

AMFI Newsletter



Although most vehicles in the European market are suitable to use E10, market introduction failed in Germany. ([Market Introduction of E10 in Germany](#))

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

The AMFI releases four electronic newsletters each year. A group of authors prepares contributions to this newsletter:

- *Ralph MCGILL, FEEC*
- *Werner TOBER and Robert ROSENITSCH, TU Vienna*
- *Manfred WÖRGETTER, BIOENERGY 2020+*
- *Mitsuharu OGUMA, Taku TSUJIMURA, and Shinichi GOTO, AIST*
- *Nuwong CHOLLACOOP, MTEC*

Special thanks go to ERIA's Working Group on "Benchmarking of Biofuels in EAS Countries" for their news from Asia.

The AMFI Newsletter is available online at:
www.iea-amf.vtt.fi

CONTENTS

GENERAL INTEREST	3
GASEOUS FUELS	6
ALCOHOLS AND (BIO)GASOLINE	7
BIODIESEL ESTERS	9
SYNTHETIC AND RENEWABLE DIESEL	9
OTHER FUELS AND VEHICLES	10
MISCELLANEOUS	13
IEA & IEA/AMF News	14
PUBLICATIONS	16

DETAILED CONTENTS

GENERAL INTEREST

Revision of the basic energy plan
Thailand Considering Auto Excise Tax Restructuring by CO₂ Emission
U.S. Energy Budget Holds Major Cuts
U.S. EPA Finalizes 2011 Renewable Fuel Standards
Alternative fuels could replace fossil fuels in Europe by 2050
Renewable energy production must grow fast to reach the 2020 target
Commission re-launches CARS 21 high level group
Europe 2020 initiative - Energy 2020

GASEOUS FUELS

LPG Vehicle - Its Advantage to Disaster -
Natural Gas Use in the Canadian Transportation Sector
Deployment Roadmap
Swedish Marine Cluster and KOGAS Seek LNG Ship Refuelling Solution

ALCOHOLS AND (BIO)GASOLINE

Thailand to Test First Ethanol Bus in Southeast Asia
Suitability and potential of alternative fuels for the use in spark ignition engines
Market Introduction of E10 in Germany
List of petrol vehicles compatible with E10 petrol
E15 Fuel for Model Years 2001 - 2006 Cars

BIODIESEL ESTERS

Obama Signs Bill Extending Biodiesel Tax Incentive Into Law

SYNTHETIC AND RENEWABLE DIESEL

Biofuels in Flight Operations:

Neste Oil starts up its new renewable diesel plant in Singapore

OTHER FUELS AND VEHICLES

European Commission approves Swedish €55 million aid for «Domsjö» R&D project
U.S. Energy Department Announces New Advance in Biofuel Technology
New „Clean Vehicle Portal“ of the European Commission
Commercial vehicles and CO₂
Standards for Next Generation of Clean Cars
U.S. DOE Makes \$184 Million Available for Advanced Vehicle Research

MISCELLANEOUS

Indirect Land Use Change (ILUC) caused by Biofuels
Going beyond ILUC
\$25 Million to Improve Air Quality
EPA Releases the 2010 Fuel Economy Trends Report

IEA & IEA/AMF News

ExCo41 in May in Karlsruhe, Germany
ExCo40 last November in Thessaloniki, Greece
Change of Contracting Party
UK has left AMF
Active Annexes to IEA AMF
AMFI Newsletter
Transport Contact Group Meeting

PUBLICATIONS

GENERAL INTEREST

Revision of the basic energy plan

On 29 March, as a result of the accident at the Fukushima Daiichi nuclear power plant, the Japanese government decided to review the basic energy plan in which it is outlined that at least 14 nuclear reactors would be newly built by 2030.

In a new basic plan, clean energy technologies, such as solar power, would be put on a priority instead of nuclear power. Therefore, it is estimated that cancellation and/or postponement for the construction plan of 14 reactors is unavoidable. Prime Minister Naoto Kan said in the Upper House Budget Committee "we need to have further discussions about Japanese energy policy relevant to clean energy technologies such as solar power". The Minister of Economy, trade and industry, Banri Kaieda, emphasized in an interview after the cabinet meeting "I think that the existent energy policy should be changed. The whole government has to discuss how to remake it".

Source: News release 30 March, 2011, Yomiuri News

Thailand Considering Auto Excise Tax Restructuring by CO₂ Emission

The auto excise tax restructuring plan has been concluded with a 5 percent discount for cars emitting less than 150 grams of carbon dioxide per kilometre and an added 5 percent for those exceeding 200 grams.

On 7 March 2011, the Excise Department of the Ministry of Finance has conferred with the Ministries of Industry and Energy about the new structure for the automobile excise tax. With an aim to lower air pollution, the officials came to a conclusion that vehicles releasing carbon dioxide at less than 150 grams per kilometer should receive a tax cut by 5 percent, whereas those releasing more than 200 grams would face a 5 percent hike. No changes will be made on the amount collected from those releasing at the level of 150-200 grams per kilometer.

The excise tax rates, which currently vary depending on the size of engine and horsepower, will also be narrowed down to only two rates – 30 percent for vehicles with engines of smaller than 3,000 cc and 50 percent for those with larger engines.

However, Deputy Finance Minister, Man Pattanothai, pointed out that if the new tax structure were imposed immediately, car manufacturers would suffer a blow from soaring production costs as most vehicles being used today emit higher than 200 grams of carbon dioxide per kilometer and would bring about a major tax increase. Instead, he suggested that a period of 2-3 years be allowed for entrepreneurs to adjust their production processes.

More information on

<http://thainews.prd.go.th/en/news.php?id=255403070020>

<http://www.naewna.com/news.asp?ID=252146> (in Thai)

U.S. Energy Budget Holds Major Cuts

President Obama's proposed 2012 budget for the Energy Department (DOE) slashes spending for hydrogen and fossil fuel research programs by almost 50 percent and closes parts of two national labs, according to a fact sheet on DOE's budget.

As Obama called for in his State of the Union address, DOE's budget eliminates \$3.6 billion worth of oil and gas subsidies. It also repeals coal subsidies, which the president did not mention in his speech last month. Obama has made such cuts in his past two budget proposals, but they never got Congress's approval. The budget will also include more than \$8 billion for research, development and deployment investments in clean energy technology programs, as Obama previewed in his address.

The budget cuts the hydrogen technology program within the Office of Energy Efficiency and

Renewable Energy by more than 41 percent, or almost \$70 million, "in order to focus on technologies at large scale in the near term. The Office of Fossil Energy's budget is cut by 45 percent, or \$418 million. This includes zeroing out the Fuels Program, the Fuel Cells Program, the Oil and Gas Research and Development Program, and the Unconventional Fossil Technology Program.

The President's budget must be approved by Congress and usually is changed in many ways before passage.

Source: National Journal, February 2011 ([HTTP://www.nationaljournal.com/energy-budget-holds-major-cuts-20110211](http://www.nationaljournal.com/energy-budget-holds-major-cuts-20110211)).

U.S. EPA Finalizes 2011 Renewable Fuel Standards

The U.S. Environmental Protection Agency (EPA) is required to set renewable fuel standards each November for the following year based on gasoline and diesel projections from the Energy Information Administration (EIA). They are also required to set the cellulosic biofuel standard each year based on the volume projected to be available during the following year. This regulatory action finalizes these annual standards for cellulosic, biomass-based diesel, advanced biofuel*, and total renewable fuels that apply to all gasoline and diesel fuels produced or imported in year 2011.

* **Advanced Biofuel** is defined as any renewable fuel that meets a 50 percent life-cycle GHG emissions reduction from the petroleum baseline, and is not derived from corn starch

Final Volumes for 2011

To calculate the percentage standard for cellulosic biofuel for 2011, EPA used a volume of 6.0 million ethanol-equivalent gallons (representing 6.6 million physical gallons). EPA is also requiring that applicable volumes for biomass-based diesel, advanced biofuel, and total renewable fuel for 2011 will be those specified in the statute. Final volumes are shown in Table 1.

Table 1 - Volumes of biofuels required for U.S. Renewable Fuels Standard - 2011

	Actual Volume	Ethanol Equivalent Volume
Cellulosic Biofuel	6.6 million gallons	6 million gallons
Biomass-based Diesel	0.8 billion gallons	1.2 billion gallons
Advanced Biofuel	1.35 billion gallons	1.35 Billion gallons
Renewable Fuel (includes ethanol)	13.95 billion gallons	13.95 Billion gallons

Final Percentage Standards for 2011

The percentage standards represent the ratio of renewable fuel volume to non-renewable gasoline and diesel volume. Thus, in 2011 approximately 8% of all fuel used in transportation will be from renewable sources. The proposed percentage standards are shown in Table 2.

Table 2 - Percentages of renewable fuels required for US Renewable Fuels Standard in 2011

Cellulosic Biofuel	0.003%
Biomass-based Diesel	0.69%
Advanced Biofuel	0.78%
Renewable Fuel (includes ethanol)	8.01%

Source: EPA, November 2010 (<http://www.epa.gov/otaq/fuels/renewablefuels/420f10056.htm>).

Alternative fuels could replace fossil fuels in Europe by 2050

Alternative fuels have the potential to gradually replace fossil energy sources and make transport sustainable by 2050, according to a report presented to the European Commission today by the stakeholder expert group on future transport fuels. The EU will need an oil-free and largely CO₂-free energy supply for transport by 2050 due to the need to reduce its impact on the environment and concerns about the security of energy supply. The expert group has for the first time developed a comprehensive approach covering the whole transport sector.

The following alternative fuel options have been identified:

- Electricity/hydrogen, and **biofuels** (liquids) as the main options
- Synthetic fuels as a technology bridge from fossil to biomass based fuels
- Methane (natural gas and biomethane) as complementary fuels
- LPG as supplement

Single-fuel solutions covering all transport modes would be technically possible with liquid biofuels and synthetic fuels, but feedstock availability and sustainability considerations constrain their supply potential. Thus, the expected future energy demand in transport can most likely not be met by one single fuel. Fuel demand and greenhouse gas challenges will require the use of a great variety of primary energies.

Source: http://ec.europa.eu/transport/urban/vehicles/directive/doc/2011_01_25_future_transport_fuels_report.pdf

Renewable energy production must grow fast to reach the 2020 target

An analysis of the 27 EU Member State action plans shows that renewable energy output is projected to grow by 6 % per year on average. Wind power, solar electricity and biofuels are foreseen to contribute with the highest growth rates. If all Member States follow the trajectory outlined in their plans, the EU will exceed its 20 % renewable energy target by 0.7 % points.

The European Environment Agency (EEA) has supported the compilation of a database that holds key data from all the National Renewable Energy Action Plans (NREAPs). The database facilitates the comparison of figures across technologies and between Member States.

Key aggregate data from the 27 National Action Plans:

- Electricity will make up 42 % of total renewable energy production, with wind power supplying 41 % of renewable electricity;
- 46 % of all renewable energy production will be used for heating and cooling, with biomass accounting for 78 % of renewable heating and cooling output;
- Transport will make up the smallest proportion of renewable energy production (12 %), but is the fastest growing element between 2005 and 2020.
- Total renewable energy production is projected to increase from 99 Mtoe in 2005 to 245 Mtoe in 2020 corresponding to an average annual growth rate of 6 %.

The renewable energy projections are also presented in graphs and tables in a data report. Detailed data for all 27 EU Member States are displayed together with the aggregate EU-27 figures. Moreover, derived indicators allow a comparison of country projections on a per capita basis or relative to land area.

More information:

www.eea.europa.eu/highlights/renewable-energy-production-must-grow?utm_campaign=renewable-energy-production-must-grow&utm_medium=email&utm_source=EEASubscriptions

Commission re-launches CARS 21 high level group

Today, the re-launched CARS 21 High Level Group for a competitive and sustainable automotive industry meets for the first time in its new form and with a new mission. The European Commission has asked the group to develop a common action plan and a vision for "a competitive EU automotive industry and sustainable mobility and growth in 2020 and beyond." This will contribute to the EU strategy for smart, sustainable and inclusive growth, Europe 2020, to the flagship initiatives on resource efficiency and industrial policy (IP/10/1434) and to the EU strategy for clean and energy efficient vehicles (IP/10/473). To reach the objectives, the group

has been enlarged to represent the various stakeholders whose involvement is crucial for the accomplishment of its mission. A report published by the Commission today (IP/10/1496) shows that the industry is on track as regards the reduction of CO2 emissions from new cars.

European Commission Vice-President Antonio Tajani, Commissioner for Industry and Entrepreneurship and chairman of the group, stressed the importance of the initiative: "The automobile industry is crucial for Europe as an economy and as a society. We need an ambitious and comprehensive strategy to foster its competitiveness and growth worldwide while ensuring sustainability. By bringing all relevant interests to the same table we will identify policies fit for the future."

The focus of the group will be to advise the Commission in the development of an effective European industrial policy for the automotive sector and in the implementation of the EU's strategy for clean and energy-efficient vehicles. CARS 21 will develop policy recommendations in questions related to the competitiveness and sustainable growth of the automotive industry, and proposals to further the development and take up of clean and energy efficient vehicles in Europe and beyond.

Read more: http://ec.europa.eu/enterprise/sectors/automotive/competitiveness-cars21/cars21/index_en.htm

Europe 2020 initiative - Energy 2020

On 10 November 2010, the European Commission adopted the Communication "Energy 2020 - A strategy for competitive, sustainable and secure energy"

The Communication defines the energy priorities for the next ten years and sets the actions to be taken in order to tackle the challenges of saving energy, achieving a market with competitive prices and secure supplies, boosting technological leadership, and effectively negotiate with our international partners.

On the basis of these priorities and the action presented, the Commission will come forward with concrete legislative initiatives and proposals within the next 18 months. This communication also sets the agenda for the discussion by Heads of States and Governments at the very first EU Summit on Energy on 4 February 2011.

Source: http://ec.europa.eu/energy/strategies/2010/2020_en.htm

GASEOUS FUELS

LPG Vehicle - Its Advantage to Disaster -

Due to the Tohoku-Kanto earthquake, the Tohoku region ran short of gasoline and diesel oil, and customers in this region made long queues at many gas stations. There was a concern for fuel supply even for emergency vehicles. By contrast, the supply of liquid petroleum gas (LPG) was relatively stable, and LPG fuel for LPG vehicles was not a problem.

LPG has an advantage in stable supplies especially in case of disaster because LPG is distributed in containers unlike city gas which is supplied by an underground gas-pipe.

According to a report by the Japan LP Gas Association, there are 270,000 LPG vehicles and 1900 supply stations in Japan. Price of LPG is cheap; it's about 80 to 90 yen/L. LPG vehicles are mainly used for taxis and for driver training cars.

Basically, LPG vehicles are manufactured by original-equipment automakers or by retrofitting normal vehicles which use gasoline. Several kinds of LPG vehicles, such as passenger cars, scooters, trucks, and folklifts, are manufactured. Also, there's a sort of hybrid vehicle which can use both gasoline and LPG.

Mr. Ueda, who is the president of Integral Co. Ltd. and works on retrofitting, points out "There seems to be an over-dependence on gasoline and diesel in Japan. I want people to know about LPG vehicles". He sold an LPG vehicle to a customer who lives at Soma city in Fukuoka prefecture at the end of last year. He received a grateful e-mail from the customer who said "The LPG vehicle is so useful in light of the oil shortage situation." Retrofitting an LPG vehicle requires at

least 500,000 yen but we have to be careful that the lifetime of the engine will not be shortened by the retrofitting.

A person at Agency of Natural Resources and Energy answered that the reason why LPG vehicles are not popular in Japan is a lack of recognizability compared to those in Italy, and pointed out that "In Europe if fuel prices rise, the number of LPG vehicles increases. However, in Japan LPG vehicles are only used in business, and LPG vehicles aren't put in a catalog for ordinary users".

Source: News release 29 March, 2011, Jiji Press Ltd.

Natural Gas Use in the Canadian Transportation Sector Deployment Roadmap

The Natural Gas Use in the Canadian Transportation Sector Deployment Roadmap initiative, launched in March 2010, brought together stakeholders from governments, industry – including gas producers, transporters, distributors, vehicle and equipment manufacturers, and end-users – as well as representatives from environmental non-governmental organizations and academia. Facilitated by Natural Resources Canada, this process provided a platform for this broad array of stakeholders to discuss the potential for natural gas use across the medium- and heavy-duty transportation sector, explore strategies for overcoming barriers associated with its use, and develop recommendations for deployment.

This Roadmap focused on expanding the use of natural gas across the transportation sector and represents an important contribution to deliberations toward a broader strategy to reducing greenhouse gas (GHG) emissions.

Source: Natural Resources Canada;

<http://oee.nrcan.gc.ca/transportation/alternative-fuels/resources/roadmap.cfm?attr=16>

Swedish Marine Cluster and KOGAS Seek LNG Ship Refuelling Solution

January 14, 2011 - Swedish organisations SSPA, FKAB, White Smoke and Swedish Marine Technology Forum have entered into a joint agreement with Korea's KOGAS to evaluate the possibilities for developing a system in Korea for delivery of LNG to gas-fuelled ships. The group says that the order is an acknowledgement of the West Sweden industry cluster's competence in developing technologies for, and assessing regulatory aspects associated with, using LNG as a ship fuel. The project will continue until April 2011 and will form a basis for further development of an LNG supply system in Korea.

The contract between the Swedish marine cluster and KOGAS is the first result of a joint study agreement between Business Region Göteborg and KOGAS that was signed July 2009. The purpose is to develop cooperation between Sweden and South Korea in the fields of biogas, natural gas and Bio-DME.

Source: <http://www.ngvglobal.com/swedish-marine-cluster-and-kogas-seek-lng-ship-refuelling-solution-0114>

ALCOHOLS AND (BIO)GASOLINE

Thailand to Test First Ethanol Bus in Southeast Asia

The Swedish Ambassador to Thailand, H.E. Mr. Lennart Linnér, Minister of Energy, H.E. Dr. Wannarat Channukul, and Minister of Industry, H.E. Mr. Chaiwuti Bannawat, witnessed the Memorandum of understanding signing of the Demonstration Project of Thailand's first Ethanol Bus.

The Memorandum of Understanding was signed on Thursday, 27th January 2011 between Scania Siam Co.,Ltd. and 8 prominent Thai partners, namely Energy Policy and Planning Office (EPPO), Department of Industrial Promotion (DIP), King Mongkut's University of Technology-Thonburi (KMUTT), National Metal and Materials Technology Center (MTEC), Pollution Control Department (PCD), Bangkok Mass Transit Authority (BMTA), PTT Public Company Limited (PTT), and Petro Green Company Limited.

The project gets funding from the Energy Conservation Promotion Fund, Ministry of Energy. It

aims to evaluate the usage of ethanol ED95 fuel on commercial vehicles to reduce diesel fuel consumption. The project aims to support a 15-year Alternative Energy Plan of Ministry of Energy to enhance the usage of ethanol in Thailand. Since the transport sector accounts for 70% of the total diesel fuel consumption, the implementation of the project with a fixed-route bus in Bangkok could potentially lead to substantial reductions in CO₂ emissions as well.

Sweden has more than 20 years of experience with ethanol buses, introduced and produced by Scania. For instance, the whole Stockholm City Bus Transit System is fuelled by ethanol and most of it through buses from Scania. Thailand could take the lead on this concept in South East Asia as the country has abundant raw materials from both sugarcane and cassava. There are a number of Thai companies producing ethanol for local consumption as well as for export.

A newly assembled ethanol bus with aluminium body will be on loan from Scania for the demonstration, which will start running on one fixed route in Bangkok from May until October 2011.

More information:

http://www.swedenabroad.com/News___4847.aspx?slaveid=120233

http://www2.kmutt.ac.th/thai/abt_history/info_outreach/outreach_local/orlocal-11.html (in Thai)

<http://www.facebook.com/pages/First-Ethanol-Bus-ED95-in-Thailand/180807998621036> (frequent update in Thai)

Suitability and potential of alternative fuels for the use in spark ignition engines

The "8th International Colloquium Fuels - Conventional and Future Energy for Automobiles" took place early January in Stuttgart, Germany. One of the papers presented describes the effects of using different alternative fuels in SI-engine operation. Fuel blends of various alcohols like methanol, ethanol and 1-propanol are considered. In a first step investigations on an engine test bench were carried out. The fuel blends were tested on a turbocharged, direct injection engine with regard to their combustion, emission and full load behavior. In a further step the results from vehicle investigations on a roller dynamometer test bench are presented.

In general, all the investigated fuel blends are suitable for gasoline substitution. Most of them show a great potential for power and efficiency enhancement. Furthermore the limited emissions can be reduced in operation with the investigated fuel blends.

Source: <http://www.tae.de/de/kolloquien-symposien/7th-international-colloquium-fuels.html>

Market Introduction of E10 in Germany

Recently Germany became the latest EU country to introduce the E10 fuel ethanol blend at petrol stations across the country. However, the introduction has created confusion amongst motorists at the petrol pumps, due to concerns over the compatibility of their vehicles with this new E10 fuel. These concerns are ill-founded say ePURE.

"The launch of E10 in Germany is a positive move and is extremely welcomed", said Rob Vierhout, ePURE's Secretary General. "But this uncertainty is not good for everyone. I understand that people may be confused but the E10 product is perfectly safe and it has been introduced in several major countries without any problems", added Mr. Vierhout.

Source: <http://www.epure.org/pdf/x3ea6c089-f9cc-509a.pdf>

List of petrol vehicles compatible with E10 petrol

The European Fuel Quality Directive introduces a new market petrol across the European Union from 1st January 2011 that may contain up to 10% (by volume) ethanol (E10).

For vehicles equipped with a spark-ignition (petrol) engine introduced into the EU market, this list indicates their compatibility with E10 petrol which complies also with the EN 228: 2008(2) volatility limits.

More information : http://www.acea.be/images/uploads/files/20110121_list_of_petrol_vehicles_compatible_with_E10_petrol.pdf

E15 Fuel for Model Years 2001 - 2006 Cars

The U.S. Environmental Protection Agency (EPA) has waived a limitation on selling gasoline that contains more than 10 % ethanol for model year 2001 through 2006 passenger vehicles. The waiver applies to fuel that contains up to 15 % ethanol (E15). "Recently completed testing and data analysis show that E15 does not harm emissions control equipment in newer cars and light trucks," said EPA Administrator Lisa P. Jackson. "Wherever sound science and the law support steps to allow more home-grown fuels in America's vehicles, this administration takes those steps."

The Agency also announced that no waiver is being granted this year for E15 use in other vehicles, or non-road engines because current testing data does not support such a waiver. These waivers represent one of a number of actions that are needed from federal, state and industry to commercialize E15 gasoline blends. Also, EPA is developing requirements to ensure that E15 is properly labeled at the gas pump. The label will be designed to prevent refueling into vehicles, engines, and equipment not currently approved for the higher ethanol blend.

EPA granted the waiver after considering the E15 petition submitted by Growth Energy and 54 ethanol manufacturers in March 2009. In April 2009, EPA sought public comment on the petition and received about 78,000 comments. The petition was submitted under a Clean Air Act provision that allows EPA to waive the act's prohibition against the sale of a significantly altered fuel if the petitioner shows that the new fuel will not cause or contribute to the failure of engine and other emission-related parts that ensure compliance with emission standards.

Source: EPA press release January 21, 2011

More information: <http://www.epa.gov/otaq/regs/fuels/additive/e15/>

BIODIESEL ESTERS

Obama Signs Bill Extending Biodiesel Tax Incentive Into Law

December 17, 2010 - President Barack Obama today signed a law - H.R. 4853 - the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010. This legislation, among other provisions, retroactively extends the biodiesel tax incentive through 2011.

"Experience has shown that the biodiesel tax incentive is an effective tool to encourage the displacement of foreign petroleum with a superior, domestically produced Advanced Biofuel," said Joe Jobe, National Biodiesel Board CEO (US). "Reinstatement of this proven incentive helps provide the policy framework needed to meet the nation's renewable goals, and the NBB sincerely appreciates the bipartisan cooperation and support that made extension of this worthwhile incentive possible."

Biodiesel is a commercially viable, renewable, low carbon diesel replacement fuel that is widely accepted in the marketplace. This biodiesel tax incentive is structured in a manner that makes the fuel price competitive with conventional diesel fuel in the marketplace.

A lapse of the tax incentive on December 31, 2009 had a detrimental impact on the domestic biodiesel industry. Conversely, retroactive reinstatement and extension of the tax incentive through 2011, is widely expected to increase U.S. biodiesel production and in the process, displace foreign petroleum with a domestic Advanced Biofuel.

Source: <http://www.biodiesel.org/news/taxcredit/default.shtm>

SYNTHETIC AND RENEWABLE DIESEL

Biofuels in Flight Operations:

In April 2011, Lufthansa is to begin a six-month trial with an Airbus A321 on scheduled commercial flights on the Hamburg-Frankfurt-Hamburg route. "Lufthansa will be the world's first airline to utilize biofuel in flight operations within the framework of a long-term trial. Pending certification, one of the aircraft's engines will use a 50-50 mix of biofuel and traditional kerosene.

The primary purpose of the project is to conduct a long-term trial to study the effect of biofuel on engine maintenance and engine life.

Production of the bio-synthetic kerosene utilized by Lufthansa rests on the basis of pure biomass (Biomass to Liquid- BTL). The producer is Neste Oil, a fuel refining and marketing company from Finland. Certification of its biofuel is expected in March 2011.

Source: <http://presse.lufthansa.com/en/news-releases/singleview/archive/2010/november/29/article/1828.html>

Neste Oil starts up its new renewable diesel plant in Singapore

Neste Oil has started up the world's largest renewable diesel plant in Singapore. Production of NExBTL renewable diesel will be ramped up on a phased basis. The plant was completed on-schedule and on-budget and marks a major step forward in Neste Oil's clean traffic fuel strategy.

Neste Oil's NExBTL renewable diesel is a premium fuel that is compatible with all diesel engines and existing fuel distribution systems. It offers excellent performance at low temperatures and can be used either blended with fossil diesel or as such. NExBTL enables a 40-80% reduction in greenhouse gas emissions to be achieved compared to fossil diesel. Its lower tailpipe emissions also make a valuable contribution to enhancing overall air quality.

The Singapore plant has a capacity of 800,000 t/a. The plant has approximately 120 employees. Neste Oil has a similar-sized facility under construction in Rotterdam, which is due to be commissioned in the first half of 2011. The company already operates two renewable diesel plants that came on stream at Porvoo in Finland in 2007 and 2009 with a combined capacity of 380,000 t/a. The main markets for NExBTL diesel are Europe and North America.

More information: www.nesteoil.com

OTHER FUELS AND VEHICLES

Roundtable on algal biofuels

The EU project AquaFUELS intends to establish the state of the art on research, technological development and demonstration activities relevant to producing 2nd generation biofuels from non-food aquatic biomass, including algae. More information on the project is available at www.aquafuels.eu.

The AquaFUELS Roundtable was held on 21st and 22nd of October 2010 in Brussels and was a milestone in the project. The select panel of experts composing the Roundtable identified future research needs and potential industrial developments, with a careful eye to sustainability and social implications. The panel of experts invited to contribute to the presentations and following discussions of the Roundtable was composed of the leading experts in the field of algae biomass as well as from the biofuels community, while the chair was the Secretary-General of the European Biodiesel Board and Executive Director of the European Algae Biomass Association, Mr. Raffaello Garofalo. The outcome of the Roundtable was a realistic perspective on algae use for biofuels production – a necessary step towards future developments.

A detailed conference review was created by the BIOENERGY 2020+ attendees and is available online.

Source: BIOENERGY 2020+, February 2011 (<http://www.bioenergy2020.eu/news/view/40>).

European Commission approves Swedish €55 million aid for «Domsjö» R&D project

The European Commission has authorized under EU state aid rules a support of SEK 500 million (about €54.6 million) that Sweden intends to grant to the Domsjö research and development (R&D) project. Domsjö Fabriker AB, a Swedish pulp producer, will develop a demonstration plant for the production of bio-methanol and other biofuels from pulp mill residue material. If successful, these second-generation biofuels will replace traditional fuel in the transport sector, thereby limiting Europe's dependency on fossil fuel and reducing carbon dioxide emissions. The Commission concluded that the project is compatible with the EU Framework on State aid for

research, development and innovation (R&D&I). In particular, the aid aims at tackling a market failure and generates positive effects for the EU, notably increased research activities and environmental protection.

The non-confidential version of the decision will be made available under case number SA. 31083 (N 240/2010) in the State Aid Register on the DG Competition website once any confidentiality issues have been resolved. The electronic newsletter State Aid Weekly e-News lists the most recent decisions on state aid published in the Official Journal and on the website.

Source: <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/67&format=HTML&aged=0&language=EN&guiLanguage=en>

U.S. Energy Department Announces New Advance in Biofuel Technology

March 7, 2011 - U.S. Energy Secretary Steven Chu today congratulated a team of researchers at the Department's BioEnergy Science Center who have achieved yet another advance in the drive toward next generation biofuels: using bacteria to convert plant matter directly into isobutanol, which can be burned in regular car engines with a heat value higher than ethanol and similar to gasoline. This research is part of a broad portfolio of work the Department is doing to reduce America's dependence on foreign oil and create new economic opportunities for rural America.

"Today's announcement is yet another sign of the rapid progress we are making in developing the next generation of biofuels that can help reduce our oil dependence," said Secretary Chu. "This is a perfect example of the promising opportunity we have to create a major new industry and enhance America's energy security if we continue with an aggressive research and development effort."

Source: http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=497

New „Clean Vehicle Portal“ of the European Commission

6 December 2010 - The European Commission has launched the Clean Vehicle Portal (<http://www.cleanvehicle.eu>) a web site intended to help public authorities as well as the general public choose the cleanest and most energy-efficient vehicles available.

The Clean Vehicle Portal as a new web-database aims to ensure a level of demand for clean and energy-efficient road transport vehicles and encourage manufacturers to invest in development of vehicles with low energy consumption, CO₂-emissions and pollutant emissions. The Clean Vehicle Portal offers access to a large and innovative database system of vehicle data.

The Features could be described as:

- Access to Europe's largest vehicle database
- Lifetime-cost-calculation, following the „Clean Vehicle Directive“ (2009/33/EC)
- Interactive joint-procurement features to increase dynamic market development
- EU-wide information about existing procurement rules and incentive schemes for clean vehicles
- EU-wide information about market-shares of clean vehicles
- Powerful and easy-to-use web-application
- Following the „Clean Vehicle Directive“ (2009/33/EC)
- Individual data-output and calculations for each country in the EU

Source: <http://www.dieselnet.com>

Commercial vehicles and CO₂

The transport sector is a focus point for CO₂-Reduction policy around the globe because, despite significant technological advances, CO₂-emissions from this sector are still growing, mirroring a sturdy demand for transport and mobility, especially in the developing world. Economic activity and prosperity are both triggered by and triggering further demand for transportation of goods and people. Ensuring sustainable growth is, therefore, an important and complex challenge.

Fuel efficiency is one of the most important competitive factors in developing and selling trucks and buses. Any product-oriented legal requirement regarding fuel efficiency and CO₂-emissions should aim to further strengthen the market forces. To assist customers in their product selection, the European Automobile Manufacturers Association (ACEA) promotes the development

of a tool to calculate the fuel efficiency of complete heavy-duty vehicles and vehicle combinations in grams of fuel used and CO₂ generated per tonne-km, cubic meter-km or passenger-km of transported goods or persons.

Source: http://www.acea.be/images/uploads/files/20101013_Commercial_Vehicles_CO2.pdf

Standards for Next Generation of Clean Cars

WASHINGTON - The U.S. Department of Transportation (DOT), the U.S. Environmental Protection Agency (EPA) and the state of California announced a timeframe for proposing fuel economy and greenhouse gas standards for model year 2017-2025 cars and light-duty trucks. Proposing the new standards on the same timeframe - by September 1, 2011 - signals continued collaboration that could lead to an extension of the current National Clean Car Program. Improving fuel efficiency will save consumers money at the pump, reduce America's dependence on foreign oil and cut emissions of harmful pollutants.

In April 2010, DOT and EPA established greenhouse gas emission and fuel economy standards for model year 2012-2016 light-duty cars and trucks. In the fall of 2010, California accepted compliance with these federal GHG standards as meeting similar state standards as adopted in 2004, resulting in the first coordinated national program. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile in model year 2016, which is equivalent to 35.5 miles per gallon.

In May 2010, President Obama announced that EPA, DOT and California would begin working together to assess the performance and costs of technologies that could be available in 2017-2025 as the first step in extending the current national emission and fuel economy standards. The three agencies completed a technology assessment and have funded additional research critical to future rulemaking.

Prior to today's announcement, the California Air Resources Board (CARB) announced its intention to propose greenhouse gas emission standards for model years 2017 to 2025 in March of this year, while EPA and NHTSA were working on an end-of-September timeline for proposal. Today's announcement ensures that both proposals will come out simultaneously after a thorough, joint review of all data available when the proposals are issued.

Source: EPA press release January 24, 2011

<http://yosemite.epa.gov/opa/admpress.nsf/1e5ab1124055f3b28525781f0042ed40/6f34c8d6f2b11e5885257822006f60c0!OpenDocument>

U.S. DOE Makes \$184 Million Available for Advanced Vehicle Research

The US Department of Energy (DOE) announced on December 16 that it is accepting applications for up to \$184 million over three to five years to accelerate the development and deployment of new efficient vehicle technologies. Funded projects will include advanced materials, combustion research, hybrid electric systems, fleet efficiency, and fuels technology.

The funding opportunity announcement addresses the development of key technologies required to achieve large-scale adoption of advanced vehicles such as plug-in electric hybrids and electric vehicles. Even as a new generation of electric drive vehicles enters the market—with the Chevy Volt and Nissan Leaf delivered to the first U.S. customers in December—advancements in batteries, power electronics, and lightweight materials are needed. In addition, extremely efficient vehicles employing improved combustion technologies, fuels, and waste heat recovery offer significant near-term improvements to conventional vehicles.

Applications for the solicitation are due February 28, 2011. Applications must be submitted through grants.gov and [FedConnect](http://FedConnect.gov). DOE will announce the selections by summer 2011. See the [DOE press release](#) and the [Vehicle Technologies Program Web site](#).

More information: <http://www1.eere.energy.gov/vehiclesandfuels/>

MISCELLANEOUS

U.S. EPA Shelves Plans to Regulate Emissions from Biomass

The United States Environmental Protection Agency plans to devise a rulemaking by July 2011 that will defer greenhouse gas permitting requirements for carbon dioxide emissions from biomass-fired and other biogenic sources for three years.

"We are working to find a way forward that is scientifically sound and manageable for both producers and consumers of biomass energy. In the coming years we will develop a common-sense approach that protects our environment and encourages the use of clean energy," said Lisa Jackson, administrator of the agency.

The agency will use this period to conduct additional independent analysis and to formulate a rulemaking about the proper treatment of these emissions to determine whether a Clean Air Act permit is necessary.

The agency's decision will cover sources, which emit carbon during combustion or decomposition of biologically based material, including facilities that burn forest or agricultural products for energy.

Source: EcoSeed, January 2011

<http://www.ecoseed.org/en/biomass/article/11-biomass/8826-e-p-a-shelves-plans-to-regulate-emissions-from-biomass>

Indirect Land Use Change (ILUC) caused by Biofuels

This study represents a first analysis and estimate of the effects of Indirect Land Use Change (ILUC) associated with the increased use of conventional biofuels that EU Member States have planned for within their National Renewable Energy Action Plans (NREAPs). These documents specify how European governments plan to deliver their transport targets under the Renewable Energy Directive (RED).

More information:

http://www.ieep.eu/assets/731/Anticipated_Indirect_Land_Use_Change_Associated_with_Expanded_Use_of_Biofuels_and_Bioliquids_in_the_EU_-_An_Analysis_of_the_National_Renewable_Energy_Action_Plans.pdf

Going beyond ILUC

The EU Renewable Energy Directive promotes the use of biofuels in transport by providing for a 10 per cent target for renewable energy in transport by the year 2020 to be met by each Member State. There is concern that the increased use of biofuels will lead to considerable land use change. This briefing discusses some of the modelling work that is undertaken in support of quantifying the land use change impact and its associated emissions. It is argued that the current debate on the indirect land use impacts on biofuels should be seen as an opportunity for an extended and general debate on various agricultural activities impacting on land use.

More information: http://www.ieep.eu/assets/750/Policy_briefing_ILUC_21_01_2011_FINAL.pdf

\$25 Million to Improve Air Quality

Over the course of five years, the U.S. Environmental Protection Agency (EPA) is awarding \$25 million to the Health Effects Institute (HEI) to help address the latest challenges to improving air quality and protecting health. With the funding, HEI will develop the next generation of tools and scientific information to examine the combined effects of air pollution exposures on people's health and the relationship between air quality and climate change.

"The scientific contributions by HEI complement and augment EPA's extensive clean air research program, which is providing the critical science needed to improve air quality," said Dr. Paul Anastas, assistant administrator for EPA's Office of R&D. Over the past 30 years, the partnership has made significant contributions to protecting health from air pollution. HEI has funded more than 250 studies in North America, Europe, and Asia that have:

- produced important research on the effects of particulate matter
- initiated new research to track health outcomes of air quality improvements
- conducted special scientific reviews on air toxics from mobile sources

HEI is an independent, non-profit research organization that provides impartial science to help address air quality problems in the nation. Established in 1980, HEI receives joint funding from EPA and the motor vehicle industry. The partnership has produced critical research that is often used in important EPA decision-making processes.

Source: EPA mail 21 January 2011

More information:

<http://www.epa.gov/airscience>; <http://cfpub.epa.gov/ncer/abstracts/index.cfm?fuseaction=outlinks.centers/center/101>

EPA Releases the 2010 Fuel Economy Trends Report

WASHINGTON - For the sixth consecutive year, the U.S. Environmental Protection Agency (EPA) is reporting a decrease in average carbon dioxide (CO₂) emissions and a slight increase in the average fuel efficiency for new cars and light duty trucks, according to EPA's annual report "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2010".

EPA projects a small improvement in 2010, based on pre-model year sales estimates provided by automakers, to 395 grams of CO₂ per mile and 22.5 miles per gallon (mpg), though there is uncertainty in these projections as they were made during the atypical automotive market in 2009. The 2010 final data will be available in next year's report.

For 2009, the last year EPA has final data from automakers, the average CO₂ emissions from new vehicles were 397 grams per mile and the average fuel economy value was 22.4 mpg.

The report confirms that average CO₂ emissions have decreased and fuel economy has increased each year beginning in 2005. Average CO₂ emissions have decreased by 64 grams per mile, or 14 percent, and average fuel economy has increased by 3.1 mpg, or 16 percent, since 2004. The positive trend beginning in 2005 reverses a long period of increasing CO₂ emissions and decreasing fuel economy from 1987 through 2004.

The annual report provides data on the CO₂ emissions, fuel economy and technology characteristics of new light-duty vehicles (cars, minivans, sport utility vehicles, and pickup trucks).

The CO₂ emissions and fuel economy values reflect EPA's best estimates of real world CO₂ emissions and fuel economy performance. They are consistent with the fuel economy estimates that EPA provides on new vehicle window stickers and in the fuel economy guide. These real world fuel economy values are about 20 percent lower, on average, than those used for compliance with the corporate average fuel economy (CAFE) program.

More information on the 2010 report: <http://www.epa.gov/otaq/fetrends.htm>

IEA & IEA/AMF News

ExCo41 in May in Karlsruhe, Germany

The next meeting of the AMF Executive Committee will take place 24-26 May 2011 in Karlsruhe, Germany.

ExCo40 last November in Thessaloniki, Greece

Jean-Francois Gagne, National Resources Canada, has been elected new Chairman, Shinichi Goto, AIST, and Nils-Olof Nylund, VTT, Vice-Chairmen. The Executive Committee expressed its thanks to Claes Pilo for serving AMF as Secretary in the past 14 years, and welcomed Dina Bacovsky as new Secretary.

Change of Contracting Party

Japan, who has been participating through two Contracting Parties, LEVO and NEDO, has shifted NEDOs participation to AIST. AIST is the National Institute of Advanced Industrial Science and Technology.

UK has left AMF

Due to budgetary constraints the UK has quit participation in the AMF Implementing Agreement.

Active Annexes to IEA AMF

4 new Annexes and 2 new Sub-tasks to existing Annexes were started at ExCo40 in Greece last November:

- Annex XXXV-2 (35-2): Particulate Measurements: Ethanol and Butanol in DISI Engine
- Annex XXXIX-2 (39-2): Emission Performance of HD Methane Engines Phase 2
- Annex XL (40): Life Cycle Analysis of Transportation Fuel Pathways
- Annex XLI (41): Alternative Fuels for Marine Applications
- Annex XLII: (42) Toxicity of Exhaust Gases and Particles from IC-Engines
- Annex XLIII (43): Performance Evaluation of Passenger Car, Fuel, and Powerplant Options

Additionally to the above new Annexes, current Annexes are:

- Annex XXVIII (28): Information Service & AMFI Website (AMFI) and Fuel Info
- Annex XXXIV-2 (34-2): Algae as Feedstock for Biofuels
- Annex XXXVII (37): Fuel and Technology Alternatives for Buses
- Annex XXXVIII (38): Environmental Impact of Biodiesel Vehicles

The Annex 34 report on Algal Biofuels has been published among the group of participants to this Annex. A joint Executive Summary with IEA Bioenergy is planned.

The timeline for Annex 37 has been adapted and the report is now due for fall 2011.

Fuel Info (part of Annex 28) will provide condensed information on advanced motor fuels at the AMF website. Elaboration of this is ongoing.

AMFI Newsletter

Päivi Aakko-Saksa, who has held responsible for the AMFI Newsletter since 2004, has handed over to a team of authors operating under the new Secretary, Dina Bacovsky. We gratefully acknowledge the excellent work of Päivi.

Committee on Energy Research and Technology (CERT)

AMF and CERT have agreed to extend the current term of the Implementing Agreement from 31 August 2014 to 28 February 2015.

Transport Contact Group Meeting

On 9 March 2011 the Transport Contact Group met in Paris. A report is available in the member area of IEA AMF.

PUBLICATIONS

- The **8th JARI China Roundtable** was held on November 2nd, 2010 in Beijing. It aimed to discuss about "perspective on automobile society development and environmental improvement in China." In session I, motorization and environmental improvement was discussed. In session II, perspectives on fuel economy and air pollution improvement measures were discussed. *Source: JARI* (http://www.jari.or.jp/english_topics/62374/)
- **Food versus Fuel**

The debate on biofuels has been riddled with controversies and arguments of varied quality since it first arose in the 1970s. Supporters tout biofuels as an all-in-one solution to address climate change, energy security and rural development. Critics claim that biofuels raise food prices, destroy rainforests and forcibly displace rural populations. But common to both sides is the lack of scientific data to back up their arguments.

"The discussion on biofuels has been driven not so much by scientific facts and careful analysis, but rather by philosophical stances in combination with the vested interests associated with traditional energy sources, some sectors of the agri-food industry, and the lobbying interests of various NGOs", argues SEI Senior Research Fellow Francis X. Johnson. He is co-editor of the new book "Food versus Fuel" which aims to bring a balanced approach to the debate on the many issues affecting the development of biofuels.

Together with Frank Rosillo-Calle from Imperial College London, Johnson proposes a more informed and nuanced approach to the debate, grounded in science and economics rather than conjecture and controversy.

Source: <http://www.sei-international.org/news-and-media/1896>
- **World Energy Outlook 2010**

The 2010 edition of the World Energy Outlook (WEO) was released on 9 November and it provides updated projections of energy demand, production, trade and investment, fuel by fuel and region by region to 2035. It includes, for the first time, a new scenario that anticipates future actions by governments to meet the commitments they have made to tackle climate change and growing energy insecurity.

WEO-2010 also puts the spotlight on several topical issues, including what more must be done and spent post-Copenhagen to limit the global temperature increase to 2°C and how these actions would impact oil markets; how emerging economies – led by China and India – will increasingly shape the global energy landscape; the costs and benefits of increasing renewable energy, the outlook for Caspian energy markets and their implications for global energy supply, the future role for unconventional oil and the crucial importance of energy in achieving the UN Millennium Development Goals. <http://www.iea.org/weo/index.asp>
- The **IEA Bioenergy 2010 Annual Report** includes a special feature article 'Algal Biofuels Status and Prospects' prepared by Task 39.
- The Annual Report also includes a report from the Executive Committee and a detailed progress report on each of the Tasks. Also included is key information such as Task participation, Contracting Parties, budget tables and substantial contact information plus lists of reports and papers produced by the Implementing Agreement. <http://www.ieabioenergy.com/LibItem.aspx?id=6780>
- **9th Newsletter of the European Biofuels Technology Platform**

The mission of the European Biofuels Technology Platform (EBTP) is to contribute to the development of cost-competitive, world-class biofuels technologies, to the creation of a healthy biofuels industry and to accelerate the deployment of sustainable biofuels in the European Union through a process of guidance, prioritisation and promotion of research, technology development and industrial demonstration.

Currently, the EBTP is devoting much of its work effort to the development of the European Industrial Bioenergy Initiative and will keep stakeholders informed of progress. The platform is also commencing the planning phase for the next Stakeholder Plenary Meeting (SPM4) on 14 September 2011. <http://www.biofuelstp.eu/newsletter.html>
- **27th Newsletter of IEA Bioenergy Task 39**

The goal of Task 39 is to provide participants with comprehensive information to assist with the development and deployment of transportation biofuels. The Task coordinates both technical and the infrastructure issues related to biofuels. The latest newsletter features

Sweden and its recent progress in transport biofuels. <http://www.task39.org/Newsletters.aspx>

- **IEA Technology Roadmap Biofuels for Transport**

The International Energy Agency (IEA), at the request of the G8, has developed a roadmap "Biofuels for Transport" with special focus on technology development and diffusion. Biofuels provide around 2% of total transport fuel today, but new technologies offer considerable potential for growth. This roadmap envisions that by 2050, 32 EJ of biofuels will be used globally, providing 27% of world transport fuel. To achieve this vision, strong and balanced policy efforts are required. The roadmap identifies technology goals and defines key actions that must be undertaken. It provides additional focus about the role of biofuels to a low CO2 future. As the recommendations are implemented, and as technology and policy frameworks evolve, the potential for different technologies may increase. <http://www.iea.org/roadmaps>

IEA AMF Delegates

Australia

Department of the Environment
Sharon Rees

Austria

Austrian Federal Ministry for Transport
Andreas Dorda

Canada

Natural Resources Canada
Jean-Francois Gagné

People's Republic of China

CATARC, Maodong Fang

Denmark

DTU, Jesper Schramm

Finland

VTT, Nils-Olof Nylund

France

ADEME, Patrick Coroller

Germany

FNR, Birger Kerckow

Italy

Eni SpA, Pietro Scorletti

Japan

AIST, Shinichi Goto
LEVO, Nobuichi Ueda

Spain

IDAE, Francisco José Domínguez Pérez

Sweden

Swedish Road Administration
Olle Hådell

Switzerland

SFOE, Sandra Hermlé

Thailand

NSTDA, Coovattanachai Naksitte

The United States

DOE, Kevin Stork

Editor: *BIOENERGY 2020+*, Gewerbepark Haag 3, A-3250 Wieselburg-Land dina.bacovsky@bioenergy2020.eu Dina Bacovsky