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Newsletter on automotive fuels for the members of the
Implementing Agreement on Advanced Motor Fuels of the
IEA (IEA AMF)

Colophon

Fuels Update is released under the authority of the Implementing Agreement of the Advanced Motor Fuels Agreement of the International Energy Agency. Fuels Update, issued by IEA AMF/AFIS, gives short summaries on recently published articles, reports and books in the field of (advanced) motor fuels, without giving any rating to the information presented.

For your comments, suggestions or when you have news items that you wish to get known among the IEA AMF members and a wide variety of organisations working in the field of automotive fuels please contact:

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Here you can also apply for a PDF copy of this newsletter by e-mail.

This newsletter is distributed by the delegates of the participating countries of IEA AMF, who are listed on page 4.

Africa: unleaded into the New Year

More and more African countries are adding the environment to their list of New Years resolutions: they are developing and implementing action plans for switching to unleaded gasoline, according to the United Nations Environment Program (UNEP). The move to remove lead from petrol in Africa has accelerated after the issue was given backing at the World Summit on Sustainable Development with the launch of the Partnership for Clean Fuels and Vehicles. Removing lead from gasoline is one of the key goals of the partnership, an alliance between the fuels and vehicles industry, African and international non-governmental organizations, the United Nations including UNEP, other international organizations and governments.

Ethiopia, Ghana and Mauritania recently joined the continent-wide effort. They have all set the date of January 2004 for removing lead from their road vehicle fuels. Many southern African countries are expected to develop similar national strategies following a workshop held in Cape Town, South Africa. The countries of central Africa are expected to join in the effort soon as a result of a workshop planned for early 2004.

The wider goals of the partnership are to improve air quality generally across the developing world by encouraging the deployment of cleaner fuels, such as unleaded and low sulphur petrol and diesel, and improved technologies such as catalytic converters. On November 20, 2003, Shell Uganda already introduced unleaded petrol.

Europe and Canada

Also in other parts of the world authorities are working on legislation for cleaner fuels. Starting January 1, 2009, only unleaded gasoline and low sulphur gasoline and diesel are allowed within the countries of the EC. Starting January 2005, use of these cleaner fuels will be encouraged by tax measures.

In Canada, Shell will spend approximately \$ 186.6 mm this year on distillate hydrotreater projects at two of its refineries to produce ultra-low sulphur diesel (ULSD). The Canadian government is requiring refiners to produce 15-ppm sulphur ULSD by 1 June, 2006, from today's current 500-ppm sulphur standard.

www.unep.org/pcfo/Events/LaunchPhaseII.htm; www.monitor.co.ug Nov. 24, 2003; www.energiemanagement.net Dec. 24, 2003; *Global Refining & Fuels Report* Nov. 26, 2003.

DIESEL

Diesel additive

Oxonica, an Oxford-based spin-off company from the University of

of greenhouse gas emissions in the Netherlands are determined. According to the study, fatty residues, both from animal or vegetable origin, are a relatively cheap feedstock that can offer a considerable short term potential for the production of bio-transportation fuels. 210,000 tons of animal fat residues are estimated to be available for bio-transportation fuels in the Netherlands; this equals about 3% of the current diesel production for transport in the Netherlands.

A PDF copy can be downloaded from: www.ecn.nl/biomassa/publicaties.nl.html

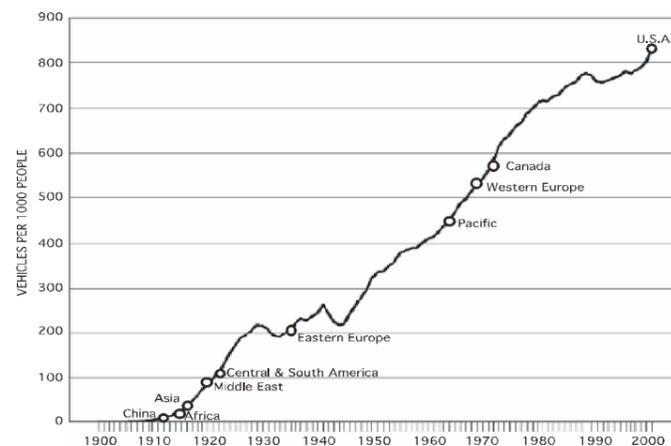
World Energy

The 52nd edition of the BP Statistical Review of World Energy can be obtained from the BP website. BP has published this review annually since 1951. The Review has been updated with 2002 data.

www.bp.com/subsection.do?categoryId=95&contentId=2006480

Vehicles per 1,000 people

The US department of Energy published a graph showing the trend of vehicles per 1,000 people for the USA from 1900 to 2001. The graph also shows the number of vehicles per 1,000 people for other countries or regions around the world, in the year 2001 only.



www.eere.energy.gov/vehiclesandfuels/facts/2003/fcvt_fotw285.shtml

NEWS FROM THE IEA/AMF

Biofuels in de Dutch market

The GAVE publication, *Biofuels in the Dutch market: a fact finding study*, with a contribution of IEA AMF/AFIS, sketches the possibilities for the Netherlands to meet EC directives regarding the replacement of fossil fuels by biofuels. From the study can be concluded that there is enough potential to meet the 2005 directives (2%), but meeting the 2010 directives (5,75%) will be a problem. The report also gives an overview of the experiences in Germany and France (biodiesel) and Spain, France and Sweden (bioethanol).

www.gave.novem.nl/novem_new/index.asp?id=25&detail=75

AMF Website updated

The IEA/AMF website has been updated and a Member area for AMF participants has been added. The address is: www.iea-amf.vtt.fi. The passwords to access the Member area can be obtained from Mr. Claes Pilo, pilo.sdab@swipnet.se.

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Oxford says it has developed an additive that makes diesel burn more efficiently, thus realising fuel savings of 10%. The diesel additive, called Envirox, consists of tiny particles of cerium oxide, which catalyse the combustion reactions between diesel and air.

Hong Kong

According to Oxonica, the additives was successfully tested during 12 million kilometres of trials on buses in Hong Kong. And now the UK bus operator Stagecoach, based in Perth, Scotland, is putting it to the test in 1000 diesel-fuelled vehicles.

www.newscientist.com;
www.oxonica.com

EPA assists in Mexican diesel retrofit project

The U.S. EPA will be assisting the government of Mexico in implementing a diesel retrofit demonstration project designed to reduce pollution from a heavy-duty diesel bus fleet in Mexico City. This retrofit project will include the use of EPA verified or certified pollution reduction retrofit technology and ultra low sulfur diesel fuel. The project will investigate the costs and in-use effectiveness of diesel particulate filters, diesel oxidation catalysts, and ultra low sulfur diesel fuel under Mexican operating conditions.

www.epa.gov/otaq/retrofit/latestnews.htm

MISCELLANEOUS

Shell finds less new oil than it produces

The news of Jan. 9, 2004, that Shell will recategorise 20% of its proved oil reserves to the unproven reserves, gives

new fuel to the discussion of the expected end of the oil era. The recategorisation represents 3.9 billion barrels of oil equivalent, two thirds relating to crude oil and natural gas liquids and one third to natural gas. The oil and gas are there, according to the oil company, but recovering is harder than expected. Given these new figures, the reserve replacement ratio for 2003 is expected to be about 70-90%.

Shell press release 9 Jan. 2004; de Volkskrant 10 Jan. 2004; NRC/Handelsblad 9 & 10 Jan. 2004.

Volkswagen & Shell present new fuels

In Brussels, November 4, 2003, Volkswagen and Shell presented a joint program for the development of new engine and fuel technologies. They have invested in synthetic fuels and presented reports on initial successes and perspectives. According to the chairman of the Volkswagen (VW) board of management, Dr. Bernd Pischetsrieder, the crossover from oil to alternative energy sources is a challenging path which begins today and has a perspective of thirty years. The path will lead from crude oil and derivatives to natural gas, from natural gas via biomass to the production of hydrogen from renewable resources. Gas to Liquid (GTL) is an important step ahead.

Bridge

Shell and VW believe that synthetic, liquid fuels form the ideal transition from hydrocarbon to hydrogen. GTL offers diversity of energy supply and provides a bridge to future transportation fuels and technologies. The next step in synthetic fuels development will be to

improve the CO₂ balance. VW and Shell are studying new processes to make synthetic transportation fuels from biomass sources. One promising route is the gasification of biomass to feed into the GTL production process. This so-called SunFuel offers the prospect of CO₂ neutral mobility in addition to the proven advantages of GTL.

5 months test

25 VW Golfs have been tested running on GTL for 5 months in Berlin. Hydrocarbon emissions were reduced with 63% and CO emissions were reduced with 91% compared to diesel fuelled cars. Also the CO₂ and NO_x emissions were 4% and 6% lower respectively. Compared to low sulphur diesel, GTL fuelled cars produced 26% less particles. The 25 cars together drove over 220.000 km without technical problems.

EU scenarios

During the presentation in Brussels, Ms Loyola de Palacio, Vice-President of the European Commission, EU Commissioner for Transport and Energy, presented the EU scenarios for alternative transport fuels: "Europe needs to introduce alternative transport fuel. Our Communication of November 2001, building on the Green Paper, gave substance to the suggestion of a 20% substitution by alternative fuels by 2020. We outlined a scenario for how this target could be met, in particular through increased use of 3 alternative fuels: biofuels, natural gas and hydrogen."

Harmonised target

The EU member states adopted two measures to increase the use of biofuels. The first one is a harmon-

ised target for the share of biofuels in each country of 2% by 2005 and 5.75% by 2010. The members agreed to use these figures as a starting point for their own targets and, for the first time, from July 2004 onwards, every EU country will have a target for the share of biofuels in the national fuel mix. The second measure will allow member states to introduce lower rates of fuel taxation for biofuels.

www.shell.com/press release Nov. 4, 2003; www.volkswagen.nl; www.avd.de; europa.eu.int/comm/energy_transport/mm_dg/newsletter/nl070-2003-11-07_en.html; http://europa.eu.int/comm/energy_transport/mm_dg/newsletter/nl070-2003-11-07_en.html

BIODIESEL

Latin America is turning clean and green

Latin America is looking for greener and cleaner fuels. Brazil accelerating its search to turn ordinary foods like sugar and soybeans into fuel for a growing economy. Argentina and Mexico are trying to put more drivers behind the wheel of cars fuelled by natural gas. Brazilian motorist will soon have to decide whether they will be fuelling up with gasoline, diesel, natural gas or ethanol from sugar cane, but biodiesel as well. The Brazilian government planned to spend US\$ 2.6 mm in 2003 on biodiesel fuel research in a program that began in 2002.

Biodiesel fuel is a mixture of mostly vegetable oil and a reagent, typically methanol, to get the vegetable matter to burn. A new biodiesel developed by researchers at the University of Sao Paulo (USP) in Ribeirao Preto now uses ethanol as the reagent, making it 100% renewable,

as well as non-toxic and biodegradable.

Substitute

Researchers believe they could soon put their biodiesel on the market. The idea is to substitute at first a 5% biodiesel mix (95% diesel and 5% vegetable oil) to immediately reduce greenhouse gas emissions and dependence on foreign oil. Brazil imports 15% of its refined diesel, so reducing diesel consumption by using the 5% mix would cut refined diesel imports by a third.

In a pilot program in Rio de Janeiro, 6 city garbage trucks are running on a mix of soy oil and used vegetable oil. The biggest potential market, however, is truckers and long-distance bus companies. They consume more than 90% of the diesel fuel sold in Brazil and 42% of petroleum fuel. Federal ministries are working out new regulations that would include incentives to spur consumption of biodiesel.

Rapeseed

In Europe, more and more biodiesel fuel is produced annually, mostly made from rapeseed (canola) oil. Production of biodiesel is mainly concentrated in Germany, France and Italy. The total European biodiesel production of last year is estimated for 2,048 metric tons, this was an estimated 1,065 metric tons in 2002. In the USA, the armed services and government agencies are big biodiesel customers, thanks largely to the Energy Policy Act of 1992, which mandates using alternative fuels in certain vehicle fleets. U.S. sales of biodiesel have grown from 2 million gallons in 2000 to 15 million gallons in 2002. U.S.-made biodiesel, generally from soy, is sold in 18 states.

www.miami.com/mld/miamiherald/6977709.htm; EU: Biodiesel industry Expanding Use of Oilseeds', available on: www.fas.usda.gov

NATURAL GAS

Mexico

In Mexico, the battle for cleaner, cheaper fuel is being fought on the pollution-choked city streets. The government signed an agreement with IMPCO, a California company that produces alternative and environment friendly fuels. The plan is to launch a propane-based fuel almost 50% cheaper than gasoline, targeted at the 120,000 public transportation vehicles.

The government will encourage the use of this fuel by cutting federal taxes on both propane fuel and on the vehicles. Mexico already has a few stations that provide alternative fuels but, with the implementation of this program, propane gas stations will be built all over the city.

www.findarticles.com/cf_dls/m0B EK/9_11/109178273/p1/article.jhtml, Oct. 10, 2003

PUBLICATIONS

Biofuels

The study *Conventional Bio-Transportation Fuels, an update* gives an update of the knowledge on the conventional bio-transportation fuels (bio-ethanol from sugars and starch and bio-diesel from vegetable oils) with regard to costs and environmental performance, feedstock and conversion processes. Current commercial activities in different countries are summarised and the prospects for reduction