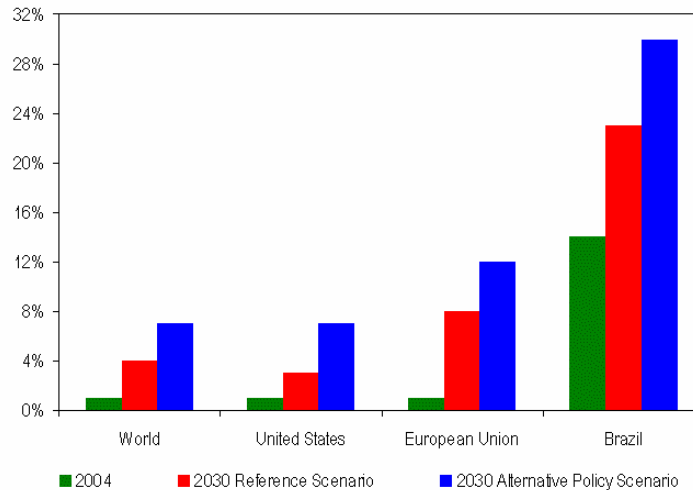




Share of Biofuels in Road-Transport Fuel Consumption



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 electronic Newsletters yearly describing recent news on advanced motor fuels, vehicles, energy and environmental issues in general. AMFI Newsletter is available on the AMF web-site:

www.iea-amf.vtt.fi

The World Energy Outlook 2006 by the IEA projects an increased usage of biofuels in road transportation. IEA WEO 2006 with extensive statistics, projections, analysis and advice was published in November 2006 (© OECD/IEA 2006, www.iea.org)

CONTENT

GENERAL INTEREST

- ✚ Climate Strategy and biofuel target - Europe
- ✚ Climate change - California (Low carbon fuel standard, AB 32)
- ✚ US Energy Policy Initiatives 2007
- ✚ Energy Efficiency - European Action Plan
- ✚ CO₂ and fuel consumption of new cars

GASEOUS FUELS (NG, LPG, biogas)

- ✚ NGV and biogas on the European Agenda
- ✚ Middle East reduces dependence on oil
- ✚ Biomethane for buses in Austria

ALCOHOLS, (BIO)GASOLINE

- ✚ ISAF 2006
- ✚ E85 standard in Sweden
- ✚ New European FFVs
- ✚ Research alliance for renewable transportation fuels
- ✚ Statoil introduces Biodiesel 15

BIODIESEL ESTERS

- ✚ Opposition against B10

- ✚ Biodiesel standards and quality
- ✚ Valtra's Common Rail engines tolerate B20

SYNTHETIC DIESEL AND BIODIESEL

- ✚ Hydrogenated biodiesel by ConocoPhillips
- ✚ 2nd NExBTL plant in Finland

OTHER FUELS AND VEHICLES

- ✚ IEA R&D on heavy-duty hybrids and fuel cell vehicles
- ✚ Plug-in hybrid from General Motors
- ✚ Hydrogen discussion

MISCELLANEOUS

- ✚ CARB verification of Finnkät pDPF
- ✚ New NO₂ limit in California

IEA & IEA/AMF News

- ✚ IEA/AMF 32nd ExCo Meeting in Beijing
- ✚ IEA AMF/ IEA Bioenergy coordination
- ✚ Liaison with JARI China Round Table 2006

PUBLICATIONS

Climate Strategy and biofuel target - Europe

The European Commission proposed a new Energy Policy for Europe to combat climate change and to strengthen energy security and competitiveness. The proposed target for the European Union is to cut GHG emissions by at least 20% by 2020 when compared to 1990. In international negotiations, a 30% reduction is targeted for developed countries by 2020. By 2050, global GHG emissions should be reduced by up to 50%. EU members are required to establish National Action Plans, which will be monitored by the Commission.

A list of proposed actions related to e.g. renewable electricity, biofuels, heating and cooling includes:

- completing the internal market for electricity and gas
- a 20% target for renewable energy as well as a target for 20% savings in total primary energy consumption
- international agreement on energy-efficiency standards
- support for 'clean coal' technology (nuclear was left up to member states to decide).

As for biofuels in transportation, the Commission proposes a minimum target of 10% by 2020. According to the Commission, implementation of biofuels is the only way to significantly reduce the oil dependence of the transport sector. Transport produces nearly a third of today's CO₂ emissions in Europe. The 2005 target for biofuels, 2% (energy), was not met (the share was about 1%). Today biofuel in practise means bioethanol or biodiesel. The Commission calls the incentive/support system for biofuels to take into account the sustainability of biofuels and to encourage "second-generation" biofuels. *Sources: European Commission, IP/07/29, 10 January 2007 (europa.eu); An Energy Policy for Europe (eur-lex.europa.eu), MEMO 07/5 (europa.eu), Renewable Energy Road Map (eur-lex.europa.eu).*

Several business organisations have complained that the proposed targets will weaken the European industry's competitiveness. However, the proposal was welcomed by most industry groups. The renewable energy industry was less impressed ("vague measures and ambiguous commitments"). The European paper industry association was positive, but stated that "by focusing solely on setting targets, the current debate on renewables is heading in the wrong direction". The European electricity industry association said that "The EU should avoid requirements to use only certain technologies," and questioned the "wisdom and the realism" of the proposal. From the side of environmental NGOs, EEB's Director called the targets "unacceptably weak" and the energy policy proposals "unconvincing and potentially even damaging, particularly regarding biofuels and nuclear power". WWF had similar comments ("good news for the dirty energy industry, bad news for people and the planet"). *Source: www.euractiv.com.*

Climate change - California (Low carbon fuel standard, AB 32)

Governor Schwarzenegger established a Low Carbon Fuel Standard (LCFS) in California. This is the world's first standard of greenhouse gases (GHG) for transportation fuels. Transportation accounts for 40% of California's GHG emissions. By 2020, the standard will reduce the carbon intensity of California's passenger vehicle fuels by at least 10%. The LCFS requires fuel providers to ensure that the mix of fuels they sell into the Californian market meets a declining standard for GHG emissions per unit of fuel energy delivered. This is expected to replace 20% of gasoline with lower-carbon fuels, more than triple the state's renewable fuels market, and place more than 7 million alternative fuel or hybrid vehicles on roads (20 times more than today). (gov.ca.gov)

In 2006, Assembly Bill (AB 32) was signed in California. AB 32 requires development of regulations and market mechanisms to reduce California's GHG emissions to the level of 1990 by 2020, which means a reduction of about 25%. (www.arb.ca.gov). The AB 32 and the LCFS will use market-based mechanisms that allow providers to choose how they reduce emissions (e.g. using ethanol, low-carbon electricity to EVs, low-carbon hydrogen).

US Energy Policy Initiatives 2007

On January 23rd 2007, President Bush unveiled the 2007 State of the Union Policy Initiatives. Regarding energy, Bush pointed out the importance of diversification of America's energy supply by greater use of clean coal, solar, wind and nuclear power. In addition, emphasis was given to battery research for plug-in and hybrid vehicles, promotion of clean diesel vehicles and biodiesel plus developing new methods to produce ethanol.

A target was set for reducing gasoline consumption in the US by 20% during the next 10 years. The following actions were listed to reach this goal:

- Increasing the supply of renewable and alternative fuels by a mandatory requirement of 35 billion gallons (132 million metric tons) by 2017 –represent 15% of projected annual gasoline use in 2017.
- Revising the Corporate Average Fuel Economy (CAFE) Standards for cars and the Light Truck Rule. In 2017, this will reduce projected annual gasoline use by a further 5%.

Source: *The White House, January 23, 2007* (www.whitehouse.gov)

In 2006 President Bush launched the *Advanced Energy Initiative* (AEI), targeting to replace 75% of the oil imports from Middle East by the year 2025 by using more domestic sources of energy. As part of the AEI, the *Biofuels Initiative* sets the short-term goal to make cellulosic ethanol competitive by the year 2012, and a longer-term goal to replace 30% of 2004-level US energy needs with biofuels by 2030 ("30-by-30" goal). Source: *Ralph McGill, December 2006 and AMFI 2/2006*.

Energy Efficiency - European Action Plan

In October 2006, the European Commission launched the Action Plan on Energy Efficiency. In the past, many actions have been taken to promote energy savings: the Directive on buildings in 2002, the Directive on the combined generation of heat and electricity in 2004, the Directive on Eco-design in 2005 and the Directive on energy end-use efficiency and energy services in 2006. Also other measures, such as eco or energy labelling, exist. The Green Paper on Energy Efficiency (June 2006) stated that it is possible to reduce energy consumption 20% from its present level by 2020.

The objective of the new Action Plan on Energy Efficiency is to provide "the most energy-efficient buildings, appliances, processes, cars and energy systems" in the world. It proposes 75 actions in 10 priority areas to be implemented over a six-year period. Among other things the Action Plan calls for legislation to limit CO₂ emissions from cars to 120 g/km by 2012, fuel-efficiency labelling, improving energy efficiency in urban areas and international agreements to foster energy efficiency worldwide. The Action Plan states that the transport sector, accounting for nearly 20% of total energy consumption in Europe, has the highest potential for energy savings. For road transport, the Commission calls for an agreement on a harmonised CO₂ tax regime for vehicles. A new Green Paper on Energy Efficiency of Urban Transport will be processed in 2007. In parallel, a proposal to include aviation in the EU CO₂ trading scheme is expected. (www.euractiv.com) In 2007, the European Commission will propose amendments to the Car Fuel Efficiency Labelling Directive. (COM(2006)545, SEC(2006)1173).

Vehicle efficiency is also a focal point among IEA's tasks in support of the G8 Plan of Action on climate change, clean energy and sustainable development (*IEA OPEN Bulletin, 12 December 2006, www.iea.org*).

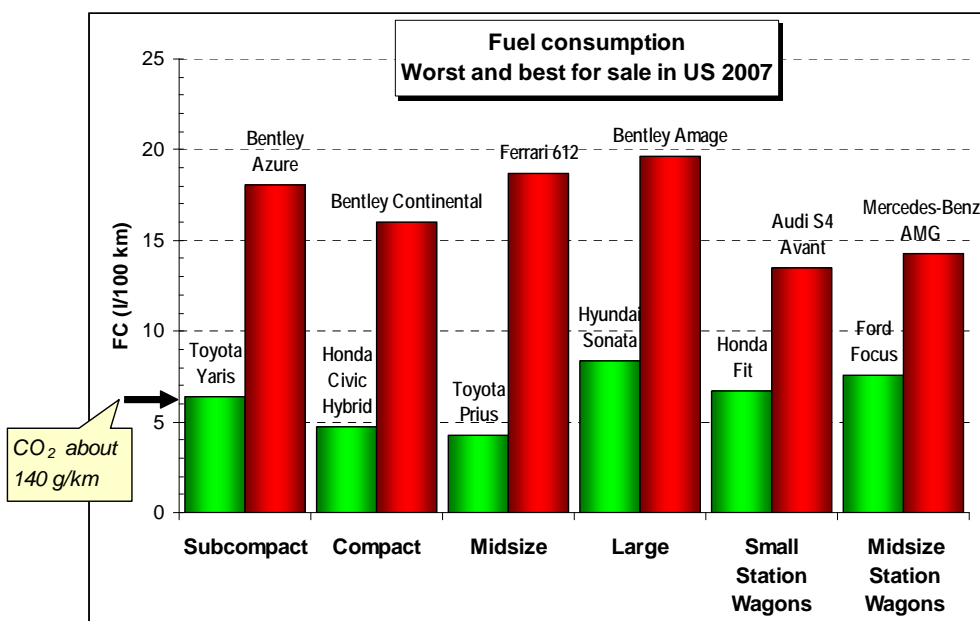
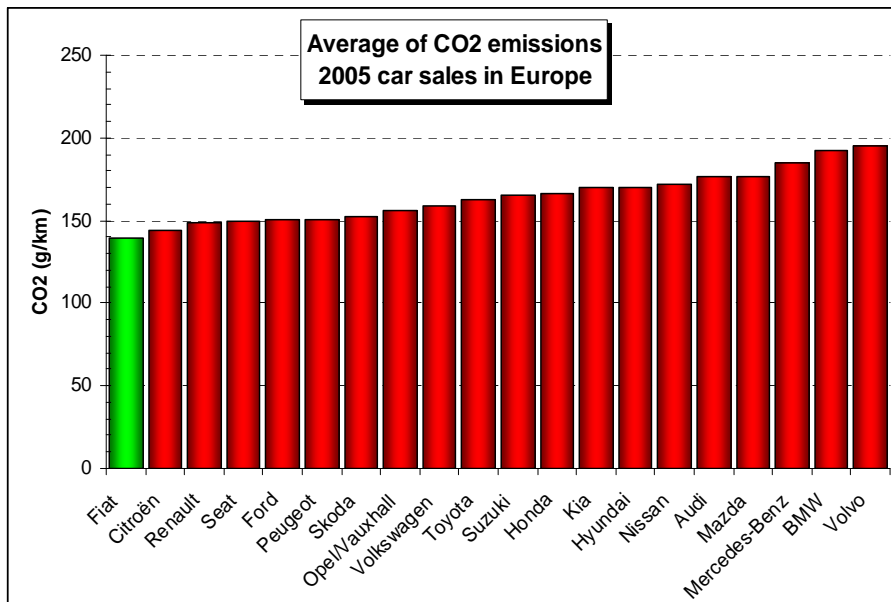
CO₂ and fuel consumption of new cars

In 1996, EU approved a strategy to cut CO₂ emissions of new cars sold in Europe. In 1998 ACEA (the European car manufacturers) committed to EU's target of 140 g CO₂/km by 2008. In 1998, JAMA (Japanese manufacturers) and KAMA (Korean manufacturers) made similar agreements for their EU sales by 2009. 140 g/km CO₂ corresponds to a fuel consumption of about 6.0 l petrol or 5.3 l diesel per 100 km.

A study by the European Federation for Transport & Environment (T&E) evaluated CO₂ emissions of the new cars sold in Europe. 75% of the 20 major car brands failed to improve fuel efficiency in a way needed to meet CO₂ target. When compared to 1997, Renault reduced its CO₂ emissions by twice as much as Volkswagen. Nissan, Suzuki, Mazda, Audi, Volvo, BMW and Volkswagen cut CO₂ emissions at less than half the rate needed to meet their commitment. Fiat already fulfils the 2008 CO₂ target of 140 g/km and Citroen is close to doing that. The study also showed that Toyota failed to improve efficiency despite its low-emission Prius hybrid.

T&E concludes that the best brands show that it is possible to meet the 140 g/km CO₂ target, but the industry as a whole does not seem to meet the target, and this is due to the lack of incentives. The EU does not have any legally binding rules for fuel economy, whereas the US, Japan and China have obligations. *T&E Publication October 2006, How clean is your car brand?* (www.transportenvironment.org)

US EPA has recently published the Fuel Economy Guide of 2007. Toyota Prius was evaluated to be the most efficient passenger car regarding fuel economy (<http://www.fueleconomy.gov/feg/bestworst.shtml>). Both the US and Japan are proposing new fuel economy regulations. Source: *DieselNet December 2006*.



Upper Figure is based on the T&E Publication, Oct. 2006 (<http://www.transportenvironment.org>)

Lower Figure is based on the US EPA's Fuel Economy Guide 2007. Fuel consumption (FC) as an average of City and Highway results (<http://www.fueleconomy.gov>).

EU's legislation on quality of transportation fuels

In January 2007 the European Commission proposed changes to the Directive on the quality of transportation fuels to combat climate change and air pollution. Increasing the use of biofuels is included in the proposal. The proposed standards will make the fuels 'cleaner' and also allow the introduction of clean vehicles and machinery. The new standards are expected to result in:

- A reduction of the EU's greenhouse gas emissions by 500 million tonnes of CO₂ by 2020
- An improvement in the quality of transport fuels and promotion of "2nd generation" biofuels
- Better public health through a reduction in noxious pollutants (lower sulphur content in diesel).

The proposal includes an obligation for fuel suppliers to reduce greenhouse gas emissions over the life-cycle of their fuels by 1% annually from 2011 onwards (on energy basis, compared to 2010 level). This will result in a 10% cut by 2020.

A separate "high biofuel petrol quality" will be established. This blend allows higher content of oxygenates, e.g. up to 10% ethanol. This petrol blend will be clearly marked. To compensate for an increase in evaporative emissions due to greater use of ethanol, the Commission will put forward a proposal for the mandatory introduction of vapour recovery equipment at filling stations later in 2007.

From January 2009, sulphur content of diesel fuel shall be maximum 10 ppm. This will cut primarily particulate matter emission, but also enables introduction of sophisticated emission-control devices.. In addition, the maximum content of poly aromatic hydrocarbons (PAHs), will be reduced by one-third. The permitted sulphur content of diesel fuel for use by non-road machinery and inland waterway barges will also be substantially cut.

Source: Press release IP/07/120, 31 January 2007 (europa.eu) Full details of the assessment of the benefits and the technical issues (forum.europa.eu.int).

Parameter	Old value	New value
Maximum permitted oxygen content in petrol	2.7% by mass	3.7% by mass in "high biofuel petrol"
Maximum ethanol content	5% by volume	10% by volume in "high biofuel petrol"
Other oxygenates	Varied between 3 and 15%	All increased by a comparable amount in "high biofuel petrol" except methanol.
Sulphur content of road transport diesel	Currently 50ppm. Provisionally 10ppm from 1/1/2009	10ppm from 31/12/2008.
Sulphur content of non-road machinery gas-oil	1000ppm from 2008	10ppm from 31/12/2009.
Sulphur content of inland waterway gas-oil	1000ppm from 2008	300ppm from 31/12/2009 10ppm from 31/12/2011
Poly Aromatic Hydrocarbon content of diesel	11% by mass	8% by mass

ppm = parts per million

GASEOUS FUELS (NG, LPG, biogas)

NGV and biogas on the European Agenda

The European Parliament's advice to the European Commission, the so-called "Morgan Report," highlights the future role of gaseous fuels, specifically natural gas and biomethane. The report recognises both liquid and gaseous biofuels as options for the transport sector. In Europe, the goal is to increase the share of natural gas in transport to 10% by 2020. Natural gas is also seen as "the only fuel alternative capable of replacing 5% of the transport sector petroleum by 2010." ENGVA welcomes the new report, especially because so far biogas has been seen only as a fuel to generate electricity. Now the Parliament recommended that a natural gas Directive should be established to balance existing Directives for biofuels and hydrogen. ENGVA reports that biomethane from agricultural and urban waste could replace 20% of the transport sector fuel consumption by 2030, based on the 2006 study by the Wuppertal Institute. Source: *NGV Global*, 15 December 2006.

Middle East reduces dependence on oil

The Middle East is the largest producer of crude oil. However, the Middle East has the same target as the rest of the world: to reduce dependency on fossil oil. Driving forces for the Middle East are related to air quality problems and maximizing the profits from crude oil. Many of the Middle East countries, e.g. Egypt, Iran and United Arab Emirates, favour the usage of natural gas as vehicle fuel. About one million natural gas vehicles are expected to run in the Middle East by 2010. Source: *NGV Global*, October 25, 2006.

Biomethane for buses in Austria

The Austrian city of Linz will soon have buses running on biomethane. This will apply to Linz AG's 86 bus fleet in 2007. CO₂ emissions are expected to be reduced by 50% and NO_x emissions by 70%. Source: *NGV Global*, 25 October 2006

ALCOHOLS, (BIO)GASOLINE

ISAF 2006

The 16th International Symposium on Alcohol Fuels (ISAF) was held on 26-29 November, 2006 in Rio De Janeiro, Brazil (www.isaf2006.org). The three themes of the Symposium were "International Trade and Investment", "Technology and Environment" and "Biofuels Programs and End-use". In addition to alcohols, other alternative fuels were discussed to some extent. Many interesting presentations were given regarding the production of ethanol and Flex Fuel Vehicle technology. In Brazil, sugar cane is cultivated mainly in the Sao Paulo area. The yield of sugar cane is at maximum 70-80 tons per hectare, and ethanol yield about 6,000 litres per hectare, with a fossil energy ratio of 8.3:1. In 2006, ethanol production was around 17 million m³, of which some 3 million m³ was exported. In Brazil, the goal is to increase ethanol production to 36 million m³ by 2014, which represents about 1.5% of all world transportation energy. For the time being, all gasoline in Brazil contains 22% ethanol. 80% of new cars sold in Brazil are FFV's (current population is 2.4 million). The incremental cost for a FFV is estimated to be below 200 USD. An FFV starts without problems at temperatures above +18 °C, and with slight engine modifications at +12 °C, but according to General Motors, significant modifications are needed for lowering the startability limit to ±0 °C.

Two presentations were given regarding IEA/AMF Annex 31 on Fischer-Tropsch fuels (Rehnlund and Larsen). Hydrogenated vegetable oil, H-Bio, was presented by Petrobras, as well as the production of cellulosic ethanol. Large-scale production of 2nd generation biofuels in is expected by 2010 and integrated biorefineries by 2020. Finnish hydrogenated biodiesel, NExBTL, was presented by Mr. Nylund. *Source: Nylund's report from ISAF 2006.*



E85 standard in Sweden

A standard (SIS 155480) for E85 fuel has been published in Sweden. There are ethanol standards in place already, by e.g. ASTM in the US. The SIS standard is based on the CEN Workshop Agreement on E85 fuel, with some modifications regarding climatic properties and sulphur content. The ASTM standard for E85 also defines climatic classes. Winter grade E85 shall contain a minimum of 70% alcohol. Adjusting the share of gasoline from 15% to 30% can make cold starts with E85 easier in winter time. Standardisation of fuel quality is beneficial for consumers and engine manufacturers regarding, e.g., warranty issues. The new standard for Sweden also enables emission certification of FFVs using E85. Previously certification was carried out using only gasoline. In Europe, Sweden has been a forerunner in using E85 fuel. *Sources: Nyhetsbrev från SIS, 8. August 2006 (www.sis.se); E85 Handbook (www.e85fuel.com)*

New European FFVs

In 2007, new FFVs for E85 fuel are expected from European car manufacturers. The models will be Renault Mégane, Peugeot 307, Citroën C3 or C5, Saab 9-3 and Volvo V70. *Source: Miljöbilens värld, January 2007.*

Research alliance for renewable transportation fuels

Chevron Technology Ventures LLC and NREL have announced an agreement to research and develop new production technologies for biofuels. The focus will be on next generation process technologies for converting cellulosic biomass into biofuels, such as ethanol and renewable diesel. Co-operation will include also other tasks e.g. related to bio-oil reforming. Chevron recently announced research initiatives with the University of California at Davis and the Georgia Institute of Technology focusing on cellulosic biofuels.

GreenBiz.com (www.greenbiz.com).

Statoil introduces Biodiesel 15

Statoil in Sweden has launched Biodiesel 15, which contains 5% of RME and 10% of alcohols produced from wheat or other biomass feedstock. This fuel fulfils the requirements of Swedish Environmental Class 1 diesel fuel (EC1). The fuel blend is a clear and stable solution. The cetane number and flash point of this fuel are high, cold properties good and no modifications are needed in the distribution system or conventional diesel vehicles. The particulate emissions are about 20% lower with Statoil Biodiesel 15 when compared to EC1 diesel fuel. *Source: Statoil brochure (www.klimat.statoil.se) Editorial comment: this resembles "Agridiesel 15" containing higher alcohols, introduced by Mr Kolubkov in ISAF 2005, see AMFI 4/2005.*

Note: A vivid debate is going on in Sweden criticizing the selection of ethanol as the primary alternative fuel and unfair promotion actions of certain environmental vehicles. (*Source: Svenska Dagbladets Debattsidor, copies from Mr Pilo*)

BIODIESEL ESTERS

Opposition against B10

The European standard EN590 for automotive diesel fuel is under revision to allow 10% of FAME and FAEE (currently 5%). Auto manufacturers and other organizations like DGMK (German Society for Petroleum and Coal Science and Technology), have announced concerns regarding this change. It is stated that the existing fleet in Europe does not tolerate B10. There are material related risks due to higher dissolving capacity of B10 than diesel fuel. In addition, there are risks with injector fouling, increased oil dilution, deposit formation and particle filter blocking. *Sources: "Kennzeichnung von B10-Dieselmotoren. Forderung der AI. VDA-AK BEST Position. Plus informal discussions in January 2007.*

Biodiesel standards and quality

ASTM D6751-06a, a standard for neat biodiesel esters, is revised with, e.g., addition of limits for calcium and magnesium. A separate standard for B20 biodiesel blend is being developed. (*DieselNet News, November 2006*). One of the quality issues

regarding biodiesel is the concern for emission control devices. Biodiesel may contain impurities, such as potassium, sodium, calcium or magnesium. These may cause problems, by e.g. clogging particle filters. This issue is studied in many research institutes, and problems have already emerged in real-life service (see also AMFI 1/2006).

In the US, about one third of the biodiesel samples between November 2005 and July 2006 were out of specification. Quality control of biodiesel and measures to handle this issue are under heavy discussion in the US. *DieselNet News*, November 2006.

Valtra's Common Rail engines tolerate B20

Valtra tractors (part of the AGCO group) equipped with SisuDiesel Common Rail engines can operate with 20% biodiesel, other engines up to 100% biodiesel. The engine manufacturer SisuDiesel is continuing tests with biodiesel to find out if even higher concentrations could be used. The biodiesel fuel must comply with EN 14214/ASTM D 6751 standards. When more than 5% biodiesel is used in SisuDiesel engines, the engine oil, oil filter and fuel filter must be changed twice as often as by the normal service interval. In addition, SisuDiesel recommends that a separate pre-filter should be fitted between the fuel tank and the engine. The water filter should be checked frequently and carefully. *Source: Press release, 6th November 2006. (press.valtra.com)*

SYNTHETIC DIESEL AND BIODIESEL

Hydrogenated biodiesel by ConocoPhillips

In December 2006 ConocoPhillips announced commercial production of biodiesel at the Whitegate Refinery in Cork, Ireland. The production process developed by ConocoPhillips uses mainly soybean oil, but can use also other vegetable oils or animal fats to produce biodiesel meeting diesel fuel standards. The refinery is producing 150,000 litres of biodiesel per day (about 55 000 ton/year) for the Irish market. The fuel is produced using existing equipment at the refinery and it is blended and transported with petroleum-based diesel, unlike bioesters. *ConocoPhillips, 19 December 2006 (www.conocophillips.com)*

2nd NExBTL plant in Finland

Neste Oil builds a second NExBTL biodiesel plant at the Porvoo refinery in Finland. The second plant will have the same capacity, 170,000 t/a, as the first one. The first one will start up in the summer of 2007, the second unit one year later. Neste Oil's synthetic NExBTL biodiesel will be the world's first 2nd generation biodiesel launched commercially. Neste Oil has signed two MOUs for joint NExBTL production, one with Total in France and one with OMV in Austria. *Source: Neste Oil Corporation, 30 November 2006 (www.nesteoil.com)*.

Hydrogenated biodiesel production is also built up by Petrobras in Brazil (AMFI 3/2006). During the ISAF 2006 conference, presentations were given on both H-BIO, by Petrobras, and on NExBTL, by Neste Oil. In the H-BIO process a mixture of gas oil and vegetable oil is hydrogenated, whereas feedstock in the NExBTL process is neat vegetable oil. The H-Bio process results in a mixture of diesel fuel and a biocomponent, the NExBTL process in a pure high quality biocomponent. NExBTL resembles Fischer-Tropsch diesel, and can be used both for low and high level blending. *Source: Nylund, ISAF 2006.*

OTHER FUELS AND VEHICLES

IEA R&D on heavy-duty hybrids and fuel cell vehicles

Two new projects started within the IEA Hybrid and Electric Vehicle Implementing Agreement (IEA HEV). Annex XII will investigate hybrid technologies for trucks, buses, dedicated heavy-duty vehicles, and off-road mobile machinery. It will also report on technology and market status/trends. Annex XIII will focus on mobile applications of fuel cells, including use as APUs and hybridisation of fuel cell vehicles using e.g. batteries or super-caps. New participants are welcome in both new projects. (www.ieahev.org). *IEA OPEN Bulletin, 12 December 2006 (www.iea.org)*.

Plug-in hybrid from General Motors

General Motors has announced a plug-in-hybrid version of the Saturn Vue. The vehicle will be able to run 60 km in pure electric mode. Market introduction of the Saturn Vue hybrid with a V6 gasoline engine will take place in 2007 without the plug-in function. *Source: Miljöbilens värld January 2007.*

Hydrogen discussion

Ulf Bossel of the European Fuel Cell Forum challenges what he calls 'the hydrogen illusion': "Hydrogen is clean only if it is made from renewable electricity". If a hydrogen-based economy becomes a reality, it means a massive increase in demand for electric power, mainly from coal or nuclear power plants. In addition, a substantial amount of energy is lost when the electricity is converted to hydrogen for storage in a fuel cell and converted back into electricity. According to Bossel "a synthetic energy carrier cannot be more efficient than the energy from which it is made. Renewable electricity is better distributed by electrons than by hydrogen." However, hydrogen promoters say that fuel-cell vehicles are more efficient than conventional engines. "Internal-combustion engines in today's automobiles convert less than 30% of the energy in gasoline into power that moves the vehicle," according to Shell Hydrogen. "Vehicles using electric motors powered by hydrogen fuel cells are much more energy efficient, utilising 40-60% of the fuel's energy," it points out. Shell estimates that Fuel Cell Vehicles can become competitive when annual production reaches one million globally. *Source: EurActiv.com, 26 October 2006 (www.wbcasd.org).*

MISCELLANEOUS

- **CARB verification of Finnkät pDPF:** Finnkatalyt Oy's partial Diesel Particulate Filter (pDPF) for Transport Refrigeration Units (TRUs) has received CARB (California Air Resources Board) verification. This device reduces emissions by over 50%, and is the first "Level 2 Plus" device that CARB has verified. The required tests were performed at the engine laboratory of VTT, the Technical Research Centre of Finland (the first test laboratory outside North America approved for CARB verification testing). January 22, 2007. (www.proventia.fi)
- **New NO₂ limit in California** for retrofit after-treatment devices as of January 2007. NO₂ emissions must not increase over 30% of the baseline NO_x level. *Source: DieseNet News, November 2006.*

IEA & IEA/AMF News

IEA/AMF 32nd ExCo Meeting in Beijing

The 32nd Executive Committee meeting of IEA/AMF was held in Beijing, China on October 17-20, 2006. All participants are most grateful to Mr. Yong WANG and Mr. Jinhua ZHANG, Vice President of CATARC (China Automotive Technology and Research Center), who organised the meeting. The programme, among other things, included a visit to the Beijing Hydrogen Park.

IEA business, and progress of advanced fuels in the US, Europe, Japan and China were presented. Mr Finckh from EUWP (Transport) presented the IEA Secretariat activities. Carrie Pottinger is the new Desk Officer for the AMF IA. The IEA Secretariat has distributed a Handbook "Guidance and Tools for IEA Implementing Agreements" (www.iea.org). IEA Networks of Expertise in Energy Technology (NEET) were presented. NEET is a part of the implementation of the Gleneagles' G8 Plan of Action. It is an IEA initiative to promote international energy technology networks.

The following remarks are given on the status of running Annexes:

- Annex XXVIII "Information Service & AMF Website "AMFI" (Operating Agent TEC, Finland): In 2006, three AMFI Newsletters were distributed and the website was frequently updated. A draft of the AMFI Outlook report (energy outlook, emissions, fuels, vehicle technology) was distributed to ExCo members for comments. This extensive, over 200-pages, version of the Outlook report will be "Restricted" to ExCo members. A summary report will be prepared for public domain. In 2007, four AMFI Newsletters will be prepared. Mr Rehnlund from Atrax



proposed work on fuel standardisation. The ExCo decided that this work will be carried out in 2007 within the Information Service. The outcome will be an "Outlook report" on standardisation.

- Annex XXIX "Evaluation of Duty Cycles for Heavy-Duty Urban Vehicles" (Operating Agent VTT, Finland): The three laboratories, VTT, WVU and Environment Canada are studying new diesel, CNG and hybrid buses with several test cycles for all test sites. A final "restricted" report is expected in March 2007.
- Annex XXXI "Production and Use of Synthetic Vehicle Fuels made by Fischer-Tropsch Technique" (Operating Agent Atrax, Sweden): A final "restricted" draft report was prepared in September 2006. The Annex will continue until 31st March 2007.
- Annex XXXIII "Particle Emissions of 2-S Scooters" (Operating Agent AFHB, Switzerland): Dr. Czerwinski representing the Operating Agent AFHB reported obtained results and conclusions. The Annex will continue until the end of 2007.
- Annex XXXII "Future Fuels for Road Transport" was formally started in 2004, but further consideration lead to closure of this Annex before starting the actual work.
- Annex XXXIV "Analysis of Biodiesel Options" (Operating Agent McGill, USA): A decision to start the Annex was taken. The study will review and analyse the situation with methyl esters as diesel substitutes and the conceptual biorefineries. The final "restricted" report of the work will be distributed by December 2007.

Minutes of the meeting, presentations and other material are available at www.iea-amf.vtt.fi.

IEA AMF/ IEA Bioenergy coordination

A meeting for information exchange and coordination between AMF and Bioenergy Implementing Agreements was arranged in Brussels on January 19th 2007. The host of the meeting was Dr. Kyriakos Maniatis, Chairman of IEA Bioenergy. Both Implementing Agreements presented their activities. In the discussions, the need for closer cooperation in the future was emphasised. Biofuels for transport is such a hot topic currently. A slight overlap in activities is considered less harmful than clear gaps in the chain feedstock – processing – distribution –end-use. Joint meetings could be arranged on a regular basis. Members of one ExCo could be invited as Observers or Experts to the other ExCo. The presentations and a memo of the meeting will be available later on.

Liaison with JARI China Round Table 2006

The 4th JARI China Roundtable was held in Beijing on October 20th, 2006, in parallel with the AMF ExCo meeting. Included on the agenda of the Roundtable was the topic of "Automobile and Biofuel". The JARI China Roundtable took place in the same location as the IEA/AMF ExCo meeting. Mr Takada from LEVO presented IEA/AMF Activities in the JARI China Round Table.

In China, strong economic growth has many consequences, such as the growth of the automobile industry leading to increasing environment and energy problems. The Japan Automobile Research Institute (JARI) with co-organizer CATARC organised a meeting to discuss energy and environment related problems. The diversification of transport fuels is important in the 11th 5 year plan in China. The JARI China Roundtable presentations are downloadable at www.jari.or.jp. Presentations from Round Table 2005 are available in English at www.jari.or.jp/en/rt2005_en.

PUBLICATIONS

- **The World Energy Outlook 2006 by the IEA.** IEA WEO 2006 with extensive statistics, projections, analysis and advice was published in November 2006 (© OEDC/IEA 2006, www.iea.org)
- **IEA Secretariat report.** Issue 2006/2. (www.iea.org) Note: Statistics incl. interactive maps and graphs (<http://www.iea.org/Textbase/stats/index.asp>). In addition, IEA "Key World Energy Statistics" book freely downloadable (http://www.iea.org/Textbase/publications/free_all.asp)
- **Biomass Energy Data Book**, Wright et al. ORNL, USA. September 2006. (www.eere.energy.gov)
- **T&E Publication: How clean is your car brand?** October 2006 (www.transportenvironment.org)
- **World Wide Fuel Charter 2006.** To mention, limit for FAME biodiesel in Category 4 is still "non-detectable" and max. 5% in other categories. (www.enginemanufacturers.org)
- **Well-to-Wheels study** by EUCAR, CONCAWE, JRC – 2006 update & "Availability and Cost of Biomass for Road Fuels in EU" Proceedings of the Experts Workshop available at (ies.jrc.cec.eu.int)

- **2. International BTL Congress**, Berlin, October 2006, (incl. production, OEM view, policy). Presentations downloadable (www.fnr.de) e.g. Herrmann, DaimlerChrysler.
- **Fuels of the future**, Conference in Berlin, November 2006, Presentations downloadable (www.bioenergie.de)
- **Potential of biofuels**. In Germany, GTZ coordinated the project on the global potential of biofuels. The main results were presented and discussed in the Berlin conference (www.gtz.de).
- **EC reports** downloadable at BioMatNet website www.biomatnet.org. EPOBIO Flagship Reports published in November 2006, development of the new Biofuels Technology Platform and links to the presentations given at the Biorefineries Conference held in Helsinki, Finland in October 2006. (www.epobio.net)

IEA/AMF Delegates

Canada Natural Resources Canada <i>Mr. A. Beregszaszy</i>	France ADEME, Valbonne <i>Mr. P. Coroller</i>	Japan LEVO, Tokyo <i>Mr. K. Tanigawa</i>	Switzerland University of Applied Sciences <i>Mr. J. Czerwinski</i>
Denmark Technical University of Denmark (DTU) <i>Mr. J. Schramm</i>	Italy Agip Petroli Centro Ricerche EURON <i>Mr. F. Giavazzi</i>	Spain IDAE, Madrid <i>Mr. J. L. Plá de la Rosa</i>	United Kingdom Department for Transport <i>Mr. C. Parkin</i>
Finland TEC TransEnergy Consulting <i>Mr. N.-O. Nylund</i>	Japan NEDO, Kanagawa <i>Mr. S. Tokishita</i>	Sweden STEM, Eskilstuna <i>Ms. A. Kempe</i>	USA DOE, Washington, DC <i>Mr. S. Goguen</i>

Editor: TEC TransEnergy Consulting Ltd., Tekniikantie 14, FIN-02150 Espoo. info@teconsulting.fi, www.teconsulting.fi - Ms. P Aakko