

priorities and strategies. This resulted in the reported *The Hydrogen Economy: opportunities, cost, barriers, and R&D needs*, completed in February 2004.

Complete report is available from: www.nap.edu/books/0309091632/html/

From here to there

A better way to get from here to there – A commentary on the hydrogen economy and a proposal for an alternative strategy was published by the Institute for Local Self-Reliance in December 2003. According to the author, David Morris: „(...) a fierce spotlight on hydrogen is pushing more promising strategies into the shadows. The hydrogen economy is offered as an all-purpose idea, a universal solution. However, in the short and medium term a crash program to build a hydrogen infrastructure can have unwanted and even damaging consequences. This is especially true for the transportation sector, the transformation of which is the primary focus of hydrogen advocates and the highest priority of federal efforts.”

The report can be downloaded from <http://www.ilsr.org/pubs/pubsrecent.html>

Competitive bio-methanol

In a recently finished EU project called *Black Liquor Gasification with Motor Fuels production*, Nykomb Synergetics, Volvo Bus Corporation, OK-Q8, Methanex, Chemrec, STFI and Ecotrafic have investigated the possibilities to produce green transport fuels from biomass via gasification of ‘black liquor’, a by-product in the pulp and paper industry. Due to the high process efficiency, a modern Swedish pulp & paper mill could produce bio-methanol at a cost which could compete with gasoline, concluded the study. This means that the cost of green transport fuels at the pump would be competitive with gasoline, including distribution cost and Swedish CO₂ tax, but excluding other taxes. The estimated total production potential in Sweden could replace almost 30% of all consumed transport fuel. The combined effect would be a lowering of Swedish CO₂ emissions by 12%.

<http://www.stfi.se/documents/research/coopnet/blgmf.htm>. A pdf of the full report or a summary are available from: <http://www.nykomb.se/>

MISCELLANEOUS

Clean vehicles

Practical information, new developments and experiences regarding clean vehicles can be found at the site of the DEMO programme sponsored by NOVEM: www.platformschonevoertuigen.nl. Site in Dutch only.

The very last Fuels Update

This Fuels Update will be the last IEA/AMF newsletter we compiled for you. During the last AMF ExCo meeting in Linköping, January 2004, it was decided not to continue this quarterly newsletter. It has been a pleasure keeping you up-to-date of the latest trends and developments of the advanced motor fuels all these years. You can find some interesting links with useful sources of information on advanced automotive fuels on our website: www.innas.com/fuel_links.html

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

REDUCING GREENHOUSE GAS EMISSIONS: A CONTINUING BATTLE

European Union: GHG emissions slightly decreasing

According to a progress report on the emissions of CO₂ and other greenhouse gases (GHG) published in December 2003 by the European Commission (EC), the European Union will miss its emission targets set up by the Kyoto Protocol. It is expected that the emissions in 2010 will have decreased by only 0.5%, instead of the 8% target.

The decreasing emission trend, which was observed after 1990, has been reversed in 2000 and 2001. Based on member states projections, the report concludes that 13 out of 15 ‘old’ member states- all with the exception of United Kingdom and Sweden- and the EU as a whole will miss their emission targets.

The EC report indicates that one of the main reasons for missing the targets is a runaway increase in emissions from road transport, with a share of 20% of the overall emission and an increase of 20% since 1990, where other sectors show only a light increase or an emission decrease.

However, there is hope for progress. The more recent 4th *Annual Report on CO₂ Emissions from New Cars* (reporting year 2002) by the European Automobile Manufacturers Association (ACEA) shows that CO₂ emissions from new European passenger cars decreased by 10.8% between 1995 and 2002. European, Japanese and Korean manufacturers have also reduced CO₂ emissions from their fleets in 2002, relative to 2001.

Written warnings

Another matter is the sulphur content of transport fuels. According to a press release dated April 5, 2004, the EC has sent France, Belgium, Netherlands, Germany, Austria, Italy, Portugal and Sweden a second written warning for failing to comply with an EU law aimed at promoting the use of low sulphur petrol and diesel fuels. This law seeks to reduce the amount of sulphur in fuels to 10 mg/kg, thereby contributing to reducing emissions from motor vehicles. National laws should have been in place 30 June 2003. None of the member states in question has met this deadline.

The Commission has also sent first written warnings to the UK, Luxemburg and Belgium. Reports submitted by these 3 member states show that they are failing to meet requirements aimed at curbing the use and emission of ozone-depleting chemicals.

www.acea.be/ACEA/press_releases.html; www.dieselnet.com;
<http://org.eea.eu.int/documents/newsreleases/ghg-en>; http://europa.eu.int/comm/secretariat_general/sgb/droit_com/index_en.htm#infractions

USA: researchers suggest ‘dieselisation’ of US cars

Dieselisation of the US car fleet would bring undisputed environmental benefit only if the NO_x emissions from diesel engines be reduced to levels from modern gasoline engines, concluded a new

theoretical study published in the January 30 issue of Geophysical Research Letters by a group of researchers of Stanford University. They suggest that replacing gasoline cars with modern diesels would result in increased ozone levels in most areas in the USA.

Computer model

Compared to gasoline vehicles, diesel cars emit higher levels of nitrogen oxides (NO_x) but less hydrocarbons (HC), both gases being important precursors of ground level ozone. The study, carried out using a computer pollution / weather / climate model yielded results indicating that replacing gasoline cars with diesels would increase ozone levels in 75% of the US territory, while decreased ozone would be seen over the remaining 25% of the USA. It was assumed in the study that diesel cars were equipped with particulate filters.

www.dieselnet.com

GHG data tool

A new information and analyses tool on global climate change was developed by the World Resources Institute. The Climate Analysis Indicators Tool (CAIT) provides a comprehensive and comparable database of greenhouse gas emissions data (including all major sources and sinks) and other climate-relevant indicators. CAIT can be used to analyze a wide range of climate-related data questions and to help support future policy decisions. Included are emissions of CO₂ as well as non-CO₂ gases, such as methane (CH₄) and nitrous oxide (N₂O). CAIT can be downloaded free of charge from: <http://cait.wri.org>

BIODIESEL

Cooking Oil Recycling

In Scotland, construction has begun on a £15 million (US\$27 million) biodiesel plant, which will provide a new outlet for millions of liters of waste oils and fats. When it opens in Spring 2005, the plant will take in used cooking oils from the catering industry and will also be able to convert animal fats. The plant is expected to produce 50 million litres (13 million gallons) of biodiesel a year, which would represent about 5% of Scotland's diesel needs.

www.onyxgroup.co.uk/pages/newsIndustryDirect.asp?articleId=1123

Biodiesel Research Agreement

Automaker Volkswagen AG one of the world's largest producers of passenger cars and Archer Daniels Midland Company one of the world's largest processors of soybeans, corn, wheat and cocoa, and a major producer of ethanol, announced a joint research agreement aimed at further developing and utilizing biodiesel fuels for the automotive industry.

Volkswagen Hybrid

Earlier this year, VW executive Bernd Pischetsrieder caused a stir announcing that in his opinion hybrid cars are not contributing to a cleaner environment. He called hybrid cars an 'ecological disaster', considering the extra energy necessary producing these cars and the extra large batteries which have to be treated as special waste. Production of hybrid cars is expensive and energy reduction can only be realised during city traffic. However, Volkswagen is developing a car with a

hybrid drive anyway.

Het Financieele Dagblad, Jan. 22, 2004; www.thesoydailyclub.com/BiodieselBiobased/news.asp; www.vistaverde.de; www.iags.org

Indian Mercedes-Benz to run on biodiesel

DaimlerChrysler announced the launch of the test phase of its biodiesel project in India. This involves running their Mercedes-Benz C-Class car on biodiesel for over 5,000 km. The automaker initiated the biodiesel project in August 2003, in partnership with the Council for Scientific and Industrial Research (CSIR), India and Hohenheim University, Germany.

The fuel, prepared from extracts of the Jatropha plant, has already been approved through laboratory testing. The viability of the fuel as a suitable alternative to conventional fuels will now be demonstrated, especially in the Indian context. Through this trial-run, further tests for emission properties, power, and drive systems compatibility will also be conducted. The road test can offer valuable findings with respect to the characteristics of biodiesel under demanding terrains and weather conditions.

<http://timesofindia.indiatimes.com>, 5 April 2004.

Biodiesel rocks

Musician Neil Young and his Crazy Horse band used B20 (a mix of 20% biodiesel and 80% diesel) to fuel his trucks and buses during his tour in February and March 2004, bringing him from Vancouver, Canada, all the way to the East Coast of the USA.

National Biodiesel Board, Feb. 20, 2004

BIOMASS

Jathropa diesel oil

Scientists of Life Science Institute of Sichuan University (southwest China) said they have developed an environment-friendly fuel oil similar to diesel oil based on the dried fruits of Jatropha Curcas, whose oil-bearing rate stands at about 60%. Experiments show that the fuel can be used in various types of existing diesel engines.

The emission of the oil is up to the Euro II standards and should be able to reach Euro III standards in two years. The institute anticipates production capacity will reach 20,000 tons next year.

China has been looking for new energy resources as alternatives to fossil oil and coal, while increasing oil imports to fuel its rapid economic growth. The country's oil consumption totalled 252.31 million tons in 2003, up 10.15% from 2002; and its oil imports jumped 31.29% to over 91 million tons. It is predicted that China's oil demand may surge to 300 million tons by 2010.

Ethanol

In an effort to curb consumption of gasoline and reduce automobile exhaust gas emission, the Chinese government also decided to expand its trial use of fuel ethanol in nine provincial areas.

China first began trial use of fuel ethanol (produced from grain) on June 30, 2002 in three cities in central China and northeast China.

The use of ethanol is a strategic move by the central government to promote sustainable economic and social development and environmental protection.

www.gasandoil.com; *People's Daily Online*

NATURAL GAS

Iran switches to CNG

Iran is planning to switch its 1.5 million vehicles to Compressed Natural Gas (CNG) and has sought Pakistan's help in this regard. Both Pakistan and Iran have signed a Memorandum of Understanding recently.

They have agreed to set up a six-member committee with three members each from Iran and Pakistan to work for the transfer of knowledge, technology and information on CNG developments in the two countries. They have also agreed to cooperate in the development of Compressed Natural Gas (CNG) as vehicular fuel. Besides planning to convert 1.5 million vehicles, Iran has also planned establish over 500 CNG stations in the next 7 to 8 years. There are 400,000 vehicles currently running on CNG in Pakistan, while 430 CNG stations are already in operation and another 200 are in the process of being set up.

www.gasandoil.com: *The News International, Pakistan*

PUBLICATIONS

Environmental impact of modern cars

A summary of the report *Evaluation of the environmental impact of modern passenger cars on petrol, diesel, automotive LPG and CNG* can be downloaded from the site of TNO Automotive, Netherlands. The report concerns an investigation into the environmental performance of modern passenger cars of petrol, diesel, automotive LPG and CNG with the objective to make a valid and useful comparison between modern vehicles fuelled by

these 4 fuels, as a possible basis for governmental, policy making and also to establish characteristic up-to-date emission factors.

TNO report 03.OR.VM.055.1/PHE. Summary also to be downloaded from: www.ngv-holland.nl/Links/roa/roa_0000.htm; or contact webmaster@ngv-holland.nl.

The Diesel Dilemma

Should Americans invest in diesel or gasoline cars and light trucks to reduce oil usage, global warming pollution and toxic air contaminants, while saving money at the pump? In the report *The Diesel Dilemma* Patricia Monahan and David Friedman of the Union of Concerned Scientists explored this question by comparing the cost, fuel economy, and emissions performance of conventional, advanced and hybrid-electric diesel and gasoline cars.

Among the main findings are that diesel is becoming much cleaner, but future diesel vehicles may not be as clean as today's best gasoline cars.

The report can be downloaded from www.ucusa.org/publications or may be obtained from: UCS Publications, Cambridge, MA, U.S.A.; phone +1(617)547-5552

The Hydrogen Economy

The National Research Council (NRC) examined the technical and policy issues about the hydrogen economy, on initiative of the US Department of Energy (DOE). NRC was asked to look at, among other things, the current state of technology, future cost estimates, CO₂ emissions, problems about hydrogen distribution, storage, and end use, and the DOE hydrogen R&D program. The NRC was also asked to make recommendations on R&D directions,