Green Paper on energy "*A European Strategy for Sustainable, Competitive and Secure Energy*" (COM(2006) 105) has been published. This paper points out a need to improve energy efficiency in the transport sector and to improve urban public transport in Europe's major cities. Importance of alternative transport fuels was also pointed out. The Green Paper is a consultation document and comments are expected by 24 September 2006. On the basis of the response to this Green Paper, the Commission would like to develop more concrete ideas on a number of energy issues. (ec.europa.eu)

The latest action of the European Commission, with effects also in transportation sector, is **Directive 2006/32/EC on "Energy end-use efficiency and energy services"**, which entered into force on 17th May 2006. The aim of the Directive is to improve the energy end-use efficiency by setting indicative energy savings targets of 9% for the ninth year of its application and by creating the conditions for the energy services. The directive requires member states to draw up national action plans to achieve 1% yearly energy savings in the retail, supply and distribution of electricity, natural gas, urban heating, and other energy products including transport fuels. The Directive sets other targets: public sector shall take energy efficiency into account in public procurements (vehicles, buildings etc.), the supply-side shall offer efficiency improvement measures to their customers, a harmonised measurement system for energy savings will be created and the directive also sets up a harmonised framework for e.g. common definitions, consumer information and certification schemes. The yearly target of 1% is indicative, but the national action plans will need approval from the Commission and will be reviewed every three years. The review process will start in January 2008 and the first energy efficiency action plan must be submitted by 30 June 2007. (eur-lex.europa.eu)

A draft report "*Biofuels in the European Union - A Vision for 2030 and beyond*" has been published by the Biofuels

Research Advisory Council (BIOFRAC), a high-level group on biofuels established by the European Commission. This report outlines the current situation of biofuels and presents a long-term view on how to overcome the technical and non-technical barriers for biofuel deployment in the European Union and worldwide. The report states that an ambitious but realistic vision for 2030 is covering 25% of EU's transport fuel needs by clean and CO₂-efficient biofuels. 14 March 2006 (ec.europa.eu)

Implementation of the Biofuels Directive in Europe

The European Commission sent notices to Denmark and Finland regarding inadequate reasons for setting lower targets than the 2% reference value for 2005 of the Biofuels Directive (2003/30/EC). Notice has been sent to Luxemburg due to an incomplete biofuel report for 2005. The EC closes the case with Greece, Ireland and Poland based on new more ambitious targets for following years (replies to Hungary and the UK under progress). Italy has not answered EC's notice. Promoting the use of biofuels is also a top priority in the Commission's new Green Paper on energy. Biofuels' share of the petrol and diesel market in the EU was only 0.6% in 2003 and still less than 1% in 2004. Reference: *IP/06/431 Brussels, 4 April 2006* (europa.eu.int)

EU's recent AMF activities:

- **EU Biomass Action Plan** announces more than 20 actions to obtain EU's renewable energy target (12% by 2010), e.g. promotion of "biofuel obligations" in transport sector. December 2005 (europa.eu.int)
- **EU Biofuel Strategy** aims to promote biofuels in EU and developing countries, to improve cost-competitiveness of biofuels and to increase research of '2nd generation' fuels, to support developing countries where biofuel production could stimulate sustainable economic growth. February 2006 (*IP/06/135* europa.eu.int)
- **Green Paper on Energy Efficiency or Doing More With Less:** 20% reduction in energy consumption by 2020, 2005 (europa.eu.int)
- **Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy"** (COM(2006) 105) aims to improve energy efficiency in the transport, especially urban public transport, to promote alternative transport fuels. Under review until Sept. 2006. (ec.europa.eu)
- Proposed **Directive to promote clean vehicles** would require 25% of the procurements of public bodies to be reserved to "clean" vehicles, EEV heavy-duty vehicles. December 2005 (europa.eu.int),
- **Enhanced Environment-friendly Vehicle (EEV):** the emission limits are in Directive 1999/96/EC. Now 2005/55/EC sets the durability requirements and OBD threshold values, and 2005/78/EC technical requirements and test procedures. Dec. 2005 (www.interregs.com)
- **Directive 2006/32/EC on "Energy end-use efficiency and energy services":** aims to improve the energy end-use efficiency to obtain energy savings of 9% for the ninth year of its application. The yearly target of 1% is indicative, but the national action plans will need approval from the Commission and will be reviewed. May 2006 (eur-lex.europa.eu)
- **Biofuels in the EU – A vision for 2030 and beyond.** A draft final report. 14 March 2006 (ec.europa.eu)

See also AMFI 1/2006

NATURAL GAS AND LPG (and biogas)

NREL study: CNG cleaner than diesel

US NREL laboratory has studied exhaust emissions from CNG and diesel buses under DOE's Clean Cities program. Twelve WMATA buses were tested using West Virginia University's Transportable Heavy-Duty Vehicle Emission Testing Laboratory. CNG buses had lean burn natural gas engines and oxidation catalysts. Diesel buses had catalyzed particulate filters, and one group also exhaust gas recirculation (EGR). Low-sulfur diesel of about 17 ppm sulfur content was used. The CNG buses are showing significant improvements in fuel economy and emissions. The NO_x and PM emissions and fuel economy for the CNG vehicles in this study were comparable to or better than the diesel buses. Source: *Melendez, M. et al. Emission Testing of Washington Metropolitan Area Transit Authority (WMATA) Natural Gas and Diesel Buses* (www.nrel.gov).

HPDI Customer Experiences

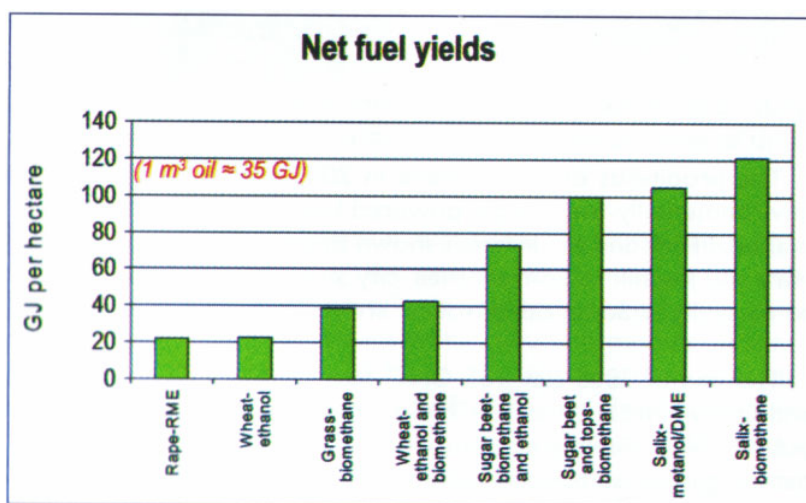
HPDI allows a diesel engine to operate with over 90% replacement of diesel fuel by natural gas. By directly injecting the natural gas at high pressure in the engine, HPDI gains benefits of diesel engines: high efficiency over the speed and torque operating range, high torque capability and good reliability. The use of pilot diesel secures proper ignition and contributes to the reliability and durability of the system. The properties of natural gas contribute to a reduction in the exhaust emissions. Early prototype versions of the HPDI system by Westport Innovations Inc. have been used by Norcal Waste Systems in San Francisco since August 2001. In May, 2005 a second-generation on-road trial began in Ontario, Canada. The Clean Air Corridor program deployed five HPDI LNG trucks operated by Challenger Motor Freight. A mid-term report is now available on Westport's website. It was noted that average fuel economy was comparable to diesel baseline and driver satisfaction regarding performance and operating characteristics was high. Westport will deliver three of its new CARB- certified systems to Norcal for operation in April 2006, as part of an agreement to extend the use of the HPDI LNG truck fleet until 2011. (www.westport.com)

Hytane demo in California

The City of Barstow, California has signed a Memorandum of Understanding with Hythane Company for exploring the use of Hythane as a fuel for the city's fleet. Hythane is a fuel blend consisting of 20% hydrogen and 80% natural gas by volume (~7% hydrogen by energy). The existing natural gas fueling station would be converted into an Energy Station offering three types of clean fuel (natural gas, hydrogen and Hythane). Fuel efficiency of natural gas is limited by relatively narrow flammability range, which can be extended by adding hydrogen. Methane has a slow flame speed, while a flame speed of hydrogen is about eight times faster. Hydrogen has an ignition energy requirement about 25 times lower than methane. Hydrogen is also a combustion stimulant, and a reducing agent for efficient catalysis at lower exhaust temperatures. Hythane reduces the emissions from natural gas engines. Hythane is a patented fuel blend. Blends of hydrogen and CNG at higher hydrogen ratios, e.g. 30%) are termed HCNG. The Hythane Company has projects currently underway in Colorado, Arizona, Georgia, Florida, New Mexico, New York, New Jersey and internationally in China and India. *Source: 20 April 2006 www.greencarcongress.com*

Biogas provides high fuel yields

Dr Pål Börjesson, Lund's Technical University has reported results showing that biomethane produced from crops or wood provide higher energy yield than other biofuels (vegetable oil esters or ethanol). Different regional conditions influence the yield of land, but this does not influence the relative differences between biomethane and other biofuel options. *Pål Börjesson's presentation in The GVR Gas Vehicle Report. Volume 5 #3, Number 51, April 2006.*



Pål Börjesson's presentation in The GVR Gas Vehicle Report. Volume 5 #3, Number 51, April 2006.

ETHANOL, ETBE

Cellulose ethanol plant in Spain

The Ontario-based SunOpta BioProcess Group will start a wheat straw-to-ethanol plant near Salamanca, Spain in the fall 2006 with planned capacity of the 54 million gallons. The facility is the first commercial cellulosic ethanol production plant. SunOpta estimates that costs of ethanol will be \$1.40-\$1.60 per gallon for a commercial-scale cellulosic facility. *Source: Spain to Open World's First Cellulosic Ethanol Plant, 9 February, 2006 (www.ewworld.com)*

Biogasoline using ethanol in Finland

Neste Oil is to be the first company in Finland to launch gasoline containing ethanol. Neste Oil's new Futura 98 biogasoline will contain 2-5% of a biocomponent, which will be either ethanol sourced from within the EU or ethanol-based ETBE. Distribution of the new gasoline begun in April 2006 in southern Finland. *Source: Press Release 3 April 2006 (www.nesteoil.com)*

The energy company ST1 is planning to start addition of ethanol in gasoline in Finland in late 2006. ST1 plans to produce ethanol from food industry wastes using a new process, called Etanolix, invented by a researched Antti Pasanen from VTT. Waste is converted to 50% ethanol-water mixture by the Etanolix process at the sites of food industry. The mixture is transported to oil terminals and concentrated to 99,8% ethanol before blending it into gasoline (2-5% blends). *Source: Tekniikka&talous, 24.4.2006.* There are also other plans for ethanol in Finland, like "barley-ethanol" plant planned by "Lännen tehtaait" and "Altia". *Source: Talouselämä 12.4.2006.*

BEST project - Bioethanol for Sustainable Transport

The BEST project, partially funded by European Commission, originally initiated in Sweden, targets to spread experiences in ethanol gathered e.g. in Sweden and Brazil to other European countries and to China. The technical program includes e.g. introduction of 10 000 environmental cars and 1 000 ethanol busses, construction of distribution systems for ethanol, efforts on production methods of ethanol, E10 tests in four EC Member States, tests with diesel/ethanol blends, tests with ethanol hybrids in São Paulo and information exchange. Source: *Miljöbilar I Stockholm #1/2006* (www.miljobilar.stockholm.se)

Ethanol volumes increasing in US

In US, MTBE used to represent about 3% of US gasoline consumption. In early 2006, the shortages of gasoline was reported in US, MTBE ban being one reason for this. MTBE ban started in 2004 in California and will be Federal in 2007, and the lost volumes are replaced by alkylate, iso-octane, or ethanol. Banning MTBE has lead to increase in gasoline prices due to logistical problems with ethanol. It cannot be shipped by pipeline due to absorption of water, and also tanks have to be drained and cleaned for ethanol-blended gasoline. About 40% of the gasoline produced in the US is blended with ethanol. Source: *Associated Press April 21, 2006. Gas shortages hit the East Coast* (www.msnbc.msn.com).

E85 in conventional cars – illegal or not??

Today, with increasing usage of biofuels, it is interesting question if it is illegal or not to use other fuels than the manufacturer has instructed, e.g. using E85 in the gasoline cars. Regulation on the exhaust emission control states that manufacturers of cars or engines are responsible for the vehicles complying with current exhaust emission standards. The owners of vehicles are obliged to maintain the vehicle in such a way that the exhaust emissions from the vehicle do not exceed the limit. However, there is no clear law on this in Europe and thus it is not illegal but also not allowed to fuel e.g. E85 in petrol cars. If the car owner breaks his agreement with the manufacturer by using wrong fuel, this can mean that warranties are no longer valid. If the car does not comply with exhaust emission standards at the annual motor vehicle inspection it may lead to a driving ban. www.miljofordon.se

Also the German motorist association ADAC warns about the use of ethanol in conventional gasoline cars due to incompatibility of materials. Materials used in pipes and gaskets will swell when in contact with the fuel, and the fuel will attack steel and light metals. Ethanol is available at some filling stations in Germany in various mixes (for example E85) and is currently some 10% cheaper than low octane gasoline, but fuelling up with this fuel one will risk losing the warranties for the car. E85 only suitable for so-called FFV cars. Ford Focus FFVs are currently on German market, and in the beginning of 2006 Saab and Volvo will also offer FFV vehicles on the market. Source: *ADAC, Hamburger Abendblatt, December 10, 2005* www.miljofordon.se

Compatibility of Existing Fleets with Ethanol-gasoline Blend

Ethanol Content in the Fuel	Carburetor	Fuel Injection	Fuel Pump	Fuel Pressure Device	Fuel Filter	Ignition System	Evaporative System	Fuel Tank	Catalytic Converter	Basic Engine	Motor Oil	Intake Manifold	Exhaust System	System	Cold Start
≤ 5%	----- For any vehicle NN -----														
5 ~ 10%	----- For relatively new fleets (10 ~ 15 years old) -- NN --														
10 ~ 25%	----- Brazilian Application - PN -----														
25 ~ 85%	----- USA Application PN -----														
≥ 85%	----- Brazilian Application PN -----														

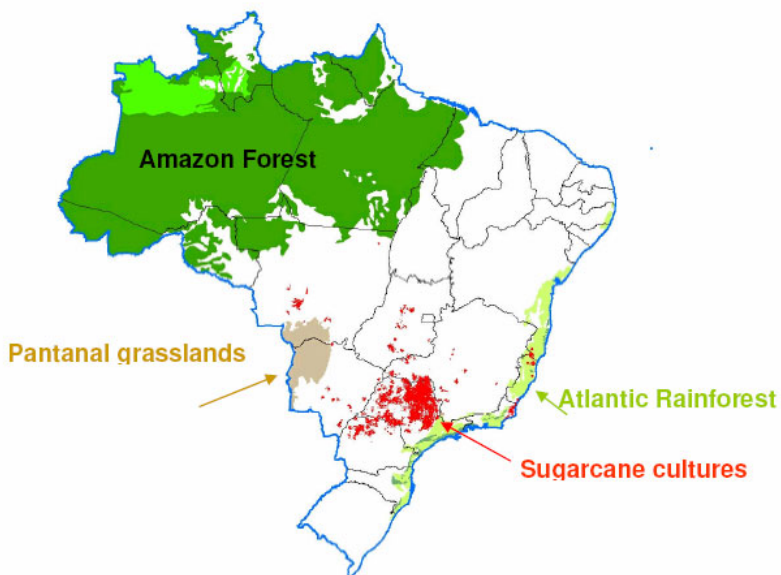
 - Not Necessary

 - Probably Necessary

File: STAP workshop on Liquid Biofuels, Delhi, Aug 29-September 2, 2005. www.unep.org/stapgef

Brazilian comment on ethanol discussion

In AMFI Newsletter 1/2006, Swedish debate on ethanol was referred. One doubt mentioned was the threat of ethanol production to Amazon rain forests. A report "*Brazilian sugarcane ethanol: lessons learned*" states that Brazilian sugarcane ethanol sets no pressure on Amazon deforestation, because most sugarcane areas are located in Southeastern region, and this crop is not even suited for production in the Amazon region. The sugarcane productivity in Brazil has increased so that excessive land-use expansion has not been needed. It is also reported that sugarcane do not compete with food crops. *Source: Coelho, Goldemberg, Lucon, et al. "Brazilian sugarcane ethanol: lessons learned" STAP workshop on Liquid Biofuels, Delhi, Aug 29-September 2, 2005. www.unep.org*



"Brazilian sugarcane ethanol: lessons learned" STAP WS 2005, Delhi. www.unep.org

BIOESTERS

Food industry calls for biodiesel alternatives

Food Industry calls European policy makers to stimulate alternatives to fuels derived from edible oils to resolve a growing conflict between the food sector and biodiesel producers. Big European food makers face competition for rapeseed oil supplies as tax incentives and high crude oil prices stimulate biodiesel production. Producers point out that there should be alternatives, e.g. ethanol or 2nd generation biofuels made from waste or wood pulp that are not threatening food needs. EU biodiesel capacity is expected to jump 50% to some 6 million tonnes by end of 2007. About 40 – 60% of Europe's rapeseed harvest was used for production of biodiesel in the past two years, according to the vegetable oil industry. E.g. margarine industry, the biggest rapeseed oil food industry, is worried if there is enough vegetable oil in the long term in Europe and world-wide to meet increasing biofuel production. *Source: reuters news service, April 4, 2006 (www.planetark.com)*

SYN- AND SUNFUELS (GTL, BTL)

ASFE – Alliance for synthetic fuels in Europe

The Alliance for Synthetic Fuels in Europe (ASFE) was launched in Brussels, 7th March 2006. Founding members of the ASFE are DaimlerChrysler, Renault, Royal Dutch Shell, Sasol Chevron and the Volkswagen group. ASFE address the strategic role of synthetic fuels in tackling today's energy and environmental challenges and reducing the environmental impact of road transport through improved energy efficiency and the use of cleaner fuel. The objectives of ASFE are to promote synthetic fuels and support a range of activities including research and demonstrations with synthetic fuels, cooperation with governments and promotion of public awareness. ASFE targets to show how synthetic fuels can contribute to improved security of supply and to a sustainable transport future. Synthetic fuels are 2nd generation fuels made with the Fischer-Tropsch process from natural gas (GTL), coal (CTL) or biomass (BTL). These fuels can be used neat or blended in existing diesel engines, distribution and refueling infrastructure. Greenhouse gas emissions for GTL are comparable with other fossil fuels, while for BTL reduction of up to 90% can be achieved. Synthetic fuels reduce also tailpipe emissions when compared to conventional diesel fuel. (www.sasolchevron.com).

Buses in Helsinki may run on NExBTL

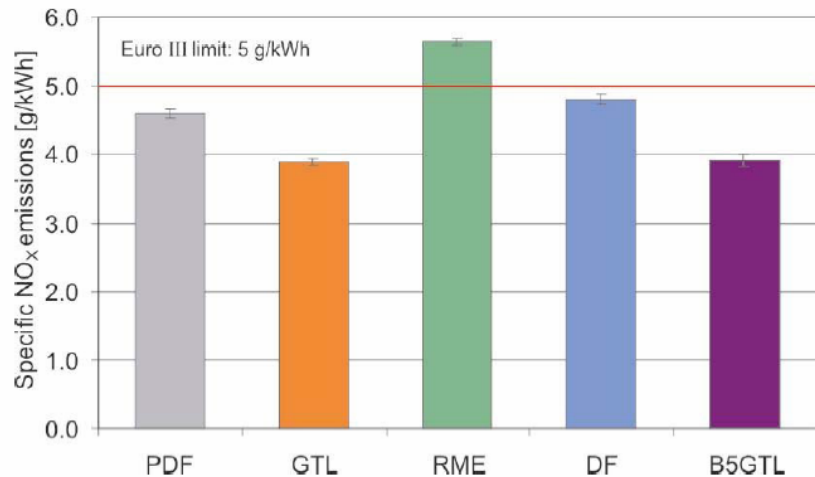
Half of the busses in Finnish capital, around 700 vehicles, may run next year on a 2nd generation biodiesel, NExBTL. Neste Oil's proprietary NExBTL technology is a refinery-based hydrotreatment process using e.g. vegetable oils and animal fats as raw material. Properties of NExBTL biodiesel are similar to GTL and thus superior when compared to conventional diesel fuel (see AMFI 1/2005). The start of production of NExBTL will start in a Neste refinery in 2007 (see the news below). The introduction of the improved biofuel in the capital area bus services is supported by the Helsinki City Transport (HKL) and the Helsinki Metropolitan Area Council (YTV). (www.ytv.fi, in Finnish)

Neste Oil and OMV's plan of NExBTL facility in Austria

Neste Oil Corporation and Austrian oil and gas group, OMV, negotiate of a jointly built large-scale plant to produce next-generation, NExBTL, biodiesel fuel. The 200,000 t/a facility would be located at OMV's Schwechat oil refinery in Austria, with production beginning at the end of 2008 at the earliest. (NExBTL: see above) The first NExBTL plant, a 170,000 t/a unit at Neste Oil's Porvoo refinery will come on stream in summer 2007. Neste Oils has also a MoE with Total in France. *Source: Press release, 27 March 2006 (www.nesteoil.com).*

Comparison of Shell Middle Distillate, diesel fuel and RME

A German report compares exhaust emissions from Shell Middle Distillate (GTL) with lubrication additives, fossil diesel fuel (DF), rapeseed oil methyl ester (RME) premium diesel fuel (PDF: 60 % DF, 20 % RME and 20 % GTL) and a blend of 95 % GTL and 5 % RME (B5GTL). In the latter, RME is used as an additive to improve the lubricity. A truck engine OM 906 LA from Mercedes-Benz (Euro 3) without catalyst was used in the ESC test. The regulated emissions, the particle size distribution and the mutagenicity of soluble particle fractions were determined. Overall, GTL consistently produced lower emissions than DF, especially as concerns NO_x and mutagenicity. RME showed advantages in the HC, CO and PM emissions. The diesel fuel and RME caused high emissions of ultra fine particles. B5GTL showed the expected combination of GTL with a slight shift to RME. With PDF unexpectedly high mutagenicity was seen. *Source: Munack, A. et al. Comparison of Shell Middle Distillate, Premium Diesel Fuel and Fossil Diesel Fuel with Rapeseed Oil Methyl Ester, April 2006. (www.ufop.de)*



NO_x emissions using diesel, GTL, RME and blended fuels. Munack et al. (www.ufop.de).

OTHER ADVANCED FUELS (HYDROGEN, DME), HYBRIDS

German-American Autogroup

Toyota Prius has been the leading hybrid car. Now a German-American consortium "Global Hybrid Cooperation" of BMW, DaimlerChrysler and General Motors has been working quietly to develop a different type of hybrid powertrain, a two-mode hybrid. This system will be available in a wide range of cars starting with the 2008 Chevrolet Tahoe, which will achieve 25% better mileage in combined city and highway driving than conventional Tahoe. Like all hybrids, the two-mode combines the gasoline engine with electric motors, saves energy from braking, shuts off the engine at a stop and batteries alone can power the vehicle at low speeds. The difference is that it can operate more efficiently at highway speeds, and the components are lighter and more compact and particularly suitable to large trucks and S.U.V.'s. The two-mode system has a variable transmission but adds two planetary gear sets, which multiply the torque from the power source providing two operating modes for the electric motors. The first is for accelerating from a standstill to second gear; another phase takes the car from second gear to overdrive. Because the torque is multiplied by the gears, the electric motors can be much smaller. The two-mode system is a scaled-down evolution of a heavy-duty hybrid powertrain developed by Allison, GM, used in more than 400 hybrid-electric city buses. *The New York Times, April 30, 2006. (www.nytimes.com).*

MISCELLANEOUS

EPA tighten PM2.5 limit

EPA is proposing to tighten the 24-hour standard for PM 2.5 from 65 to 35 µg/m³ and leave in place the annual standard of 15 µg/m³. For PM 10-2.5 coarse particles 24-hour standard would be 70 µg/m³. Industrial groups argue that EPA's new standards come too soon, since earlier standard of 1997 was fully implemented in 2003. Both industrial and environmental groups point out the "scientific uncertainty" surrounding health studies and fine particles. Environmental groups say that lowering the daily standard from 65 to 35 µg/m³ without lowering the annual standard will not make much of an impact on human health. The Clean Air Act report "Preventing Death and Disease from Particulate Pollution" show that for every 10 µg/m³ increase in long-term average fine particulate levels, the risk of mortality increases by about 4%. Environmental group recommends the annual PM 2.5 standard at 12 µg/m³ and the 24-hour standard at 25 µg/m³. EPA's new PM standards should be finalized by September 27, 2006. *Fwd: Emissions Monitor : April 2006.*

Clean vehicle definition in Sweden

In Sweden, from January 2006, there is a limit for the fuel consumption of state vehicles, and the definition of clean vehicle is neutral in terms of fuel technology. From earlier, there are two different national definitions for clean vehicles. These have taken into consideration that the car is using renewable fuels, but not how much fuel it is using. The state's new purchasing rules do not accept cars with high fuel consumption, even if they are powered by renewable fuel. There is a maximum set to the petrol equivalent of 9.2 per 100 km. Another change is that the state classifies fuel efficient petrol and diesel powered cars as clean vehicles, so that also hybrid cars are included. (www.miljofordon.se)

IEA & IEA/AMF News

Webpage updates

- Members Area: Minutes of the ExCo 31 Meeting in Prague in November 2005. Contact list is updated.
- Updated information of the ExCo 32 Meeting (Beijing, China October 18-20, 2006).
- Annual Book 2005 is available in Public Area (Downloadables). Annex information is updated accordingly (Annexes 26, 28, 29, 30, 31, 32, 33).

IEA AMF ExCo Meeting
Beijing, China
October 18-20, 2006

PUBLICATIONS

- IEA Renewables in global energy supply: An IEA Fact Sheet © OECD/IEA 2006 (www.iea.org)
- Biofuels in the EU – A vision for 2030 and beyond. A draft final report. 14 March 2006 (ec.europa.eu)
- European Commission: Green Paper on energy "A European Strategy for Sustainable, Competitive and Secure Energy" (COM(2006) 105) (ec.europa.eu)
- Munack, A. et al. Comparison of Shell Middle Distillate, Premium Diesel Fuel and Fossil Diesel Fuel with Rapeseed Oil Methyl Ester, April 2006. (www.ufop.de)
- CARS21, a high level group of stakeholders has reported recommendations to improve the competitiveness of the European automotive sector. A Competitive Automotive Regulatory System for the 21st century. Final report 2006 (ec.europa.eu)
- Hart Energy Publishing: **Gasification news** about Fischer-Tropsch, Clean Motor Fuels and IGCC. Launched in February, 2006 (the February issue <http://www.worldfuels.com/sample.php?GTLN>, the March issue <http://www.theautochannel.com/news/2006/03/15/000672.html>)

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