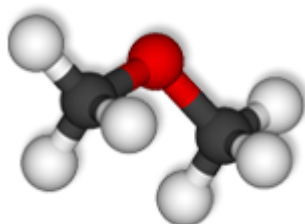


OCTOBER 2021, ISSUE NO. 2/2021

Advanced Motor Fuels News



Renewed interest in DME:

- [Production...read more](#)
- [Application...read more](#)

CONTENTS

DEMONSTRATION / IMPLEMENTATION / MARKETS

- First Renewable DME Plant
- Repsol produces Spain's first waste-based SAF
- DEUTZ approves engines for renewable fuels
- New project of Carbon Engineering and LanzaTech
- Strategic Biofuels completes CCS test
- Emissions reduction from gas turbine engines
- Sasol develops Fischer-Tropsch technology
- California Utilities EV Charging Investments.
- Latin America Electric Vehicle Market

POLICY / LEGISLATION / MANDATES / STANDARDS

- New decarbonisation measures for COP26
- California Invests in Zero-Emission Vehicles
- Fit for 55- review and evaluation

SPOTLIGHT ASIA

- Demonstration tests for DME vehicles in Korea
- Sustainable Aviation Fuel produced in Japan
- Indonesia tests jet fuel mixed with palm oil
- New JV for methanol catalyst facility in China

SPOTLIGHT SHIPPING

- Maersk invests in methanol powered vessels

SPOTLIGHT AVIATION

- SAF Grand Challenge Announced
- Major Carriers Moving to SAF
- Fuel Providers Scaling Up SAF Production

AMF NEWS

- Task 57 web seminar
- AMF ExCo 62 Meeting upcoming

PUBLICATIONS

- IEA World Energy Outlook 2021
- IEA Key World Energy Statistics
- Progress towards biofuels for marine shipping
- EU Maritime Transport Environmental Report 2021
- Alternative Fuels in the Maritime Sector
- Life-Cycle GHG Emissions for Aviation Fuels
- Decarbonizing Air Transport
- Impact assessment of ReFuelEU Aviation initiative
- Assessment of transport fuel quality parameters
- ITF database on transport
- Urban Bus Fleets Technology Transition
- EU vehicle market statistical pocketbook
- Truck Eco-Driving Programs in Latin America
- Recent BETO webinars available for viewing
- Deposit formation in fuels containing biodiesel

EVENTS

IMPRINT



DEMONSTRATION / IMPLEMENTATION / MARKETS

First Renewable DME Plant

Oberon Fuels began commercial production of the first-ever renewable dimethyl ether in the world. The project was supported from funding by the California Energy Commission to convert waste methanol into renewable Dimethyl Ether (DME) at its upgraded facility in Brawley, California. Other potential feedstocks include biogas from dairy waste, food wastes, and agricultural waste. Renewable DME can be used in several transportation fuel pathways including, as a diesel replacement, blended with propane, or as a hydrogen carrier.

Source: <https://bioenergyinternational.com/biofuels-oils/oberon-fuels-begins-commercial-production-of-renewable-dimethyl-ether>

Repsol produces Spain's first waste-based SAF

Spain-headed oil and multi-energy major Repsol S.A has announced that it has successfully completed the manufacture of the first batch of sustainable aviation fuel (SAF) or biojet produced from waste at its Petronor Industrial Complex in Bilbao. The batch consists of 5 300 tonnes of fuel and meets strict product quality requirements and sustainability conditions in the production, logistics, and marketing chain. Its use will avoid the emission of 300 tonnes of carbon dioxide (CO₂). This is the third production of SAF carried out by Repsol in Spain following two other batches at the company's Puertollano and Tarragona refineries, in 2020 and early 2021, respectively, where biomass was used as raw material. In the recently manufactured SAF batch in Bilbao, waste has been used as feedstock, thus integrating circular economy into the process.

Source: *Bioenergy International*

Link: <https://bioenergyinternational.com/biofuels-oils/repsol-produces-spains-first-saf-derived-from-waste>

DEUTZ approves engines for renewable fuels

On 31st August 2021, with immediate effect, DEUTZ approved its entire TCD engine portfolio for use with paraffinic diesel fuels. This means that alternative fuels can now also be used to run DEUTZ engines that meet the EU Stage V emissions standard. At the same time, DEUTZ is approving the majority of its latest-generation engines, particularly in the sub-4 liter and above-8 liter range, for biodiesel blends up to B30. The use of these alternative fuels significantly reduces the carbon footprint of DEUTZ's combustion engines and raises the prospect of running engines on a carbon-neutral basis in the future.

Source: <https://www.deutz.com/en/products/technology-solutions/fuels-of-the-future>

New project of Carbon Engineering and LanzaTech

Biotechnology company LanzaTech UK Ltd, a subsidiary of US-headed LanzaTech Inc, and Canadian cleantech company Carbon Engineering Ltd have partnered on a first-of-a-kind project to create sustainable aviation fuel (SAF) out of atmospheric carbon dioxide (CO₂). Project AtmosFUEL will investigate the feasibility of a large-scale, commercial air-to-jet facility in the UK that will produce more than 100 million litres of SAF each year. The proposed facility is targeted to be operational by the end of the decade. CE's Direct Air Capture technology will capture CO₂ directly from the atmosphere so it can be fed into LanzaTech's Gas Fermentation process to produce low-carbon ethanol. The ethanol will then be converted into SAF using an Alcohol-To-Jet technology developed by LanzaTech and Pacific Northwest National Laboratory. The fuel will undergo certification by the Roundtable on Sustainable Materials. By recycling existing atmospheric CO₂, the SAF produced will offer a more than 90 percent reduction in greenhouse gas emissions compared to conventional fossil jet fuel. Due to an unlimited feedstock (atmospheric CO₂) this solution can be scaled up to deliver large-scale quantities of SAF to help meet the UK's 10 percent SAF by 2030 and up to 75 percent SAF by 2050 proposals.

Source: *Bioenergy International*

Link: <https://bioenergyinternational.com/biofuels-oils/carbon-engineering-and-lanzatech-partner-in-project-atmosfuel>

Strategic Biofuels completes CCS test

In the United States, renewable fuel project developer Strategic Biofuels LLC, has announced that its Carbon Capture and Sequestration Test Well Program was successfully completed at the company's Louisiana Green Fuels Project in Caldwell Parish, Louisiana which the company claims is the first renewable diesel fuel project to achieve this milestone. According to the company, the geology of the plant site has been extensively studied and provides a nearly ideal location for carbon sequestration to safely and securely sequester carbon dioxide (CO₂) well below drinking water aquifers, permanently. The goals of the test well program were to demonstrate that CO₂, the main greenhouse gas (GHG) generated during the fuel production process, can be safely and securely stored deep underground and that the storage reservoir has sufficient capacity to store all the gas produced over the plant's lifetime. The current project schedule is for the plant to be mechanically complete in mid-2025 and achieve full commercial operation in late 2025.

Source: *Bioenergy International*

Link: <https://bioenergyinternational.com/biofuels-oils/strategic-biofuels-completes-ccs-test-well-program-at-planned-biorefinery-site>

Emissions reduction from gas turbine engines

Lean premixed combustion strategies are being actively pursued as a means to reduce emissions from gas turbine engines. Lean blow out (LBO), or when the flame within the engine extinguishes, is an important area of study for engine operation. A rapid decrease in engine throttle i.e., reduction in the fuel/air ratios, such as when preparing for descent, can cause LBO if the fuel/air ratio isn't right. We know this ratio for conventional fuels, but determining this ratio for different fuels and engines requires further research. Argonne National Laboratory has developed computational tools to investigate this fuel/air ratio in Army Research Lab's midsize gas turbine engine and will use these tools to assess the feasibility of sustainable aviation fuels for both commercial and military applications

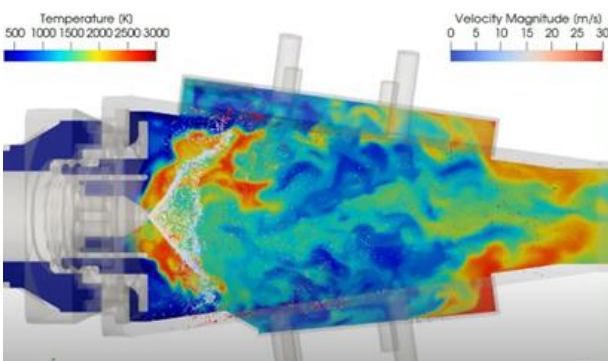


Figure: A still of the simulation developed by Argonne National Laboratory researchers. Photo courtesy of Argonne National Laboratory

Source: DOE Bioenergy Technologies Office
 Link: <https://www.youtube.com/watch?v=Pn8SdJN8zgA>

Sasol develops Fischer-Tropsch technology

In aligning with its 2050 ambition, Sasol has stepped up its GHG emission reduction targets. As part of the new strategy, Sasol ecoFT will focus on building new sustainable businesses by leveraging its Fischer-Tropsch (FT) technology. Currently, Sasol's FT uses fossil-fuel based sources of hydrogen and carbon. However, this technology has the potential to use green hydrogen and sustainable sources of carbon feedstock, such as biomass, carbon captured from carbon intensive processes and eventually direct air capture. Sasol's proprietary FT technology, in particular, is well suited to play a meaningful role, in a low carbon future, with attractive new and emerging value pools. One of the first applications for the technology is likely to be sustainable aviation fuels, where new regulations are driving demand and existing technology and feedstocks, have limitations that Fischer-Tropsch technology can address.

Source: <https://www.sasol.com/media-centre/media-releases/sasol-commits-net-zero-ambition-2050-triples-2030-ghg-emission-reduction>

California Utilities EV Charging Investments.

In July 2021, the California Public Utilities Commission (CPUC) finalized a section of its transportation electrification framework, setting near-term priorities for transportation electrification to guide investments by the state's utilities over the next several years. California projects that at least 60,000 additional charging stations are needed by 2025 to meet the state's goal to electrify all cars by 2035, and more than 150,000 stations are needed by 2030 to meet its medium- and heavy-duty electrification goals. The CPUC has already authorized utilities to spend more than \$720 million to build approximately 52,000 light-duty chargers. Also in July 2021, Southern California Edison launched one of the programs the CPUC had previously authorized. The Charge Ready program is the largest electric passenger vehicle charging infrastructure program in the nation run by an investor-owned electric utility company. The \$436 million program will add approximately 38,000 new electric car chargers throughout their service area over the next five years.

Sources: <https://ngtnews.com/cpuc-lays-out-vehicle-electrification-priorities>
<https://energized.edison.com/stories/sce-launches-program-to-install-38-000-ev-chargers>

Latin America Electric Vehicle Market

The adoption of consumer light-duty electric vehicles (EVs) in Latin America is still at an early stage, with 10,766 EVs and 1,292 public charging stations, as of 2020, across South America, Central America, and Caribbean countries. Columbia accounted for about a third of the EVs on the road, while Mexico accounted for about half of the charging stations. The article briefly summarizes the state of the EV market in several countries including Argentina, Brazil, Chile, Colombia, Costa Rica, and Mexico.

Source: <https://dialogochino.net/en/climate-energy/44044-latin-americas-nascent-electric-car-market/>

POLICY / LEGISLATION / MANDATES / STANDARDS

New decarbonisation measures for COP26

The Transport Climate Action Directory allows to translate decarbonisation ambitions into actions to achieve climate objectives. It includes over 60 mitigation measures with the evidence to assess their effectiveness. Each measure contains information on CO₂ emissions impacts, costs, co-benefits and other consideration.

Seven new measures have been just released with the aim to help policy makers decarbonise transport to meet their climate action goals.

- Carbon labelling for flights
- Enhanced bus networks
- Enhanced signalling
- Feebates
- Life-cycle evaluation of low-carbon shipping fuels
- Low- and zero-emission vehicle mandates
- Smooth driving

The database is currently being strengthened to deliver decarbonisation in the run-up to COP26, with more new measures coming online over the next few weeks.

Link: <https://www.itf-oecd.org/transport-climate-action-directory-measures#26470>

California Invests in Zero-Emission Vehicles

As part of the largest climate package in California history, the state will invest \$3.9 billion to meet its goal of 100% of sales of new passenger cars and light-duty trucks being zero-emission by 2035 and 100% of medium- and heavy-duty vehicles sales being zero emission by 2045. Funding will be provided for consumer rebates of new Zero-Emission Vehicles (ZEV) purchases and incentives for low-income households to replace their old car with either a new or used ZEV. The legislation includes funding for 1,000 zero-emission drayage trucks, 1,000 zero-emission school buses and 1,000 zero-emission transit buses, as well as their charging infrastructure.

Source: <https://www.gov.ca.gov/2021/09/23/governor-newsom-signs-climate-action-bills-outlines-historic-15-billion-package-to-tackle-the-climate-crisis-and-protect-vulnerable-communities/>

Fit for 55- review and evaluation

The European Commission's "Fit for 55," regulatory proposals are intended to secure a European Union economy-wide greenhouse gas reduction of at least 55% by 2030. One of the regulatory proposals adopted by the EC is to amend the mandatory CO₂ emission targets for new passenger cars and light commercial vehicles (vans). This briefing summarizes and evaluates the key elements of this proposal before it enters the political negotiation process between the European Parliament and the Council.

Source: *icct - the International Council on Clean Transportation* <https://theicct.org/publications/fit-for-55-review-eu-sept21>

Download:

<https://theicct.org/sites/default/files/publications/fit-for-55-review-eu-sept21.pdf>

SPOTLIGHT ASIA

Demonstration tests for DME vehicles in Korea

From 2018-2021, with the support of the Ministry of Industry, element parts development and demonstration tests for DME vehicles were conducted. Fuel economy and emissions were measured using NEDC mode for two vehicles with a mechanical fuel supply system. As a result of the test, CO, NO_x, and THC were produced, and as a result of driving the endurance test through city and city driving for more than 40,000 km, there was no abnormality in the vehicle's fuel supply system and engine test.

In addition, a vehicle with a common rail fuel supply system was developed and exhaust gas and fuel efficiency were measured through the same test. Also, there were no failures in the fuel supply system and engine parts. In the future, Green DME, a representative of e-fuel, will be produced and distributed domestically and abroad.

Source: Bumgi Baek, Ocktaeck Lim, 'Performance study of high pressure pump using DME as fuel', *International Conference on Applied Energy 2020, Dec. 1 - Dec. 10, 2020, Bangkok*, https://applied-energy.org/icae2020/wp-content/uploads/2020/11/ICAE_Program_1130.pdf

Contact Person: Ocktaeck Lim, e-mail; otlim@ulsan.ac.kr

Sustainable Aviation Fuel produced in Japan

The New Energy and Industrial Technology Development Organization (NEDO) has entrusted the Development of Production Technologies for Biojet Fuels project to IHI Corporation. Biojet Fuel produced by a set of technologies was supplied to regular flights on June 17 as sustainable aviation fuel (SAF).

One fuel was produced by gasification FT synthesis, a technology that synthesizes liquid fuels after gasifying solid wood cellulose. Another fuel was produced through hydrotreating of oil derived from microalgae. Both technologies have been confirmed to be compliant with ASTM D7566, the international standard for SAF.

NEDO will continue to carry out research and development projects for SAF production to establish large-scale reliable technology and efficient production processes to reduce production costs. This will pave the way for carbon neutrality by 2050 and contribute to reducing greenhouse gas emissions in the aviation field.

Source:

https://www.nedo.go.jp/english/news/AA5en_100437.html

Indonesia tests jet fuel mixed with palm oil

Indonesia conducted its first test flight using jet fuel partially from palm oil on 10th October 2021. The plane flew more than 100 km (62.14 miles) from the capital Jakarta to a near city, Bandung. The bio jet fuel used during the test flight only had a 2.4% palm oil content, but in a 2015 regulation, Indonesia has mandated this be increased to 5% by 2025. Indonesia currently has a mandatory biodiesel program with 30% palm oil content known as B30. The government is keen to expand the use of the vegetable oil for energy and slash fuel imports.

Link: <https://asia.nikkei.com/Business/Energy/Indonesia-tests-flight-using-jet-fuel-mixed-with-2.4-palm-oil>

New JV for methanol catalyst facility in China

Denmark headed Haldor Topsoe A/S and Shaanxi Yanchang Petroleum (Group) Co., Ltd. (Yanchang) have formed a joint venture in order to build a production facility in Shaanxi Fupin in China to produce methanol synthesis catalysts with the aim of delivering locally produced MK-151+ methanol synthesis catalysts to the Chinese market. According to a statement, the companies have designed the plant and ordered long lead time equipment and therefore plan on starting up at the beginning of 2022. The aim is to sell methanol synthesis catalysts directly to Chinese customers, enhancing the presence in the Chinese market.

Source: *Bioenergy International*

Link: <https://bioenergyinternational.com/technology-suppliers/haldor-topsoe-and-yanchang-form-jv-and-build-methanol-catalyst-facility-in-china>

SPOTLIGHT SHIPPING

Maersk invests in methanol powered vessels

Denmark-headed global container shipping major A.P. Moller – Maersk has announced that it will introduce in the first quarter of 2024, the first in a groundbreaking series of 8 large ocean-going container vessels capable of being operated on carbon-neutral methanol. The vessels will be built by Hyundai Heavy Industries (HHI) and have a nominal capacity of approximately 16 000 containers (Twenty-Foot Equivalent Unit – TEU). The vessels will come with a dual-fuel engine setup and will feature a methanol propulsion configuration developed in collaboration with makers including MAN Energy Solutions (MAN ES), Hyundai (Himsen), and Alfa Laval.

CAPEX for the announced vessels is included in current guidance for 2021-2022 of US\$7 billion. Additional capital expenditure (CAPEX) for the dual-fuel capability, which enables operation on methanol as well as conventional low sulphur fuel, will be in the

range of 10-15 percent of the total price. According to a statement, the agreement with HHI includes an option for 4 additional vessels in 2025. The series will replace older vessels, generating annual carbon dioxide (CO₂) emissions savings of around 1 million tonnes.

Source: *Bioenergy International*

Link: <https://bioenergyinternational.com/storage-logistics/a-p-moller-maersk-to-invest-us7-billion-in-green-methanol-powered-large-ocean-going-vessels>

SPOTLIGHT AVIATION

SAF Grand Challenge Announced

The Biden Administration announced steps to coordinate the federal government, aircraft manufacturers, airlines, fuel producers, airports, and non-governmental organizations on advancing the use of sustainable aviation fuels (SAFs) to meet the goal for a fully zero-carbon aviation sector by 2050. The Administration launched the SAF Grand Challenge that has the goal of supplying at least 3 billion gallons of SAF per year by 2030 and, by 2050, sufficient SAF to meet 100% of aviation fuel demand, which is currently projected to be around 35 billion gallons per year. Several federal government agencies will work towards this goal including:

- USDA will support U.S. farmers with climate-smart agriculture practices and research, including biomass feedstock genetic development, sustainable crop and forest management at scale, and post-harvest supply chain logistics.
- The EPA and DOE will collaborate to identify data collection needs, assess technical information, and take other steps designed to expedite the regulatory approval process to support newly developed fuels and feedstocks for the Renewable Fuel Standard program.
- DOE Bioenergy Technologies Office is funding 11 projects with \$35 million to develop feedstock and algae technologies for advancing the domestic bioeconomy and providing an additional \$61 million in project funding to advance biofuels and support reduced cost of SAF pathways.
- DOE Loan Programs Office is offering up to \$3 billion in loan guarantees to commercial-scale SAF projects that utilize innovative technology and avoid, reduce, or sequester greenhouse gas emissions.

Source: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/>

Major Carriers Moving to SAF

Airlines for America, the industry trade organization representing many U.S. airlines, announced their support of the goal to use 3 billion gallons of SAF per year by 2030. Moreover, specific airlines (United Airlines, Delta Airlines, American Airlines, Alaska Airlines, Southwest Airlines) have made pledges to ramp up use of SAF and advance sustainability across their operations: In addition, both Delta and Jet Blue announced agreements in September 2021 to purchase significant amounts of SAF to help decarbonize operations.

Sources: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/>

<https://www.spglobal.com/platts/en/market-insights/latest-news/agriculture/093021-delta-air-lines-signs-sustainable-aviation-fuel-agreement-with-aemetis>

https://www.csrwire.com/press_releases/729091-jetblue-accelerates-transition-sustainable-aviation-fuel-saf-plans-largest

Fuel Providers Scaling Up SAF Production

Fuel providers also announced their support of the goal to produce 3 billion gallons of SAF per year by 2030. Currently, U.S. SAF production is 4.5 million gallons per year. Scaling up production will involve a wide variety of different feedstocks and pathways. To help achieve the 2030 goals, fuel providers have announced U.S. SAF production as follows:

- LanzaJet plans to produce 1 billion gallons of SAF per year 2030 from ethanol derived from waste sources by Alcohol-to-Jet processing.
- World Energy plans to produce 150 million gallons of SAF per year by 2024 from fats, oils, and greases by hydroprocessing.
- Gevo plans to produce over 150 million gallons of SAF per year by 2025 from crop residue to ethanol by Alcohol-to-jet processing.
- Fulcrum plans to produce more than 33 million gallons of SAF per year by 2022 from MSW processed by Fischer-Tropsch processing.
- Velocys plans to produce 300 million gallons of blended SAF per year from waste woody biomass and MSW processed by Fischer-Tropsch processing.

Additional recent and new announcements of potential SAF production scale-up include those from BP, Virent, Honeywell, Shell, Neste, Marquis, Green Plains Inc., ADM, Prometheus, Aemetis, and members of the Renewable Fuels Association and members of Growth Energy.

Source: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/>

AMF NEWS

Task 57 web seminar

On October 21st, AMF hosted a web seminar on Heavy Duty Vehicle Evaluation. The seminar presented energy efficiency and emissions of modern HDVs driving on a range of alternative fuels. Case studies from Sweden and Switzerland, and a presentation on the electrification of HDVs rounded off the programme. Presentations will be made available on the AMF website.

Link: https://www.iea-amf.org/content/events/web_seminars/webinar_task57

AMF ExCo 62 Meeting upcoming

The next meeting of the AMF Executive Committee will take place in the first week of November. It will present progress reports on ongoing AMF work and discuss new topics. Future AMF work could include a collaboration on e-fuels, investigation of exhaust after treatment systems when operated on alternative fuels, and LCA for trucks.

PUBLICATIONS

IEA World Energy Outlook 2021

A new energy economy is emerging around the world as solar, wind, electric vehicles and other low-carbon technologies flourish. But as the pivotal moment of COP26 approaches, the IEA's new World Energy Outlook makes it clear that this clean energy progress is still far too slow to put global emissions into sustained decline towards net zero, highlighting the need for an unmistakable signal of ambition and action from governments in Glasgow.

Download: <https://www.iea.org/reports/world-energy-outlook-2021>

IEA Key World Energy Statistics

The IEA Key World Energy Statistics report is now out, offering a huge array of information across all fuels, technologies, sectors and countries. The report is an introduction to energy statistics, providing top-level numbers across the energy mix, from supply and demand, to prices and research budgets, including outlooks, energy indicators and definitions.

Link: https://www.iea.org/reports/key-world-energy-statistics-2021?utm_medium=Email&utm_campaign=IEA+newsletters&utm_source=SendGrid

Progress towards biofuels for marine shipping

IEA Bioenergy Task 39 (Biofuels) has recently published a report highlighting the status of deployment of advanced biofuels in the marine sector and barriers to their market introduction. According to interviews with key stakeholders, the lack of economic incentives, and a high level of uncertainty related to price development of biofuel feedstocks, sustainability

criteria and regulatory policies seem to be the main barriers to the implementation of marine biofuels.

Link: http://task39.sites.olt.ubc.ca/files/2021/07/Progress-towards-biofuels-for-marine-shippingT39-report_June-2021_Final.pdf

EU Maritime Transport Environmental Report 2021

This report provides a factual analysis of the environmental pressures exerted by the maritime transport sector, presents up-to-date information on the relevant EU and international environmental standards and describes current and future actions to reduce the sector's impact on our environment.

Source: European Environment Agency (EEA) - Publications
<https://www.eea.europa.eu/publications/maritime-transport>

Download: https://www.eea.europa.eu/publications/maritime-transport/at_download/file

Alternative Fuels in the Maritime Sector

Researchers developed a scoping study to outlining the barriers, uncertainties, and possibilities in the short and long term for the transition to alternative fuels in the maritime sector. The marine shipping sector faces uncertainty regarding its ability to reliably fuel its vessels, while remaining compliant with new international environmental regulations and targets. Increasingly stringent environmental standards, and heightened regulatory focus on maritime decarbonization are driving infrastructural and technical development for alternative fuels and mixtures, engine concepts, and operating practices.

However, the transition to alternative fueling is highly complex and requires both a global outlook that spans diverse stakeholder demographics and coordination with multiple actors across the value chain. The results of this study provide strategic decision support, technical direction, and a set of R&D priorities for maritime stakeholders and the scientific community

Source:
<https://www.sciencedirect.com/science/article/pii/S2666822X21000241>

Life-Cycle GHG Emissions for Aviation Fuels

The International Civil Aviation Organization (ICAO) established the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to help reduce aviation greenhouse gas emissions. Researchers present the methodology agreed by the 193 ICAO member states to evaluate the life-cycle GHG emissions of sustainable aviation fuels (SAFs), in the CORSIA system. The core life-cycle assessment and induced land use change values of SAFs are presented to determine the GHG savings of certified pathways. A number of SAFs can yield significant life-cycle GHG emission reductions compared to petroleum-derived jet fuel. This implies the potentially major role of SAFs in reducing aviation's carbon footprint

Source:
<https://www.sciencedirect.com/science/article/pii/S1364032121006833>

Decarbonizing Air Transport

This report provides an overview of technological, operational and policy measures that can accelerate the decarbonization of aviation. Its goal is to support governments and aviation stakeholders looking to introduce aviation decarbonization measures regionally, nationally and internationally. All measures are discussed in light of their cost-effectiveness and the potential barriers to their implementation. The report summarizes the conclusions from an expert workshop held in February 2020 as part of the International Transport Forum's Decarbonizing Transport initiative.

Link: <https://www.itf-oecd.org/decarbonising-air-transport>

Impact assessment of ReFuelEU Aviation initiative

This study aims to support the European Commission's Impact Assessment of the ReFuelEU Aviation initiative by looking into Policy Options that can be applied to support the large-scale production and use of Sustainable Aviation Fuel of high sustainability potential in the EU at competitive prices.

Source: Publications Office of the European Union
<https://op.europa.eu/en/publication-detail/-/publication/46892bd0-0b95-11ec-adb1-01aa75ed71a1/language-en/format-PDF/source-231811383>

Download: https://op.europa.eu/en/publication-detail/-/publication/46892bd0-0b95-11ec-adb1-01aa75ed71a1/language-en/format-PDF/source-231811383#_publicationDetails_PublicationDetailsPortlet_p a

Assessment of transport fuel quality parameters

The aim of this study was to identify options for improving relevant provisions in the Fuel Quality Directive, in particular in view of the linkages to RED II. Twelve research themes were identified for technical assessment, under each of which a number of options for potential changes to the standards are identified. Each of these options are assessed in terms of: - Protection of human health and of the environment from transport related pollution, including greenhouse gas emission; - Internal market for transport fuels; - Compatibility between transport fuels and vehicle components; - Economic implications for different stakeholders, including public administration.

Source: Publications Office of the European Union
https://op.europa.eu/en/publication-detail/-/publication/0dd983bf-ee82-11eb-a71c-01aa75ed71a1/language-en/format-PDF/source-231849546#_publicationDetails_PublicationDetailsPortlet_p a

ITF database on transport

Three-quarters of all emissions from urban passenger transport come from private vehicles. Ambitious transport policies could bring this down to 33% by 2050. A new database of modelled results that underpin our ITF Transport Outlook projections to 2050 is now freely available online. The modelled results show travel demand, vehicle activities, energy consumptions, and related CO₂ emissions of all modes and for three different policy scenarios: Recovery, Reshape, and Reshape+.

Link: <https://itf-oecd.us11.list-manage.com/track/click?u=07ce419bce4a45060201f0565&iid=2c5700ad3e&e=01ebf964b8>

Impacts of heavy-duty vehicles in G20 economies

A new ICCT paper quantifies the benefits of policies for reducing air pollutant emissions from heavy-duty vehicles in G20 economies. On-road diesel vehicles are the leading contributor to transportation-related air pollution and associated disease burdens. Besides the impact on air quality and public health, black carbon from diesel engine exhaust produces significant near-term climate warming. This study analyzes the health and climate impacts associated with projected diesel heavy-duty vehicle exhaust emissions under four scenarios: currently adopted policies, expanded adoption of Euro VI-equivalent standards, potential next-generation emission standards, and accelerated fleet renewal programs.

Source: ICCT, <https://theicct.org/publications/g20-hdv-impacts-jul2021>

https://theicct.org/publications/g20-hdv-impacts-jul2021?mc_cid=6ab949f08c&mc_eid=15ad54317d

Urban Bus Fleets Technology Transition

Researchers developed a curriculum on fleet-wide technology transitions to soot-free and zero-emission buses. The goal of the curriculum is to build capacity for local bus operators and transit authorities, in addition to sharing best practices and helping facilitate the growth of a global community of bus fleet operators and transit authorities. The information is targeted at transit authorities and operators who plan on making a bus purchase decision. In addition, it provides information to officials who have the decision-making power to design and implement transit policies. The curriculum is available in both English and Spanish.

Sources: <https://theicct.org/publications/soot-free-ZE-urban-bus-fleets-tech-transition-curriculum-EN-sept21>

<https://theicct.org/publications/soot-free-ZE-urban-bus-fleets-tech-transition-curriculum-ESP-sept2>

EU vehicle market statistical pocketbook

The 2020/2021 edition of European Vehicle Market Statistics offers a statistical portrait of passenger car, light commercial, and heavy-duty vehicle fleets in the European Union from 2001 to 2019. The emphasis is

on vehicle technologies and emissions of greenhouse gases and other air pollutants. Brief introductions to each chapter note important trends and provide selected comparisons to other large vehicle markets

Source *icct - the International Council on Clean Transportation* <http://eupocketbook.org/>

Download: http://eupocketbook.org/wp-content/uploads/2020/12/ICCT_Pocketbook_2020_Web.pdf

Truck Eco-Driving Programs in Latin America

Researchers reviewed the status of eco-driving programs for the on-road freight industry in Argentina, Brazil, Chile, Costa Rica, Mexico, and Peru. These locations were selected as they demonstrated opportunities for the implementation or expansion of eco-driving programs. For each market, the authors outline the current eco-driving policies and programs, and present stakeholders' perspectives and insights regarding the barriers to and opportunities for success. The authors also draw from the experience of eco-driving programs embedded in green freight initiatives in North America and around the world to present best practices.

Source: <https://theicct.org/publications/eco-driving-latam-EN-apr2021>

Recent BETO webinars available for viewing

The U.S. Department of Energy's (DOE's) Bioenergy Technologies Office (BETO) has hosted a number of recent webinars which are now available to the public. Check out these webinars below, where you can access the webinar recordings, downloadable presentations, and transcripts.

- September 30, 2021: Co-Optimization of Fuels & Engines past, present, and future: What did we learn and where do we go next?

Presentation and recordings available at: <https://www.energy.gov/eere/bioenergy/co-optima-capstone-webinar-co-optimization-fuels-engines-past-present-and-future>

- September 16, 2021: How ABPDU Is Training the Next Generation of Bioprocess Engineers

Presentation and recordings available at: <https://www.energy.gov/eere/bioenergy/webinar-how-abpdu-training-next-generation-bioprocess-engineers>

- August 26, 2021: Sustainable Aviation Fuel Strategy at the Bioenergy Technologies Office

Presentation and recordings available at: <https://www.energy.gov/eere/bioenergy/webinar-sustainable-aviation-fuel-strategy-bioenergy-technologies-office>

Deposit formation in fuels containing biodiesel

The German Fuel Joint research group published a report entitled "Development of an on-board sensor system for early identification of deposit formations in

fuels containing biodiesel". The first part of the report discusses a detailed investigation of the ageing of rapeseed oil methyl ester (RME). The second part presents the developed sensor system for recognizing the fuel composition and the degree of ageing

Link to the complete report:

https://www.ufop.de/files/2716/3419/5793/2021_Band_31_JFRG_Sensor_Deposits.pdf

EVENTS

World Ethanol & Biofuels

2-4 November 2021, Brussels, Belgium and livestreamed

<https://advancedbiofuelsusa.info/world-ethanol-biofuels-november-2-4-2021-brussels-belgium-and-livestreamed/>

European E-Fuels Conference

3-4 November 2021, Hamburg, Germany

<https://advancedbiofuelsusa.info/european-e-fuels-conference-november-4-5-2020-hamburg-germany/>

Alternative Fuels & Chemicals Coalition Global Biobased Economy Conference and Exhibit

14-16 November 2021, National Harbor, MD/Washington, DC

<https://advancedbiofuelsusa.info/alternative-fuels-chemicals-coalition-november-14-16-2021-national-harbor-md-washington-dc/>

Aerospace 2050 Forum/Aviation Sustainability

14-19 November 2021, Dubai, UAE

<https://advancedbiofuelsusa.info/aerospace-2050-forum-aviation-sustainability-november-14-19-2021-dubai-uae/>

World Hydrogen Energy Summit

16-17 November 2021, online

<https://advancedbiofuelsusa.info/world-hydrogen-energy-summit-november-16-17-2021-online/>

Future of Biogas Europe 2021

24-25 November 2021, Berlin, Germany

<https://www.wplgroup.com/aci/event/future-biogas-europe/>

IEA Bioenergy Conference 2021

28 Nov - 9 Dec 2021, Virtual

<https://www.ieabioenergy.com/iea-publications/conferences/>

The Battery Show and Electric & Hybrid Vehicle Technology Expo

30 Nov - 2 Dec 2021, Stuttgart, Germany

<https://www.evtechexpo.eu/en/Home.html>

RNG 2021 Conference

13-16 December 2021, Dana Point, California, USA

<https://www.rngcoalition.com/rng-conference/>

Argus Green Ammonia – Virtual Conference

7-9 December 2021, online

<https://advancedbiofuelsusa.info/argus-green-ammonia-virtual-conference-december-7-9-2021-online/>

Transportation Research Board 101st Annual Meeting

9-13 January 2022, Washington, D.C., USA

<https://www.trb.org/AnnualMeeting/AnnualMeeting.aspx>

2022 Nor-Shipping Ocean Leadership Conference

10-13 January 2022, Oslo, Norway

<https://advancedbiofuelsusa.info/2022-nor-shipping-ocean-leadership-conference-january-10-13-2022-oslo-norway/>

National Biodiesel Conference and Expo

17-20 January 2022, Las Vegas, USA

<https://advancedbiofuelsusa.info/national-biodiesel-conference-and-expo-january-17-20-2021-las-vegas-nv/>

Fuels of the Future 2022 – Navigator for Sustainable Mobility!

24-25 January 2022, Berlin, Germany

<https://advancedbiofuelsusa.info/fuels-of-the-future-2022-navigator-for-sustainable-mobility-january-24-25-2022-berlin-germany/>

19th International Conference on Renewable Mobility "Fuels of the Future"

24-28th of January 2022, online

<https://www.fuels-of-the-future.com/en>

LignoFuels 2022

2-3 February 2022, Helsinki, Finland

<https://www.wplgroup.com/aci/event/lignocellulosic-fuel-conference-europe/>

Renewable Fuels Association National Ethanol Conference

21-23 February 2022, New Orleans, Louisiana, USA

<https://www.nationalethanolconference.com/>

World Hydrogen 2022 Summit & Exhibition

8-10 March 2022, Rotterdam, The Netherlands

<https://advancedbiofuelsusa.info/148245-2/>

The Work Truck Show & GreenTruck Summit

8-11 March 2022 Indianapolis, Indiana, USA

<https://www.worktruckshow.com/>

International Biomass Conference and Expo

14-16 March 2022, Jacksonville, USA

<https://advancedbiofuelsusa.info/international-biomass-conference-and-expo-march-14-16-2022-jacksonville-fl/>

Conference on CO₂-based Fuels and Chemicals

23-24 March 2022, hybrid event – ONLINE and Cologne, Germany

<https://advancedbiofuelsusa.info/conference-on-co2-based-fuels-and-chemicals-march-23-24-2022-hybrid-event-online-and-cologne-germany/>

WCX SAE World Congress Experience

5-7 April 2022, Detroit, Michigan, USA

<https://www.sae.org/attend/wcx>

NEW DATE: Argus Panama Bunker Fuels Conference - POSTPONED to May 2022

May 2022, Panama City, Panama

<https://advancedbiofuelsusa.info/argus-panama-bunker-fuels-conference-april-22-24-2020-panama-city-panama-2/>

Argus Mexico Fuel Markets Summit 2022

May 2022, Mexico

<https://advancedbiofuelsusa.info/argus-mexico-fuel-markets-summit-2022-may-2022-mexico/>

Advanced Clean Technology (ACT) Expo

9-12 May 2022, Long Beach, California, USA

<https://www.actexpo.com/>

Oleofuels 2022

18-19 May 2022, Marseille, France

<https://advancedbiofuelsusa.info/oleofuels-2022-may-18-19-2022-marseille-france/>

CAAFI General Meeting

1-2 June 2022, Washington, USA

<https://advancedbiofuelsusa.info/caafi-biennial-general-meeting-june-2-4-2021-washington-dc/>

Electric & Hybrid Vehicle Technology Expo

13-15 September 2022, Novi, Michigan, USA

<https://evtechexpo.com/>

IMPRINT

The Advanced Motor Fuels Technology Collaboration Programme (AMF TCP) is one of the International Energy Agency's (IEA) transportation related Technology Collaboration Programmes. These are multilateral technology initiatives that encourage technology-related activities that support energy security, economic growth and environmental protection.

AMF provides an international platform for co- operation to promote cleaner and more energy efficient fuels and vehicle technologies. This newsletter contains news articles on research, development and demonstration of advanced motor fuels, information about related policies, links to AMF projects, and an overview over publications and events.

The newsletter is prepared based on contributions from Werner TOBER and Robert ROSENITSCH, TU Vienna, Shinichi GOTO, AIST, and Andy BURNHAM, ANL. It is edited by Andrea Sonnleitner and Dina Bacovsky, BEST – Bioenergy and Sustainable Solutions. The Newsletter is available online at: www.iea-amf.org.

AMF welcomes interested parties to make contact and to become members of the AMF family. If you wish to get in touch please contact the AMF Secretary, the AMF ExCo Chair or your national AMF Delegate.

CONTACT

AMF SECRETARY

Dina Bacovsky

BEST – Bioenergy and Sustainable Technologies

dina.bacovsky@best-research.eu

+43 5 02378 9435

AMF EXCO CHAIR

Jesper Schramm, Technical University of Denmark

js@mek.dtu.dk

AMF DELEGATES

Austria

Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, Andreas Dorda

Canada

Environment and Climate Change Canada, Debbie Rosenblatt

Chile

Ministry of Energy, Daniela Soler Lavin

People's Republic of China

China Automotive Technology and Research Center (CATARC) Cheng Wang

Denmark

Technical University of Denmark, Jesper Schramm

Finland

VTT Technical Research Centre of Finland, Petri Söderena

Germany

Agency for Renewable Resources (FNR), Birger Kerckow

India

Ministry of Petroleum & Natural Gas, Sunil Kumar

Japan

National Institute of Advanced Industrial Science and Technology (AIST), Mitsuharu Oguma

Organization for the Promotion of Low Emission Vehicles (LEVO), Yutaka Takada

National Traffic Safety and Environment Laboratory (NTSEL), Ichiro Sakamoto

South Korea

Korea Institute of Energy Technology Evaluation and Planning (KETEP), Hyun-choon Cho

Spain

Institute for the Diversification and Saving of Energy (IDAE), Francisco José Domínguez Pérez

Sweden

Swedish Transport Administration, Magnus Lindgren

Switzerland

Swiss Federal Office of Energy (SFOE), Sandra Hermle

The United States

Department of Energy (DOE), Kevin Stork