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GENERAL INTEREST

US: Fresh Funding for Alternative Fuel Vehicles



The U.S. Department of Energy (DOE) is investing approximately \$11 million in 20 new projects that focus on planning, training and infrastructure development related to alternative fuel vehicles.

Administered through the DOE's Clean Cities initiative, the projects will concentrate on providing technical and safety training for fleet operators, technicians and others, as well as improving the permitting and vehicle procurement processes. The projects will also aid fleets in integrating strategies that will help them reduce the usage of diesel fuel and gasoline. Supporting natural gas, propane autogas and electric vehicles is the primary target

A sampling of the new projects include the following:

CALIFORNIA: California Fleets and Workplace Alternative Fuels Project. A statewide effort to develop best practices for permitting alt-fuel vehicle refueling infrastructure; collaborate with colleges on first-responder training; promote workplace EV charging; and work with fleets to implement petroleum reduction strategies. Funding: \$1 million. Project lead: Bay Area Air Quality Management District.

COLORADO: Refuel Colorado, A Roadmap to Increase Alternative Fuel Use. This project is aimed at adding alternative fuel vehicles to state purchasing agreements; train and deploy "energy coaches" who will work directly with fleets to assess and implement opportunities for alternative fuel vehicle use; conduct an audit of the state fleet to identify options for alt-fuel vehicle use; and create a stakeholder-driven policy and regulatory roadmap for alternative fuels in the state. Funding: \$500,000. Project lead: Colorado Energy Office.

GEORGIA: The Southeast Regional Alternative Fuels Market Initiatives Program. Stakeholders in Georgia, Alabama, South Carolina and Tennessee will provide first responder and vehicle maintenance technician training; develop alternative fuels "readiness workbooks" to guide alt-fuel vehicle deployment readiness; assist municipalities with alt-fuel vehicle readiness; and create and provide procurement policies and incentive models. Funding: \$500,000. Project lead: Center for Transportation and the Environment.

ILLINOIS: The Lake Michigan Corridor Alternative Fuel Implementation Initiative. This project, which includes southeastern Wisconsin, greater Chicago and northern Indiana, will work to make existing municipal fueling stations available to other fleets; create vehicle conversion inspection criteria; and train and educate fuel retailers, first responders, vehicle mechanics, code officials, measurement agencies and fleet operators. Funding: \$764,266. Project lead: Gas Technology Institute.

MINNESOTA: Accelerating Alternatives for Minnesota Drivers. The project will provide safety and technical assistance and training related to fueling infrastructure for plug-in electric vehicles and natural gas vehicles; establish the Minnesota Natural Gas Vehicle Workgroup and create a strategic plan for statewide natural gas vehicle implementation; establish a Minnesota green fleet recognition program; and create the DriveElectricMN.org website as an online resource for EV

users and potential EV users in Minnesota. Funding: \$248,788. Project lead: American Lung Association in Minnesota.

NORTH CAROLINA: Alternative Fuel Implementation Team (AFIT) for North Carolina. The project will develop petroleum reduction toolkits for fleets; collaborate with neighboring states on uniform road signage to indicate alternative fuel availability; and disseminate best practices among potential fleets and alternative fuel vehicle users by hosting a Southeastern alternative fuels symposium. Funding: \$500,000. Project lead: North Carolina State University, North Carolina Solar Center.

Source: http://www.ngtnews.com/e107_plugins/content/content.php?content.8309

US: fuel-economy goal of 54.5 mpg by 2025

Strict new federal fuel-economy and carbon-emission standards made final Tuesday are the biggest technological challenge to the auto industry since the government began regulating emissions in 1970 and mileage in 1975.

The rule sets the equivalent of 54.5 miles per gallon as the average the auto industry must achieve by 2025, up from 29.7 mpg now and 35.5 mpg in 2016.

The tough "CAFE" standard (for corporate average fuel economy) could lead to an accelerated evolution of current trends so that, in a decade or so, the American streetscape could resemble science fiction, including:

- More gas-electric hybrids and plug-in hybrids. More electric cars. A few that run on natural gas. Maybe a few more hydrogen-fueled cars.
- Smaller cars powered by smaller gasoline engines, most using turbochargers to get back the power they lose as they give up size.
- Dashboards that resemble video games, giving you colorful "atta-boys" when you drive with a light foot.
- More parts made from composites and high-price aluminum, titanium and high-strength steel — metals which have the additional hidden cost of wearing out fabrication equipment in auto assembly plants faster than conventional steel.
- Oval car bodies to slice the air. Sophisticated, many-speed transmissions and CVTs (continuously variable automatic transmissions) that can keep the engines running in their sweet spots where they make the most power on the least fuel.

Will car buyers embrace the new vehicles? Probably, but not at the expense of other features on their checklists like comfort, space and performance. CAFE risks requiring automakers to build vehicles and adopt technologies that consumers may not want to buy.

Source: <http://usatoday30.usatoday.com/money/autos/story/2012-08-29/fuel-standards/57383050/1>

Strategic Vision for the EU Automotive Industry

The discussions among key stakeholders of the European automotive sector in CARS 21 have enabled a common view on the following key characteristics of a strong and competitive automotive industry and progress towards sustainable mobility for the EU society in 2020. The main characteristics should be:

- An automotive sector which remains of strategic importance and a cornerstone for the EU industry and economy, providing quality employment to millions of workers in the EU;
- A sector which is central to many other economic activities while delivering affordable and desirable products, meeting consumer demands, based on a competitive market for automotive products and services, including the aftermarket;

- A strong manufacturing base in the EU for road vehicles and components, manufacturing a sizeable part of the vehicles and parts sold on the EU market;
- An automotive industry that is leading in technology (clean, fuel-efficient, quiet, safe, connected), in coordinated action with the fuel supplier industry;
- A strong industrial network characterised by a flexible and integrated supply and distribution chain;
- A sector exporting a larger portfolio of vehicles to third markets, characterised by high-quality and high-technology;
- New vehicles purchased by EU consumers, which are clean in terms of regulated pollutants, more fuel-efficient, quiet, safe and connected;
- A portfolio of propulsion technologies, dominated by advanced combustion engine technology, although increasingly electrified. In addition, the deployment of vehicles with alternative powertrain concepts (such as electric⁴ and fuel cell vehicles) is growing significant;
- Appropriate refilling and recharging infrastructure for alternative fuel vehicles being built up, in line with their market potential;
- A workforce in both manufacturing, R&D and servicing that is trained and prepared to work with a multitude of technologies;
- Global markets which offer a genuine level playing field to all players in the sector, with fair chances for all technologies, following balanced trade deals also for automotive sector.

Source: CARS 21 High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union Final Report 2012 6 June 2012,

http://ec.europa.eu/enterprise/sectors/automotive/files/cars-21-final-report-2012_en.pdf

IEA World Energy Outlook

The global energy map is changing dramatically, the International Energy Agency said as it launched the 2012 World Energy Outlook (*WEO*). Extraordinary growth in oil and natural gas output in the United States will mean a sea-change in global energy flows. In the New Policies Scenario the US becomes a net exporter of natural gas by 2020 and is almost self-sufficient in energy by 2035. North America emerges as oil exporter, accelerating the switch in direction of oil trade, with almost 90% of Middle Eastern oil exports being drawn to Asia by 2035. Global energy demand will grow by more than 1/3 to 2035. China, India and the Middle East account for 60% of the growth; demand rises in the OECD, but there is a pronounced shift towards gas and renewables.

Fossil fuels will remain dominant, supported by subsidies that, in 2011, jumped by almost 30% to \$523 billion, due mainly to increases in the Middle East and North Africa. Global oil demand exceeds 99 mb/d in 2035, by which time oil prices reach \$125/barrel in real terms (over \$215/barrel in nominal terms). A surge in unconventional and deepwater oil boosts non-OPEC supply over the current decade, but the world relies increasingly on OPEC after 2020. Iraq accounts for 45% of the growth in global oil production to 2035 and becomes the second-largest global oil exporter, overtaking Russia.

The global outlook for natural gas over the coming decades looks to be bright, as demand increases by 50% to 5 trillion m³ in 2035. Half of this is from unconventional gas, with most of this coming from the United States, Australia and China. Demand for coal will depend on policy decisions around lower-emissions energy sources. In the New Policies Scenario, global coal demand increases by 21% and is heavily focused in China and India.

Renewables become the world's second-largest source of power generation by 2015 and close in on coal as the primary source by 2035. This increase hinges critically on continued subsidies. In 2011, these subsidies amounted to \$88 billion, but over the period to 2035 need to amount to \$4.8 trillion. Ambitions for nuclear have been scaled back following the accident at Fukushima, but capacity is still projected to rise, led by China, Korea, India and Russia.

The energy sector accounts for 15% of the world's total water use. In some regions, water constraints are affecting the reliability of existing operations. Expanding power generation and biofuels output underpins an 85% increase in the amount consumed through to 2035.

"2/3 of the economically viable potential to improve energy efficiency will remain unrealised through to 2035. Action to improve energy efficiency could delay the complete 'lock-in' of the allowable emissions of CO₂ under a 2°C trajectory – which is currently set to happen in 2017 – until 2022, buying time to secure a much-needed global climate agreement. It would also bring substantial energy security and economic benefits, including cutting fuel bills by 20%," said Fatih Birol, IEA Chief Economist and the WEO's lead author.

The Efficient World Scenario shows what energy efficiency improvements can be achieved. Greater efforts on energy efficiency would cut the growth in global energy demand by half. Global oil demand would peak before 2020 and be almost 13 mb/d lower by 2035. The accrued resources would facilitate a gradual reorientation of the global economy, boosting cumulative economic output to 2035 by \$18 trillion, with the biggest gains in India, China, the United States and Europe.

Source: www.iea.org/newsroomandevents/pressreleases/2012/november/name,33015,en.html

GASEOUS FUELS

Alternative fuels in Republic of Korea

More than 35 thousand of NGVs (Natural Gas Vehicles) and 164 of CNG or LNG stations are operated in Korea. Since 2000, the Ministry of Environment has promoted NGVs, mainly city buses, with subsidies and low price of natural gas to reduce the air pollution in urban areas and cut greenhouse gas emissions. About 80% of NGVs are OEM transit buses, and the remains are OEM trucks and bi-fuel retrofit passenger cars. Dedicated CNG buses and trucks are supplied by Korean auto makers such as Hyundai, Daewoo bus and Tata Daewoo. NGVs are mainly operated by CNG (Compressed Natural Gas). However, dedicated LNG (Liquefied Natural Gas) buses have been developed recently by Hyundai, which also developed a CNG hybrid bus last year, and some LNG-diesel dual fuel trucks with retrofit technology are operated. At the present time HCNG engine technology is being developed by a government project.

Biodiesel as automotive fuel has been used also in Korea since 2002. After few years of demonstration, the Ministry of Commerce, Industry and Energy (now Ministry of Knowledge Economy), decided to introduce the BD 0.5 nationwide. After that, blending ratio of biodiesel in diesel oil has been increased gradually, and BD 2 has been fixed since 2010. Major feedstocks of biodiesel are waste cooking oil, and imported soybean and palm oil. At the present time there are 16 biodiesel production companies, and production capacity is over 1 million tons.

Other alternative fuels such as bioethanol, DME and XTL have been developed or demonstrated by government institutes and some companies. However, it is not clear when these fuels will be introduced.

By: Dr. Young Jae Lee, Korea Institute of Energy Research (KIER)

NGV fuel market development in Russia

Recent domestic developments indicate a bright future for natural gas vehicles (NGVs) in the Russian Federation. Initiatives from both the private and public sector suggest the market for vehicles powered by natural gas and the corresponding infrastructure will be strongly developed in the near future.

More information: <http://www.ngvaeurope.eu/comprehensive-government-support-to-considerably-speed-up-ngv-fuel-market-development-in-russia>

ALCOHOLS AND (BIO)GASOLINE

US: Ethanol Mandate maintained

The Environmental Protection Agency (EPA) is moving forward with a mandate for corn ethanol in gasoline, denying requests to waive the requirement following a drought that pushed up corn prices. The EPA said it hadn't found any evidence that its renewable fuel standard was causing economic harm. The agency said suspending the standard would reduce corn prices by only 1%.

Cattle ranchers and dairy farmers, which use corn to feed cattle, have said for months that the ethanol mandate was driving up demand for dwindling supplies of corn. Because of drought conditions in the Midwest, the U.S. Department of Agriculture predicts this year's corn crop will be the smallest in six years.

The EPA is requiring refiners this year to blend 13 billion gallons of corn-based ethanol into the nation's gasoline supply under a mandate adopted by Congress in 2005 to reduce U.S. dependence on foreign oil. The requirement is expected to jump to nearly 14 billion gallons in 2013.

The livestock industry says ethanol producers exacerbate problems caused by the drought by consuming 40% of the nation's corn crop. The ethanol industry says that number is actually less than 26% after accounting for high-protein ethanol byproducts used for animal feed. It says that ethanol companies are already producing less this year and that ethanol has a relatively small impact on corn prices. A waiver would likely have little to no impact on commodities prices.

Source: <http://online.wsj.com/article/SB10001424127887324556304578123640418308634.html>

Ethanol Production and Food Costs in Canada

Responding to claims that ethanol production is causing higher food costs, the Canadian Renewable Fuels Association (CRFA) released the following statement:

As serious drought conditions continue in the United States and some parts of Canada, misinformation is being spread about ethanol production and food prices. Assumptions claiming that ethanol production leads to higher grocery bills are untrue and irresponsible – especially at a time when we should be supporting our farmers the most.

There is wide speculation on food costs right now but Canadians need to remember that grocery costs are largely driven by energy costs and do not significantly increase with the price of corn. The actual cost of corn included in a box of cereal is less than 10 cents. As for feed costs, ethanol produced from corn only uses the starch from the grain, the remaining protein, fat and minerals are returned to the animal feed market in the form of distillers grains and helps make animal feed less expensive.

Reducing ethanol production would not meaningfully lower corn prices or alleviate drought concerns. What it would do is take revenues and jobs away from rural Canada and the farmers that grow crops that protect our environment, supply our feedstock, and feed our families.

Source: <http://www.greenfuels.org/uploads/documents/08-10-12%20ethanol%20production%20and%20food%20prices.pdf>

Cellulosic Ethanol Facility in Crescentino, Italy

The Chemtex second generation 40,000 ton/y bioethanol plant located in Crescentino (Italy) is expected to be operative by the end of 2012. The plant is designed to produce bioethanol through hydrolysis and fermentation of cellulose and hemicellulose starting from lignocellulosic biomass (Arundo donax or wheat straw). The technology development target is to design an energy efficient process able to produce bioethanol and to demonstrate at commercial scale an innovative technology.

The process takes inedible biomass, like energy crops (such as giant reed, miscanthus or switchgrass) or agricultural waste (such as sugarcane bagasse and straws) and turns them into high-quality, low-cost, fermentable C5 and C6 sugars. These sugars can then be used to cost-competitively produce bio-products with a smaller environmental footprint than fuels and chemicals made from oil or natural gas.

In addition, a unique feature of the Crescentino project is its boiler technology which will produce green energy. It qualifies the plant for a lucrative incentive for green power available in Italy for plants completed before the end of 2012.

The second generation ethanol production facility is complemented by a new fuel station in nearby Tortona, Italy. The station offers E10 and E85 (a mix of gasoline with 85% bioethanol) and shall soon be supplied with ethanol from the Crescentino plant.



Figure 1: Fuel station in Tortona, Italy

Source: BioLYFE Newsletter – Issue 10 November 2012

BIODIESEL ESTERS

US Biodiesel Production

The EPA said that 86 million gallons of biodiesel were produced in September, reporting year-to-date production of nearly 843 million gallons through the end of the month.

Biodiesel production is reported under the EPA's Biomass-based Diesel category in the Renewable Fuel Standard (RFS). To view the figures, visit the EPA's website. The EPA numbers show a total of 96.5 million gallons of Biomass-based Diesel for the month of August, but that figure also includes renewable diesel production.

EPA has recently announced to increase the 2013 volume requirement for biomass-based diesel under the RFS to 1.28 billion gallons. This represents a modest increase from the industry's record production last year of nearly 1.1 billion gallons. According to a recent economic study, the 2013 volume increase will support more than 10,000 new jobs. Already, the industry supports more than 39,000 jobs, with plants in nearly every state in the country. Made from a diverse mix of resources such as recycled cooking oil, soybean oil and animal fats, biodiesel is the first and only EPA-designated Advanced Biofuel that's produced on a commercial scale across the U.S. It is produced in nearly every state in the country and is used in existing diesel engines without modification.

Source: <http://www.biodiesel.org/news/biodiesel-news/news-display/2012/10/18/epa-releases-september-biodiesel-volume>

SYNTHETIC AND RENEWABLE DIESEL/JET

Thailand – Japan: B10 from Jatropha

In July, a Thailand-Japan academic cooperation under the program "Science and Technology Research Partnership for Sustainable Development (SATREPS)" on Jatropha-based diesel fuel was started. The fuel will be produced from jatropha oil (a nonfood source) by partial hydrogenation. Key collaborators in this project are MTEC, TISTR & King Mongkut's University of Technology North Bangkok (KMUTNB) for Thai side and AIST & Waseda University for Japan side. The highly efficient biodiesel production process is desired to warrant commercial use with long term sustainability.



Figure 2: MOU signing ceremony

MTEC has an important role in the testing process where 10% of this high quality biodiesel is mixed with regular diesel; this is known as B10. The testing will be done in a light duty vehicle for 50,000 kilometers of various terrains in accordance with ITA testing protocol. This includes city driving and long distance driving. Any problems identified during the test drives will be collected and sought for solutions. In parallel, separate tests will also be performed on the engine parts at MTEC Bioenergy Laboratory for 500 hours.

The engine wear and tear, residues generated and fuel consumption will be periodically monitored and discussed among testing partners including Tripetch Isuzu and PTT. In addition, the engine wear and tear from contaminated metals from the lubricant will also be analyzed. Engine parts and materials that interface with the fuel liquid will be monitored for effectiveness and appropriateness after the driving test to assess the impact. The data collected will valuably assist the research team for commercial viability of using this high quality biodiesel in the future.

More information: <http://www.nstda.or.th/eng/index.php/research/energy-and-environment/item/415-jatropha-biodiesel>

Case Study on HVO for Buses

The world's largest field test on paraffinic renewable diesel fuel - paraffinic hydrotreated vegetable oil (HVO) - was initiated by Helsinki Regional Transport Authority and its partners, including the Helsinki Metropolitan Area and several smaller communities that are also part of ICLEI's climate campaign, namely Espoo, Vantaa, Kauniainen, Kerava, Kirkkonummi and Sipoo in Finland. They are actively reducing transport emissions, firstly in support of the ambitious Finnish target of reaching a 20% share of biofuel usage in transport sector in 2020, and secondly by decreasing traffic and increasing the modal share of public transport.

More information: <http://www.iclei.org/index.php?id=11546>

Hydroprocessing planned for Venice, Italy

UOP LLC, a Honeywell company, announced that Italy's largest energy company, Eni S.p.A., will produce renewable diesel using Honeywell's Ecofining™ process at its facility in Venice. Eni plans to eventually convert its entire Venice refinery into a renewable diesel production facility.

The UOP/Eni Ecofining process produces a renewable fuel, which is a drop-in replacement for traditional diesel. It is chemically identical to petroleum-based diesel and can be used in any proportion in existing fuel tanks without engine or infrastructure changes. It offers high energy density and excellent performance at cold or warm temperatures. The process uses hydroprocessing technology to convert natural oils and animal fats to Diesel. The fuel offers a high cetane value of 80.

Eni will produce more than 100 million gallons per year of renewable diesel at its Venice facility beginning in 2014. Honeywell's UOP will provide basic engineering, specialty equipment and training for the project.

Full text of the press release: <http://www.uop.com/italys-largest-refiner-honeywells-uopeni-ecofining-process-technology-venice-refinery/>

OTHER FUELS AND VEHICLES

Sasol plans GTL Facility

South African-based energy and chemicals company, Sasol, announced it will proceed with front-end engineering and design phase for an integrated, 96 000bbl/d gas-to-liquids (GTL) facility and a world-scale ethane cracker with downstream derivatives, at its Lake Charles site in southwest Louisiana.

Current project costs for the GTL facility are estimated between US\$11 billion and US\$14 billion. The GTL project will be delivered in two phases, with each phase comprising 48 000 bbl/d. The first phase is planned to come into operation in the 2018 calendar year and the second phase the following calendar year.

Sasol also announced it will adopt a phased approach to the next stage of its planned GTL facility, in western Canada. The feasibility study was successfully completed in 2012 and the required regulatory application and land procurement processes are underway. However, in accordance with the need to prioritize Sasol's growth portfolio, this investment opportunity will be phased after the integrated Lake

Source: SASOL Press Release, http://www.sasol.com/sasol_internet/frontend/navigation.jsp?articleId=33700002&navId=4&rootId=4

Electric Vehicle Ownership Experience Study

Money talks. And unless automakers can make a better economic case to consumers who are considering an all-electric vehicle or a plug-in electric these alternative-fuel vehicles will remain a very small part of the market in the United States.

That is one of the conclusions in the J.D. Power & Associates 2012 Electric Vehicle Ownership Experience Study. The study looks at what consumers experience as they consider these vehicles, shop for them and own them, as well as the expectations and concerns of current and future owners.

For current owners, the early adopters, the decision to buy an alternative-fuel vehicle was more of an emotional one. Of current owners, 44 percent said the top benefit of their vehicles was lower emissions. Those owners were more willing to pay a premium for their vehicles.

But future buyers are more pragmatists than idealists. Of future buyers, 11 percent said they would consider an electric vehicle for its environmental benefits, but 45 percent said they were interested in saving on fuel.

The people who shopped for an electric vehicle and ultimately decided not to buy one said their primary reason was the price. Other top concerns were driving range and the availability of charging stations. Also, most consumers who are considering electric vehicles are looking for midsize sedans and, currently at least, most of the vehicles are smaller.

Source: <http://wheels.blogs.nytimes.com/2012/11/09/price-is-major-factor-for-electric-vehicles-study-says/?ref=electricvehicles>

Hydrogen Gateway

The U.S. Department of Energy (DOE) supports its National Renewable Energy Laboratory (NREL) to validate hydrogen technologies in the field. This results in a significant amount of real-world data that enables evaluation of hydrogen technology to meet DOE targets while being used by real customers. NREL completed a major project to demonstrate and evaluate hydrogen fuel cell electric vehicles (FCEVs) and hydrogen fueling infrastructure in real-world settings. This involved data from 500,000 individual vehicle trips covering 3.6 million miles, from which NREL determined that fuel cell electric vehicles (FCEVs) have made rapid progress in range and durability.

The National Fuel Cell Electric Vehicle Learning Demonstration Final Report shows progress in extending vehicle driving ranges and increasing fuel cell durability and discusses NREL's key findings from the demonstration project. This effort, funded by DOE's Office of Energy Efficiency and Renewable Energy (EERE), supports the Department's broader strategy to advance U.S. leadership in hydrogen and fuel cell technological innovation and help the industry bring these technologies into the marketplace at lower cost.

Source: <http://en.openei.org/wiki/Gateway:Hydrogen>

Funding Opportunities for Pyrolysis Oil

The Funding Opportunity Announcement (FOA) addresses "Conversion Technologies for Advanced Biofuels" and focuses on understanding of basic or fundamental principles. The results of previous work should validate analytical predictions and lead to innovations that help overcome key technical barriers to improved yield and economic feasibility of producing biofuels via thermochemical, direct liquefaction pathways (i.e. fast pyrolysis, ex situ and in situ catalytic fast pyrolysis, hydrolysis, hydrothermal liquefaction, and solvent liquefaction).

Specifically, this FOA will focus on:

- carbon efficiency: fractionation systems in bio-oil processing;
- hydrogen efficiency: H₂ production, use, and transfer in biomass liquefaction and bio-oil upgrading;
- separations efficiency: technologies for use and mitigation of the aqueous fraction of bio-oil.

The data and technology innovations produced from this research are crucial to realizing the Office of the Biomass Program's goal of producing bio-oils for making hydrocarbon transportation fuels in the gasoline, diesel, and jet range at less than \$3 per gallon. With the ability to produce more than one product, development of these technologies also provides a diversification of risk for the biofuels industry.

Source: <http://www.task39.org/Newsfeed.aspx>

Download FOA: <https://eere-exchange.energy.gov/#Foaldb897faf2-a871-45cd-acdc-9046c9fdeb60>

MISCELLANEOUS

EU adopts cleaner marine fuel standards

The Council adopted a directive amending directive 1999/32/EC as regards the sulphur content of marine fuels. Emissions from shipping due to the combustion of marine fuels with a high sulphur content contribute to air pollution in the form of sulphur dioxide and particulate matter, which harm human health and contribute to acidification. The directive aims therefore to reduce these emissions considerably and to provide a high level of protection for human health and the environment by rendering the most recent International Maritime Organisation rules on marine fuel standards mandatory in the EU, thereby amending Directive 1999/32/EC.

Full text of the press release: www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/envir/133246.pdf

Light-weight Materials

Engineered plastics are becoming the future for the chemical and auto industries as environmental concerns increasingly affect both. As legislative bodies hammer out laws to reduce man-made emissions, and \$150-a-barrel oil seems feasible, it is fair to project that by 2020 plastics will comprise 18 percent of the average vehicle's weight. For optimal fuel efficiency, automakers are using more lightweight materials—plastics and polymer-based components. In Europe, analysts project that by 2020, the average vehicle weight will shrink to a little more than a ton—its 1970 level—after peaking at nearly 1.5 tons in 2010.

Source: ATKearney (http://www.atkearney.com/automotive/featured-article/-/asset_publisher/S5UkO0zy0vnu/content/plastics-the-future-for-automakers-and-chemical-companies/10192)

Download: <http://www.atkearney.com/documents/10192/28dccc52-affb-4c0b-9713-a2a57b9d753e>

IEA & IEA/AMF News

AMF Executive Committee

The 44th Meeting of the AMF Executive Committee (ExCo 44) was held 24-26 October 2012 in Beijing, China, kindly hosted by CATARC. There were 31 participants, including Israel and ANGVA as Observers.

The Executive Committee has for a two-year period of service elected a new team of chairpersons:

- ExCo Chair: Sandra Hermle
- Regional Vice-Chair for Asia: Shinichi Goto
- Regional Vice-Chair for North America: Kevin Stork
- Senior Vice-Chair: Nils-Olof Nylund

Subcommittees include Outreach and Membership, Strategy, and Technology.

ExCo 45 is scheduled for 28-30 May 2013 in Gothenburg, Sweden.



AMF Membership

South Korea has joined AMF as a Contracting Party on 10 October 2012. Israel intends to join AMF in 2013.

PTT (Petroleum Authority of Thailand) was officially invited to join as a Contracting Party on behalf of the government of Thailand. The hope of AMF is that PTT can take over from NSTDA without delay by December 2012.

AMF Outreach

Outreach activities include production of a printed Annual Report, refreshing of the website (soon to be found at www.iea-amf.org) and distribution of USB drives with AMF reports and outreach documents. USB drives are available from the Secretary upon request.

AMF Liaison with other IAs

IEA Bioenergy is cooperating with AMF in Annex 39, and the Combustion Implementing Agreement is interested in cooperation in Annex 46. IEA Bioenergy Task 39 has invited AMF to join its session at ISAF 2013 in South Africa.

AMF Annexes / Projects

- Annex 28: Information Service & AMF Website
- Annex 35 Subtask 2: Particulate Measurements: Ethanol and Butanol in DISI Engines
- Annex 38 Phase 2: Environmental Impact of Biodiesel Vehicles
- Annex 39 Phase 2: Enhanced Emission Performance of HD Methane Engines
- Annex 41: Alternative Fuels for Marine Applications
- Annex 42: Toxicity of Exhaust Gases and Particles from IC-Engines
- Annex 43: Performance Evaluation of Passenger Car, Fuel, and Powerplant Options
- Annex 44: Alcohol fuels including methanol, by CATARC, China
- Annex 45: Hydrotreated vegetable oil, by Germany and Denmark
- Annex 46: Alcohol Application in CI Engines, by DTU (**NEW!**)

PUBLICATIONS

- **Key World Energy Statistics 2012** - IEA has recently published its 2012 edition of this pocket-sized summary of key energy data. The booklet provides timely, clearly-presented data on the supply, transformation and consumption of all major energy sources.
Link: <http://www.iea.org/publications/freepublications/publication/kwes.pdf>
- **Technology Roadmap: Fuel Economy of Road Vehicles** - The IEA roadmap on fuel economy of internal combustion engines is part of the IEA series Technology Roadmaps. This roadmap explores the potential improvement of existing technologies to enhance the average fuel economy of motorized vehicles. Different motorized modes are treated separately, including LDV s, HDV s and powered two-wheelers. Technology cost analysis and payback time show that significant progress can be made with low or negative cost for fuel-efficient vehicles over their lifetime use.
Link: http://www.iea.org/publications/freepublications/publication/FuelEconomy_2012_FINAL_WEB.pdf
- **Air quality in Europe – 2012 report** - This report presents an overview and analysis of the status and trends of air quality in Europe based on concentration measurements in ambient air and data on anthropogenic emissions and trends from 2001 – when mandatory monitoring of ambient air concentrations of selected pollutants first produced reliable air quality information – to 2010.
Link: http://www.eea.europa.eu/publications/air-quality-in-europe-2012/at_download/file
- **Fuel and Technology Alternatives for Buses - Overall Energy Efficiency and Emission Performance** – Nils-Olof Nylund & Kati Koponen. VTT Technology 46
Link: <http://www.vtt.fi/inf/pdf/technology/2012/T46.pdf>
- **Life Cycle Analysis of Transportation Fuel Pathways** - IEA Advanced Motor Fuels Annex 40 - prepared by Reilly-Roe and Associates Ltd and (S&T)2 Consultants Inc
Link: http://www.iea-amf.vtt.fi/pdf/annex40_final_report.pdf
- **IEA Bioenergy ExCo67 workshop** - Future biomass-based transport fuels: This publication provides the summary and conclusions from the workshop 'Future Biomass-based Transport Fuels' held in conjunction with the meeting of the Executive Committee of IEA Bioenergy in Helsinki, Finland, on 10 May 2011.
Link: <http://www.ieabioenergy.com/MediaItem.aspx?id=7463>
- **IEA Bioenergy Task 39 Newsletter** – South Korea – Progress on Transportation Biofuels
Link: <http://www.task39.org/LinkClick.aspx?fileticket=5VaRbXqpGgA%3d&tabid=4468>
- **The Potential Role of Biofuels in Commercial Air Transport – BioJetFuel** - IEA Bioenergy Task 40

Link: <http://www.bioenergytrade.org/downloads/T40-Biojetfuel-Report-Sept2012.pdf>

- **Biofuel potential for shipping** - Ecofys 'by order of' the European Maritime Safety Agency
Link: http://www.ecofys.com/files/files/ecofys_2012_potential_of_biofuels_in_shipping_02.pdf
- **Presentations from the CEI Ministerial Conference - Renewable Energy in a Bio-based Economy: The Option of Next Generation Biofuels** Central European Initiative
Link: <http://www.cei.int/content/cei-ministerial-meeting-science-and-technology-and-biofuels-conference-pave-way-promoting-bi>
- **AEBIOM European Bioenergy Outlook 2012** - AEBIOM has published its' Annual Statistical Report 2012 which is a comprehensive collection of data on biomass contributing to a better understanding and further successful development of bioenergy sector in Europe. The request for AEBIOM Statistical Report is significantly increasing every year. Last year more than 3000 individuals downloaded our report worldwide.
Link: <http://www.aebiom.org/?cat=20>
- **EIA Annual Energy Outlook 2013** - The U.S. Energy Information Administration has published Annual Energy Outlook 2013 Early Release Overview. The document, which provides an update of the AEO reference case, predicts a lower rate of growth for biofuels than the AEO2012.
Link: <http://www.eia.gov/forecasts/aeo/er/pdf/0383er%282013%29.pdf>
- **ERTRAC Roadmap on Heavy Duty Trucks** - The European Technology Platform on Road Transport (ERTRAC) has published a series of roadmaps, outline paths to achieve the target of becoming 50% more efficient by 2030 compared with today. This document outlines the contribution that HD Trucks can make.
Link: <http://ec.europa.eu/transport/facts-fundings/statistics/doc/2011/pocketbook2011.pdf>
- **EU Transport Statistical Pocketbook** - The European Commission publishes most recent and most pertinent annual transport-related statistics in Europe.
Link: <http://ec.europa.eu/transport/facts-fundings/statistics/doc/2011/pocketbook2011.pdf>
- **McKinsey report on powertrains** - McKinsey has analysed which range of powertrains may contribute to achieve decarbonisation of road transport.
Link: http://ec.europa.eu/research/fch/pdf/a_portfolio_of_power_trains_for_europe_a_fact_based_analysis.pdf
- **Energy and Climate Policy: Bending the Technological Trajectory** - This book presents a series of papers that explore the extent to which technological innovation can lower the cost of achieving climate change mitigation objectives.
Link: http://www.oecd-ilibrary.org/environment/energy-and-climate-policy_9789264174573-en
- **CO2 Emissions from Fuel Combustion 2012** - This book provides data on the evolution of the emissions of CO2 from 1971 to 2010 for more than 140 countries and regions by sector and by fuel.
Link: http://www.oecd-ilibrary.org/energy/co2-emissions-from-fuel-combustion-2012_co2_fuel-2012-en
- **World Energy Outlook 2012** - World Energy Outlook 2012 presents authoritative projections of energy trends through to 2035 and insights into what they mean for energy security, environmental sustainability and economic development.
Link: http://www.oecd-ilibrary.org/energy/world-energy-outlook-2012_weo-2012-en

EVENTS

Fuels - Conventional and Future Energy for Automobiles, 15-17 January 2013, Stuttgart/Ostfildern, Germany

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

Fuels of the Future 2013 - 10th international conference on biofuels, 21-22 January 2013, Berlin, Germany

Conference website: www.fuels-of-the-future.com

National Biodiesel Conference and EXPO, February 4-7, 2013, Las Vegas, Nevada, USA

Conference website: <http://www.biodieselconference.org/2013/>

National Ethanol Conference, February 5-7, 2013, Las Vegas, Nevada, USA

Conference website: <http://www.nationalethanolconference.com/>

F.O. Licht's Next Generation Biofuels, 5-7 February 2013, Copenhagen, Denmark

Conference website: <http://nextgenbiofuels.agraevents.com/>

5th Stakeholder Plenary Meeting of the European Biofuels Technology Platform (SPM5), 6-7 February 2013, Brussels, Belgium

Transportation Technology and Fuels Forum (TTFF), 5-6 February 2013, Ottawa, Ontario, Canada

Conference website: <http://www.transportationforum.net/>

World Biofuels Markets Congress & Exhibition, Rotterdam, The Netherlands

Conference website: <http://www.worldbiofuelsmarkets.com>

20th International Symposium on Alcohol Fuels (ISAF 2013), 25-27 March 2013, Stellenbosch, South Africa

Conference website: <http://www.isaf2013.co.za/>

3rd International Conference on Lignocellulosic Ethanol, 3-5 April 2013, Madrid, Spain

2nd Iberoamerican Congress on Biorefineries, 10-12 April 2013, Jaen, Spain

Conference website: www.ciab2013.org

European Algae Biomass 2013, 24-25 April 2013, Vienna, Austria

Conference website: <http://www.wplgroup.com/aci/conferences/eu-eal3.asp>

34th International Vienna Motor Symposium, 25 - 26 April 2013, Vienna, Austria

Conference website: http://www.övk.at/index_en.htm

Alternative Clean Transportation Expo, 24-27 June 2013, Washington, DC, USA

Conference website: <http://www.actexpo.com/index.html>



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