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Advanced Motor Fuels News



Energy security has come into focus again, and spurs interest in renewable natural gas.

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DEMONSTRATION / IMPLEMENTATION / MARKETS

Feedstock and biofuels storage hub

In the UK, Stanlow Terminals Ltd has announced that it will make investments over the next three years to develop the country's largest biofuels storage hub located in the North West of England. This new customer-led investment will support the growth of initiatives such as sustainable aviation fuel linked to Fulcrum's Northpoint project, sustainable hydrotreated vegetable oil, and will include waste-based feedstock import facilities, blending, and capacity expansion for existing bio-ethanol and bio-methanol.

Source: <https://bioenergyinternational.com/stanlow-terminals-to-develop-uks-largest-biofuels-storage-hub/>

JV for renewable diesel production

Finland-headed oil refiner and renewable products producer Neste Oyj has announced that it has signed definitive agreements for the establishment of a 50/50 joint venture with US-based Marathon Petroleum Corporation. The joint venture will produce renewable diesel following a conversion project of Marathon's refinery in Martinez, California, aka the Martinez Renewable Fuels project.

Source: <https://bioenergyinternational.com/neste-and-marathon-petroleum-corp-agree-renewable-fuels-joint-venture/>

New 2G ethanol production plans

US-headed specialty pulp major Rayonier Advanced Materials Inc. (RYAM) has announced the introduction of a second-generation (2G) bioethanol product to be produced using wood-based feedstock from a new biorefinery that is being built in Tartas, France. RYAM's biorefinery model captures residual sugars from its existing pulp process and converts the sugars into 2G bioethanol.

Designed to produce up to 21 million liters of bioethanol per annum, construction on RYAM's 2G production facility in France is scheduled to begin in 2022 with commercial sales targeted for the summer of 2023. With a 90% smaller carbon footprint compared to fossil fuel-based gasoline, the 2G ethanol will help petrochemical companies meet their need for clean and renewable energy in the European market and contribute to reduced climate change.

Source: <https://bioenergyinternational.com/new-2g-ethanol-plans-for-europes-growing-biofuels-market/>

Syngas production at Sierra BioFuels Plant started

US-based waste-to-fuels process developer Fulcrum BioEnergy, Inc has announced the completion of commissioning and the initial operations of its Sierra BioFuels Plant in Reno, Nevada, USA. The biorefinery began operations on May 24, 2022, processing prepared waste feedstock and successfully

producing high-quality hydrocarbon synthetic gas, or syngas, which is ideal for conventional Fischer-Tropsch fuel production. The Sierra BioFuels Plant operations will now move on to the final step in Fulcrum's waste to fuels process, converting the syngas into liquid fuel.

Source: <https://bioenergyinternational.com/sierra-biofuels-plant-achieves-major-milestone/>

Waste carbon to chemicals

In the United States, researchers led by LanzaTech Inc, Northwestern University, and Oak Ridge National Laboratory have developed an efficient new process to convert waste carbon gases, such as emissions from heavy industry or syngas generated from any biomass source, into either acetone or isopropanol (IPA). Their methods, including a pilot-scale demonstration and life cycle analysis (LCA) showing the economic viability, have been published in the journal Nature Biotechnology.

Source: <https://bioenergyinternational.com/closing-the-carbon-cycle-and-creating-a-pathway-to-net-zero-with-c-auto/>

Plans for PtX production in Finland

Founded in July 2021, Ren-Gas is developing a decentralized hydrogen and P2X methane production and distribution network in Finland for the heavy transportation sector. The company aims to achieve 300 MW of production capacity for its P2X methane projects by 2030. Ren-Gas has now signed a cooperation agreement with Lahti Energia to confirm the "technical and commercial feasibility" of the project before a final investment decision can be made.

Source: <https://bioenergyinternational.com/plans-for-finlands-largest-power-to-x-investment-unveiled/>

Trucks switching to RNG use in California

In the United States, Clean Energy Fuels Corporation runs the "Adopt-a-Port" program with Chevron, encouraging and supporting fleet operators serving the ports region to switch to renewable natural gas. So far, over 200 heavy-duty trucks have been contracted through the program and over 400 more are being processed, which will help to clean the air in and around the ports and significantly reduce greenhouse gas emissions.

Source: <https://bioenergyinternational.com/new-clean-energy-fuels-rng-supply-deals-boost-californian-carbon-reduction/>

Cellulosic RNG production in Iowa

In the United States, VERBIO North America Holdings Corporation (VNAH), a 51 percent subsidiary of Germany-headed independent biodiesel, ethanol, and biogas major VERBIO Vereinigte BioEnergy AG, has officially opened the first US industrial-scale renewable natural gas facility using agricultural residues as its feedstock in Nevada, Iowa.

Source: <https://bioenergyinternational.com/verbio-nevada-commences-production-of-cellulosic-rng-in-iowa/>

Deployment of biomethane in UK

In the UK, CNG Fuels Ltd, one of the country's leading providers of renewable biomethane (aka renewable natural gas - RNG) for heavy goods vehicles (HGVs), has announced the opening of what it says is the world's largest public access biomethane refueling station. The site is capable of refueling 80 HGVs per hour from 14 high-speed dispensers, making it the largest public access biomethane refueling station in the world.

All of the fuel supplied by CNG Fuels is 100 percent renewable and sustainable biomethane, sourced from food waste, and approved under the Department for Transport's Renewable Transport Fuel Obligation (RTFO) scheme. The site is part of CNG Fuels' nationwide network of eight renewable biomethane refueling stations which covers the length and breadth of the country, enabling low carbon deliveries from Inverness all the way down to Cornwall.

Source: <https://bioenergyinternational.com/worlds-largest-public-access-mg-refueling-station-opens/>

Cummins builds hydrogen engine

Cummins debuted a 15-liter hydrogen engine built on their new fuel-agnostic platform, where below the head gasket each fuel type's engine has largely similar components, and above the head gasket, each has different components for different fuel types. The hydrogen version is expected to go to full production in 2027. Their hydrogen engine technology is already achieving production power and torque targets (over 810 ft-lbs torque and 290 hp from the medium-duty engine). Additional testing on advanced prototypes will begin soon. Cummins intends to produce a 6.7-liter hydrogen internal combustion engine to help cover multiple markets.

In addition, Cummins and Daimler are collaborating to upfit and validate Freightliner Class 8 Cascadia trucks with a Cummins hydrogen fuel cell powertrain for use in North America. Freightliner will use Cummins' fourth-generation fuel cell powertrain. Upon successful validation, the companies intend to have units available in 2024.

Source: <https://www.cummins.com/news/releases/2022/05/09/cummins-inc-debuts-15-liter-hydrogen-engine-act-expo>
<https://www.greencarcongress.com/2022/05/20220512-dtna.html>

World-first liquefied hydrogen vessel

The world's first liquefied hydrogen carrier, the Suiso Frontier, departed Victoria, Australia on January 28, 2022, marking a significant milestone of the Hydrogen Energy Supply Chain Pilot Project. Built by Kawasaki Heavy Industries Ltd, the Suiso Frontier enables the safe transport of liquefied hydrogen in large quantities from the Port of Hastings, VIC, to Kobe, Japan.

For the pilot project, 99.999 percent pure hydrogen has been produced from Latrobe Valley coal and

biomass via gasification, trucked to Hastings, cooled to -253 degrees C, and subsequently liquified to less than 800 times its gaseous volume to create highly valuable liquefied hydrogen.

Source: <https://bioenergyinternational.com/world-first-liquefied-hydrogen-carrier-sets-sail-on-inaugural-voyage/>

POLICY / LEGISLATION / MANDATES / STANDARDS

India's clean energy transition

India's announcement that it aims to reach net zero emissions by 2070 and to meet fifty percent of its electricity requirements from renewable energy sources by 2030 is a hugely significant moment for the global fight against climate change. India is pioneering a new model of economic development that could avoid the carbon-intensive approaches that many countries have pursued in the past – and provide a blueprint for other developing economies.

Source: https://www.iea.org/commentaries/india-s-clean-energy-transition-is-rapidly-underway-benefiting-the-entire-world?utm_source=SendGrid&utm_medium=Email&utm_campaign=IEA+newsletters

USDA announces \$800 million in biofuels investments

The U.S. Department of Agriculture (USDA) announced more than \$800 million in investments in expanding the use of biofuels.

- up to \$700 million will be provided through a new Biofuel Producer Program that will support agricultural producers that rely on biofuels producers as a market for their agricultural products.
- \$100 million will fund grants to refueling facilities for the cost of infrastructure for ethanol blends of E15 and greater or fuel containing biodiesel blends B20 and greater. USDA will also make funding available to support biofuels for railways.
- \$5.6 million will fund grants through the Higher Blends Infrastructure Incentive Program to significantly increase the sales and use of higher blends of ethanol and biodiesel.

Source: <https://www.usda.gov/media/press-releases/2022/04/12/biden-harris-administration-department-agriculture-announce-efforts>

H2Global initiative

On December 23, 2021, the German Federal Ministry for Economic Affairs and Energy announced a financial allocation in excess of EUR 900 million that will be used to support the provision of green hydrogen by the H2Global Foundation.

The H2Global program was developed as part of the government's national hydrogen strategy. The idea is that as an instrument of the market economy, an intermediary will buy green hydrogen and derivatives

at the lowest price possible at auction and sell these on into Germany and in Europe to the highest bidders.

The intermediary will then receive a subsidy from the BMWi to cover the anticipated negative difference in price as production costs for green hydrogen and Power-to-X products are currently significantly higher than for fossil-based products. The first deliveries of hydrogen products are slated to commence as soon as the end of 2024.

Source: <https://bioenergyinternational.com/new-german-government-gives-go-ahead-for-h2-global-initiative/>

Electric and hydrogen bus deployment

The U.S. Department of Transportation announced nearly \$150 million in funding for 26 projects that will deploy electric and hydrogen transit buses and infrastructure. This funding was part of the Grants for Buses and Bus Facilities Program which awarded a total of \$409 million to 70 projects across 39 states. Funding for this program was increased significantly as part of the Bipartisan Infrastructure Law, which will provide \$5.1 billion in formula and competitive grant funding over the next five years.

Source: <https://www.transit.dot.gov/about/news/president-biden-and-us-department-transportation-announce-409-million-70-transportation>

ITF common interest groups

Within the International Transport Forum, three common interest groups have been established:

- The **Common Interest Group – Aviation** aims to advance policies that increase the use of SAF because they can reduce emissions faster than other novel technologies. Unlike electric or hydrogen-powered aircraft, SAF technology is ready for larger-scale implementation now. This is critical, since aircraft entering service today have a long lifetime – they will still operate in 2050, the year the airline industry has pledged to be carbon-neutral.
- The **Common Interest Group – Road transport** aims to pave the way for widespread implementation of policies that will decarbonize heavy-duty road transport. To that end, the Group identifies the most promising technologies and explores which incentives will help their adoption
- The **Common Interest Group – Shipping** tackles the challenge of decarbonizing maritime shipping. The Group aims to stimulate the implementation of policies that will decarbonize maritime shipping.

Source: <https://www.itf-oecd.org/decarbonising-aviation-common-interest-group>

<https://www.itf-oecd.org/decarbonising-heavy-duty-road-freight-common-interest-group>

<https://www.itf-oecd.org/decarbonising-shipping-common-interest-group>

SPOTLIGHT SHIPPING

Strategic partnership on marine biofuels

Bunker Holding Group, the world's largest supplier and trader of marine fuels, has announced that it has entered into a strategic global collaboration agreement with Renewable Energy Group Inc., a leading global producer and supplier of renewable fuels. The aim of the collaboration is to further develop the United States and European Union marine markets for sustainable bio-based diesel.

Source: <https://bioenergyinternational.com/bunker-holding-enters-strategic-partnership-to-boost-marine-biofuels/>

Successful marine biofuel trials

Global oil and gas major bp plc and Maersk Tankers, an A.P. Moeller-Maersk company with support from the Danish Maritime Authority, have announced the successful completion of trials using biofuel-blended marine fuel in product tankers, demonstrating that sustainable biofuels can be used as a marine 'drop-in fuel' to help reduce carbon emissions in shipping.

Source: <https://bioenergyinternational.com/bp-and-maersk-tankers-complete-successful-marine-biofuel-trials/>

New co-processed marine fuel pilot

Together with its partner Nordic Marine Oil, Neste is piloting a new Neste Marine™ 0.1 Co-processed marine fuel in Scandinavia – a solution helping the maritime sector to reduce its greenhouse gas emissions. The new marine fuel enables up to 80% GHG emission reduction over the lifecycle compared to fossil fuels, without compromising the product quality and performance.

Neste Marine 0.1 Co-processed marine fuel is produced at Neste's refinery in Porvoo, Finland, where renewable raw materials are co-processed with fossil raw materials in the conventional refining process. The drop-in fuel can be taken in use without any fleet modifications as it has a similar composition to conventional bunker fuels. The co-processed marine fuel is ISO 8217 compliant with consistent refined quality. The sustainability characteristics of the co-processed marine fuel are certified with International Sustainability and Carbon Certification (ISCC PLUS) with a mass balance approach.

Source: <https://www.neste.com/releases-and-news/renewable-solutions/neste-introduces-co-processed-marine-fuel-partnership-nordic-marine-oil-new-solution-maritime-sector>

Biofuel supply in Singapore

Interest in introducing biofuel supply in Singapore is rising.

- Netherlands-headed GoodFuels, a leading biofuels pioneer for the global transport industry, has announced the opening of its first office in Singapore. This new permanent presence in the region will enable GoodFuels to respond to the fast-growing global demand for its advanced sustainable biofuels.

- France-headed global shipping and logistics major CMA CGM Group, with the support of the Maritime and Port Authority of Singapore (MPA), has announced that it has started biofuel bunkering in Singapore as part of its global trial to scale up the wider adoption of clean energy.

Sources: <https://bioenergyinternational.com/cma-cgm-group-launches-global-multiple-trade-lane-biofuel-trial/>
<https://bioenergyinternational.com/goodfuels-opens-singapore-office-to-serve-asia-pacific-demand/>

Japan: Testing biofuel in heavy oil A

National Maritime Research Institute Japan tested the mixed stability of heavy oil A to seek the next generation biofuel possibility by conducting (i) Mixing stability test, (ii) Kinematic viscosity and Density measurement test, (iii) Immersion test of rubber material, and (iv) Constant volume combustion test. The biomixed fuel in this test is a pre-commercial product of Euglena biodiesel fuel and consists of 20% biofuel and 80% light oil.

Source: https://www.jrft.go.jp/ship/heavyoilA_biofuel_outline.pdf (Japanese)

SPOTLIGHT AVIATION

Malaysia Airlines starts using SAF

Malaysia Airlines has operated its inaugural flight using sustainable aviation fuel (SAF) in partnership with PETRONAS Dagangan Berhad (PDB) and Neste Oyj. The historic flight MH7979 utilizing the Airbus 330-200 aircraft departed Amsterdam Airport Schiphol in the Netherlands using a blended mixture of approximately 38 percent SAF, and fossil jet fuel, and safely arrived in Kuala Lumpur International Airport.

The flight marks Malaysia Airlines' commitment to make SAF the cleaner and more viable energy option for regular flights by 2025.

Source: <https://bioenergyinternational.com/malaysia-airlines-conducts-first-international-flight-using-saf/>

Spanish aviation stakeholders commit to R&D on SAF

On January 24, 2022, Spanish national air carrier Iberia L.A.E., its subsidiary Iberia Express, and compatriot oil, gas, and energy major CEPSA signed an agreement to help decarbonize the national airline industry through R&D into sustainable aviation fuels and other alternative energies.

The companies will jointly develop and produce sustainable aviation biofuels on a large scale from waste, recycled used oils, and other sustainable plant-based feedstocks. The agreement also contemplates other alternative energy sources such as renewable hydrogen and electricity to promote sustainable mobility in aircraft and ground fleets.

Source: <https://bioenergyinternational.com/spanish-aviation-stakeholders-partner-to-develop-saf-production/>

Portuguese power-to-liquids project

In Portugal, a consortium of stakeholders has signed a Memorandum of Understanding to launch feasibility studies for the industrial production of sustainable alternative aviation fuel using carbon dioxide emissions from a municipal waste-to-energy plant in the city of Maia, north of Porto.

Source: <https://bioenergyinternational.com/plans-for-portuguese-power-to-liquids-project-unveiled/>

SPOTLIGHT METHANOL

Methanol engine at Wärtsilä

Finland-headed marine- and energy engineering and technology major Wärtsilä Oyj has revealed that it has received its first order for newbuild methanol-fuelled engines. A new Offshore Wind Installation Vessel will be powered by five Wärtsilä 32 engines capable of operating with methanol. The methanol engine order extends Wärtsilä's position in support of the maritime industry's decarbonization ambitions, and in the use of methanol as a marine fuel.

Source: <https://bioenergyinternational.com/wartsila-hits-marine-methanol-milestone-with-wiv-engine-order/>

Rolls-Royce to launch methanol powered mtu engines

Germany-headed Rolls-Royce Power Systems AG has announced that it is focusing on methanol as a fuel for climate-friendly shipping. The company is currently working on new high-speed four-stroke mtu engines for use with methanol. The engines, which are based on proven mtu technologies, are planned to be available as soon as possible for use in commercial ships and yachts.

Source: <https://bioenergyinternational.com/rolls-royce-to-launch-methanol-powered-mtu-engines/>

New methanol-powered pilot boat

The Swedish Maritime Administration has rebuilt one of its pilot boats to be fully powered by methanol. The boat will now be part of the regular pilot operations to evaluate the technology and also ensure both its capacity and capability.

The rebuilding of the boat from previously running on diesel to now running on methanol is part of a larger EU Horizon 2020 project – FAST Track to Clean and Carbon-Neutral WATERborne Transport through Gradual Introduction of Methanol Fuel (FASTWATER) that will continue until 2024.

Source: <https://bioenergyinternational.com/sma-launches-worlds-first-methanol-powered-pilot-boat/>

Methanol fuel cell production envisaged

Danish methanol fuel cell technology developer and manufacturer Blue World Technologies ApS have confirmed that Vaekstfonden, the Danish Growth Fund, and the German engine manufacturer DEUTZ AG will enter as investors in the company with a total

investment of EUR 15 million. The aim of the investment is to bring the company's green fuel cell products and solutions to the global market.

With an expectation of producing 500 MW fuel cells at the plant in Aalborg, Denmark when the full production capacity is achieved within the next couple of years, the company takes a big step towards getting the methanol fuel cell technology out on the market, where it will contribute to reducing both carbon dioxide and air pollution.

Source: <https://bioenergyinternational.com/vaekstfonden-and-deutz-invest-eur-15-million-in-blue-world-technologies/>

Carbon footprint of methanol

The Methanol Institute engaged Amsterdam-based independent consultancy firm studio Gear Up to provide a Lifecycle Carbon Assessment of various methanol production feedstocks and processes based on data supplied by a dozen companies using the European Renewable Energy Directive (RED II) methodology. MI's Carbon Footprint of Methanol white paper is the first comprehensive study to provide primary source data on the greenhouse gas emissions from the production of methanol from natural gas, coal, and a wide range of renewable feedstocks.

Source: <https://www.methanol.org/policy-initiatives/europe/>

AMF NEWS

ExCo 63 Meeting

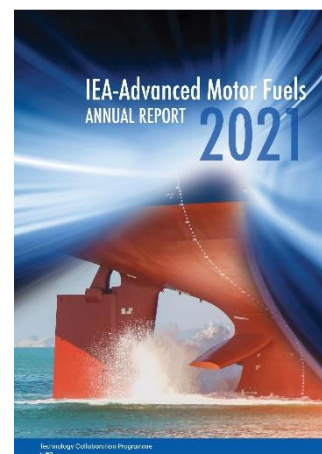
The 63rd AMF ExCo meeting was held 6th May 2022 online. Delegates from 12 contracting parties participated in the formal meeting, and had also joined the information exchange and discussion meetings on the previous days.



AMF is currently conducting collaborative research and information exchange in 6 projects. Further topics are under preparation and include a collaboration with the Combustion TCP on "Exhaust Emissions and After-treatment Systems (EATS)" and work on emissions from "Non-road Mobile Machinery (NMM)". AMF furthermore contributes to the IEA's initiative on expanding the data of the GREET model for further regions, fuels, and vehicles, and to Task 46 of the HEV TCP "LCA of Electric Trucks, Buses, Two wheelers and Other Vehicles".

AMF Annual Report 2021

The AMF Annual Report 2021 has been published early June. The report provides condensed information on the situation of advanced motor fuels in all AMF member countries as well as interim results of ongoing AMF projects. For environmental reasons the report AMF will not print hardcopies any more. The report is available at www.iea-amf.org/annualreport.



Current AMF projects

The full list of current AMF projects includes:

- Task 64: E-fuels and End-Use Perspectives
- Task 63: Sustainable Aviation Fuels
- Task 62: Wear in engines using alternative fuels
- Task 61: Remote Emission Sensing
- Task 60: The Progress of Advanced Marine Fuels
- Task 28: Information Service & AMF Website

PUBLICATIONS

IEA's 10-Point Plans

Energy security has come back into focus, and IEA has published two 10-Point Plans to cut dependence on fossil fuels quickly.

With its **10-Point Plan to reduce oil use**, IEA proposed a series of practical actions that can significantly cut global oil demand within four months, which could ease market strains and avoid more harmful price spikes for consumers. The 10-Point Plan focuses on transport, since that's where the majority of oil demand comes from. It draws on concrete measures that have already been put to use in a diverse range of countries and cities, including lower speed limits, working from home, occasional limits on car access to city centers, cheaper public transport, more carpooling and other initiatives – and greater use of high-speed rail and virtual meetings instead of air travel.

Another **10-Point Plan** was developed with the aim to **Reduce the European Union's Reliance on Russian Natural Gas**. The implementation of the suggested measures could bring down gas imports from Russia by over one-third this year, with additional temporary options to deepen these cuts to well over half while still lowering emissions. The 10-Point Plan is consistent with the EU's climate ambitions and the European Green Deal and also points towards the outcomes achieved in the IEA Net Zero Emissions by

2050 Roadmap, in which the EU totally eliminates the need for Russian gas imports before 2030.

Links:

<https://www.iea.org/reports/a-10-point-plan-to-cut-oil-use>

<https://www.iea.org/reports/a-10-point-plan-to-reduce-the-european-unions-reliance-on-russian-natural-gas>

CO₂ emissions rebounded in 2021

Even as global events remind us of the importance of energy security, our longer-term climate challenge remains ever present. The latest data published by IEA show that global energy-related carbon dioxide emissions rose last year to their highest-ever level, as the world economy rebounded strongly from the Covid-19 crisis and relied heavily on coal to power that growth. According to IEA's recently published update, global CO₂ emissions rose by 6% in 2021 to 36.3 billion tonnes, and the 2 billion-tonne increase was the largest in history in absolute terms, more than offsetting the previous year's pandemic-induced decline. The numbers are based on a detailed region-by-region and fuel-by-fuel analysis, drawing on the latest official national data and publicly available energy, economic and weather data.

Link: <https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2>

People-centred clean energy transitions

Clean energy transitions will create jobs, enhance our quality of life and ensure a cleaner, healthier environment. A people-centered approach ensures the benefits and costs involved in the transformation of our energy system are distributed fairly and in a way that protects the most vulnerable in society. People-centered clean energy transitions require a focus on skills, decent jobs and worker protection; social and economic development; equity, social inclusion and fairness; and engaging people as active participants. The report provides 12 actionable recommendations, drawing on recent experiences and best practices from around the world.

Link: <https://www.iea.org/reports/recommendations-of-the-global-commission-on-people-centred-clean-energy-transitions>

Clean Energy Start-ups

Periods of energy disruption, like the one we are seeing today, offer an opening for disruptive technologies. A helping hand for clean energy start-ups can help respond to the current energy crisis while also accelerating progress towards climate targets. IEA's recent report on How Governments Support Clean Energy Start-Ups – based on 14 detailed country case studies and 23 in-depth interviews – provides a timely review of the different approaches taken in countries around the world as they seek to become home to the next Tesla, BYD or Vestas. Governments can help foster the unique resources that energy technology start-ups need for success, such as thriving innovation ecosystems, as

well as funding for research and demonstration projects.

Link: <https://www.iea.org/reports/how-governments-support-clean-energy-start-ups>

Renewable gas - Deployment, markets and sustainable trade

Renewable gases will be key components of a global energy system aiming at net zero greenhouse gas emissions by 2050. With global fossil gas demand decreasing in emission reduction scenarios, biomethane and hydrogen (H₂) will be most critical, with biomethane as the largest contributor, as it can be used without changing gas transmission / distribution infrastructure or end user equipment. IEA Bioenergy's reports provide state-of-the-art overviews on prospects, opportunities and challenges for deploying biogas, biomethane and other renewable gases in energy markets. The reports discuss technological and sustainability issues of renewable gases from a deployment perspective, derive recommendations for policymakers, and identify open research issues.

Link:

<https://www.ieabioenergy.com/blog/publications/renewable-gas-%e2%80%90-deployment-markets-and-sustainable-trade/>

The carbon footprint of biofuels

Biofuel systems may represent a promising strategy to combat climate change by replacing fossil fuels in electricity generation and transportation. First-generation biofuels from sugar and starch crops for ethanol and from oilseed crops for biodiesel have come under increasing levels of scrutiny due to the uncertainty associated with the estimation of climate change impacts of biofuels, such as due to indirect effects on land use. This analysis estimates the magnitude of some uncertainty sources: crop/feedstock, LCA modelling approach, land-use change, and GHG metrics.

Link:

https://www.biofueljournal.com/article_148830_cfd95668b16943c4b53ed4b7e16977ce.pdf

Mode Choice in Freight Transport

This report examines why freight carriers and shippers choose one transport mode over others. It analyses the main determinants for using road, rail, inland waterways, coastal shipping or pipelines to move goods and assesses government policies to influence it. The study also reviews how shifting freight to more sustainable modes could reduce the contribution of goods transport to climate change and provides recommendations for more effective policies. The role of mode choice in alleviating congestion and making goods transport safer is also addressed. Three case studies from China, Canada and the Netherlands highlight modal-shift policies.

Link: <https://www.itf-oecd.org/mode-choice-freight-transport>

Key Transport Statistics

Key Transport Statistics offers preliminary 2021 data for more than a dozen selected indicators on three inland transport modes for ITF member countries. It also presents graphs and a short analysis of the transport activity in the global economic context highlighting the main changes over the previous year. The 2022 edition provides an overview of the impact of post-pandemic re-opening in some countries.

Link: <https://www.itf-oecd.org/sites/default/files/docs/key-transport-statistics-2022.pdf>

EU-India biofuels conference

The third EU-India conference on advanced biofuels confirmed that the cooperation between technology developers and users from both sides have established an open, transparent and constructive dialogue. This facilitates the collaboration and in turn the deployment of advanced biofuels in both economic areas, EU and India. Stakeholders and participants at the conference debated the barriers faced by advanced biofuels and identified key learnings.

Link: <https://www.eu-india-bce.com/wp-content/uploads/2022/03/Conclusions-of-the-Conference.pdf>

Alternative fuel infrastructures for heavy-duty vehicles

This study presents the opportunities and challenges for the use and deployment of alternative fuels infrastructure in the EU for heavy-duty vehicles, in particular trucks. The current state of play and future needs are presented in the context of the ambitions of the Green Deal, the proposal for an Alternative Fuels Infrastructure Regulation published mid-July 2021 and the upcoming review of the TEN-T Regulation.

Link: <https://op.europa.eu/de/publication-detail/-/publication/d9d189ea-87f8-11ec-8c40-01aa75ed71a1/language-en/format-PDF/source-257359557>

Decarbonisation of EU Energy

Decarbonising the energy system requires a fundamental transformation in the way societies provide, transport and consume energy. Disagreement exists over how this system should look in 2050. The large-scale expansion of low-carbon electricity, phase-out of unabated fossil fuels, and widespread direct electrification are uncontroversial. In more controversial areas, like the deployment of hydrogen and synthetic methane, policy should forcefully explore options and be willing to accept and learn from failures. This report discusses concrete policy options for doing so.

Link: <https://op.europa.eu/de/publication-detail/-/publication/0dcd35c5-8aec-11ec-8c40-01aa75ed71a1/language-en/format-PDF/source-257358302>

EU Renewable energy in 2020

According to figures published by Eurostat, the EU has “overachieved” on its “20 percent by 2020” renewable energy target. 26 Member States met or exceeded their respective national

targets for 2020 though some countries had to conclude statistical transfers in 2020 to meet their targets.

Link: [Dashboard – Renewable energy in Europe 2020 – European Environment Agency \(europa.eu\)](#)

Catalyst property data for biofuels

The Catalyst Property Database (CPD) is an online library of catalyst property data developed by a team at NREL. The CPD advances the mission to decarbonize the economy by accelerating the development of catalytic technologies that convert biomass and waste resources into renewable fuels and chemicals. The Catalyst Property Database makes it easier to find critical data for the design and production of catalysts tailored to the diverse traits of biomass feedstocks.

The CPD standardizes catalyst data to make search results predictable and reliable. By using CPD’s growing set of catalyst data, researchers are better equipped to uncover relationships between catalyst properties and targeted catalytic reactions.

Link: [Catalyst Property Database \(chemcatbio.org\)](https://chemcatbio.org)

GREET Aviation Module

Argonne National Laboratory has developed an interactive standalone aviation module based on the GREET model to have a consistent aviation life-cycle analysis platform with the most up-to-date datasets. It is intended to evaluate the environmental impact of various aviation fuel production pathways including both fossil- and bio-derived aviation fuels using an interactive user interface.

Link: https://greet.es.anl.gov/greet_aviation

Autonomie EXPRESS

For the past 20+ years, Argonne has been leading the evaluation of advanced technologies on vehicle energy consumption, performance and cost with Autonomie. Autonomie EXPRESS, while providing the same fidelity as Autonomie, is computationally efficient and only requires Matlab to run. Built on Autonomie, Autonomie EXPRESS, currently includes more than 5,000 individual vehicle models across 30+ vehicle types spanning from light-duty to medium/heavy-duty vehicles, 5 timeframes (current to 2050), 6 powertrain configurations, 5 fuels and 2 technology uncertainties. The new tool allows users to build and use realistic fleets composed of vehicles with different classes, powertrains, technologies and age. The compiled vehicle models use sequential vehicle speed and grade as inputs. Although Autonomie EXPRESS is copyrighted, the toolkit is available at no cost to researchers.

Link: [Autonomie - Vehicle & Mobility Systems Group - Argonne National Laboratory \(anl.gov\)](#)

Techno-Economic Benefit Analysis Tool

BEAN (BENefit ANalysis) has been developed by Argonne to quantify the impact of individual component and powertrain technologies on the full life

cycle cost of light duty passenger cars as well as commercial vehicles. BEAN builds on high-fidelity Autonomie vehicle model information (e.g., component power, energy...) to estimate

- Component costs,
- Vehicle manufacturing cost and MSRP
- Overall costs including Total Cost of Ownership (TCO), Comparative Cost Metric (CCM), Levelized Cost of Driving (LCOD)...

Although BEAN is copyrighted, the tool is available for download on Argonne's website at no cost.

Link: <https://vms.es.anl.gov/tools/bean/>

Biofuels in Norway

The IEA task 39 newsletter published a detailed overview of the status of biofuels implementation in Norway. Some highlights:

- Norway introduced biofuels blend-in mandates for road transport in 2009. The blend-in rates started low and increased year by year. The blending mandate for biodiesel is 24.5% in 2021 and aims for 40% in 2030. The blending obligation for bioethanol in gasoline has been 4% since 2017.
- Mandatory blend-in of 0.5% biofuel in jet fuel started in 2018 (first worldwide).
- The National Climate Plan 2021-2030 prolongs the blend-in mandate until 2030. The mandate will be expanded to include the construction industry and shipping.
- Suppliers of biofuels in road transportation have only one financial incentive: no carbon tax.
- There is a growing commercial interest in utilizing forest residues as feedstock for biofuels. Two plants are in progress for pilot stage. Yet, the sustainability of biofuels has to be documented. When using Norwegian forest biomass as feedstock, at least 30% of the residues must be left in the forest.
- There are public grants available for developing biofuel supply chains and production plants.
- Norway currently has 40 operating biogas plants for processing municipal, food and industrial organic waste. Of these, 10 plants produce biogas for transportation. The world's largest liquefied biogas plant, Biokraft, is located in Norway and processes fish farming and paper mill wastes.

The complete publication is available at the link below

Link: <https://task39.sites.olt.ubc.ca/files/2021/12/Final-Draft-IEA-Bioenergy-Task-39-Newsletter-Issue-58.pdf>

The Fuel for Thought Podcast

The Fuel for Thought Podcast is a podcast about renewable fuels. Sylvain Verdier and Mikala Grubb from Topsoe, look into some of the most pressing topics about renewable fuels, covering the whole value chain of renewable fuel production, including feedstock supply, conversion technology, legislation, sustainable aviation fuel and much more. Together with a series of

key industry players, experts, and influencers they discuss some of the challenges facing the industry, so you can benchmark your business, learn more about what is driving our industry and where it is heading.

<https://renewables.topsoe.com/podcast?hsLang=en>

EVENTS

SAE Powertrains, Fuels & Lubricants (PF&L) Conference & Exhibition

6-8 September 2022, Krakow, Poland

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

European Transport Conference

7-9 September 2022, Milano, Italy

<https://aetransport.org/etc/>

Electric & Hybrid Vehicle Technology Expo

13-15 September 2022, Novi, Michigan, USA

<https://evtechexpo.com/>

SAE Hybrid and EV Symposium

13-15 September 2022, Garden Grove, California, USA

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

7th Rostock Large Engine Symposium

15-16 September 2022, Rostock, Germany

<https://rgmt.de/>

EU Shipping BCE

18-19 September 2022, Athens, Greece

<https://www.eu-shipping-bce.com/>

The Future of Biogas Summit 2022

23-24 November 2021, Amsterdam - The Netherlands

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

RNG Conference

12-15 December 2022, Dana Point, California, USA

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

Transportation Research Board Annual Meeting

8-12 January 2023, Washington, D.C., USA

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

20th International Conference on Renewable Mobility "Fuels of the Future"

23-24 January 2023, Berlin, Germany

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

Clean Fuels Conference

23-26 January 2023, Tampa, Florida, USA

<https://www.cleanfuelsconference.org/>

Renewable Fuels Association National Ethanol Conference

28-2 February-March 2023 Orlando, Florida, USA

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

International Biomass Conference & Expo

28-2 February-March 2023, Atlanta, Georgia, USA

<http://www.biomassconference.com>

The Work Truck Show & GreenTruck Summit

7-10 March 2023, Indianapolis, Indiana, USA

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

WCX SAE World Congress Experience

18-20 April 2023, Detroit, Michigan, USA

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

Advanced Clean Technology (ACT) Expo

1-4 May 2023, Anaheim, California, USA

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

NEW DATE: Argus Panama Bunker Fuels Conference - POSTPONED to May 2023

May 2023, Panama City, Panama

<https://www.argusmedia.com/en/conferences-events-listing/panama-bunker-fuels>

Argus Mexico Fuel Markets Summit 2023

May 2023, Mexico

<https://www.argusmedia.com/en/conferences-events-listing/mexico-fuel-markets>

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 Elisa Carlon 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.

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