

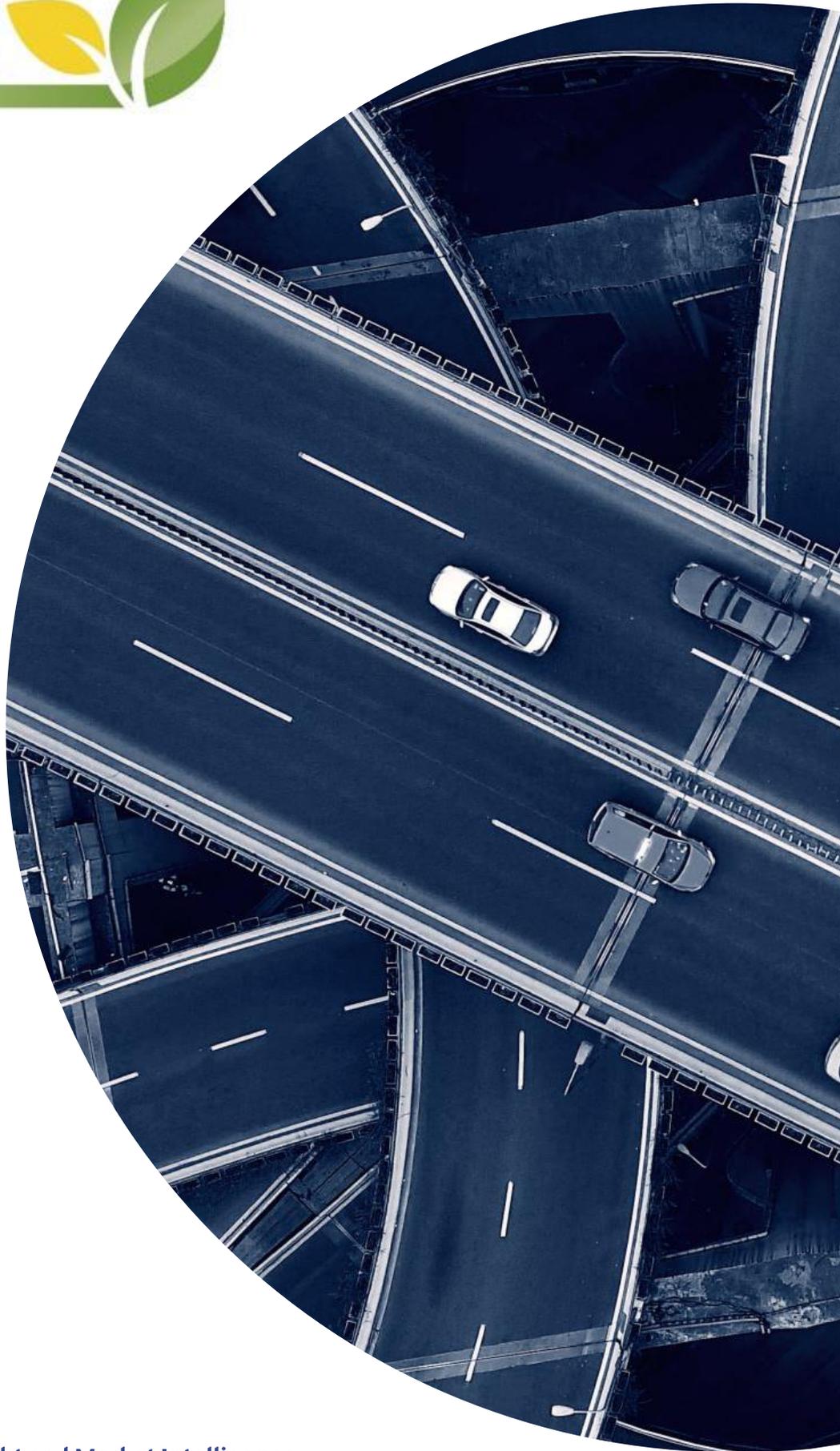
The Bioeconomy Consultants



BIOFUELS

Each month we review the latest news from across the global biofuels sector.

October 2021



Your Partners for Business Insight and Market Intelligence

Providing clients with a strategic view of feedstock, technology, policy and marketing opportunity across the bioeconomy.

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Foreword

Welcome readers, to this month's Biofuels News Review.

ICE vehicles, or Internal Combustion Engine vehicles, have become the target of national and international policies in recent years. More governing bodies are committing to banning the sale of new ICE vehicles by a timeframe varying from 2030 to 2050.

In November last year, the UK government declared that the sale of new petrol and diesel cars would be totally phased out by 2030. A few months ago, the EU Commission also announced a similar target by proposing a phasing out of new ICE vehicles within the Union by 2035, along with other ambitious carbon emission targets which went beyond the previously agreed plan. Similarly, in September this year, New York state governor Katty Hochul announced that as part of an effort to reduce greenhouse gas emissions and air pollution, all new passenger cars and trucks sold in NY state will have to be zero-emissions by 2035. The Governor's plan also includes regulations in truck air pollution, which she believes will lead to an increase in sales of zero-emissions HGVs.

These new announcements and commitments gathered support from environmentalists and activists, however a number of issues are being raised by other governing bodies and industrial stakeholders, concerning mainly zero-emissions HGVs. Europe's major truck manufacturers had all previously committed to developing new fossil-free HGVs by 2040, investing billions to back up their claims. This commitment was in line with the EU's previous decarbonisation plan, however the recent targets are putting the industry under pressure as they argue that the technology needed to build zero-emissions HGVs of all weights and uses is not yet available. Within the UK, The Society of Motor Manufacturers and Traders (SMMT) has called upon the government to collaborate and support HGV industrial stakeholders before committing to end-of-sale targets to ensure that technological advances will be able to back up the government's claims.

As things stands, the UK government is proposing to end the sale of new 3.5-26 tonnes HGVs by 2035 and >26 tonnes HGVs by 2040. In light of the SMMT's request, plans might evolve and change to establish a more realistic strategy.

Read on for the latest news

Policy

Motor manufacturers call for thought before ICE ban



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The Society of Motor Manufacturers and Traders (SMMT) has called on government to work with industry to develop a plan that facilitates the transition to zero emission HGVs, before it commits an end of sale date for conventionally fuelled trucks. All of Europe's major truck manufacturers have agreed that new HGVs will be fossil fuel-free by 2040, and are investing billions in new powertrains to replace diesel, the most commonly used HGV fuel. However, at present there is no clear technology that can provide full zero emission operations.

The need to support powertrain research and infrastructure development has been underlined by a new report, *Fuelling the Fleet: Delivering Commercial Vehicle Decarbonisation*. SMMT analysis has revealed that the commercial, technological and operational barriers currently associated with new technologies such as batteries and hydrogen meant that in 2020, only 0.2% of HGVs were alternatively fuelled.

Click [here](#) for more information.

CPOPC calls on EU to adopt non-discriminatory biofuels policy

The Council of Palm Oil Producing Countries (CPOPC) urges the European Union (EU) to revise its approach on vegetable oils in biofuels under the framework of the Renewable Energy Directive II (RED II) in light of the revision of the Directive from July 2021 as well as the Commission's approaching deadline for adopting rules on certifying low indirect land-use change (ILUC)-risk biofuels and updating the list of high ILUC-risk feedstocks.

CPOPC argues the use of ILUC as a policy tool has been fraught with methodological problems and biases from the beginning. Therefore, a new approach, which treats all sustainable vegetable oils equally, based on verified production practices and not on the type of commodity, is urgently needed. After all, commodities in themselves are not responsible for deforestation – it is the practices that matter. Palm oil has been singled out as damaging to the environment based on a comparison study that used 2008-2016 as a gauge for ILUC. This timeline is seen to discriminate against countries that were late in development whose growth during that period affected Land Use Change.

The CPOPC argues that a proper timeline for the sustainable development of palm oil producing countries including Indonesia and Malaysia should start from post-colonial times. A new expansive study on Land Use Change by Nature tracked Land Use Change from 1960-2019 and identified 43 million Km² from the Global North to the South. Estimates on palm oil cultivation globally puts it at a mere 250,000 Km².

Click [here](#) for more information.

EU supports Sweden's fuel and GHG tax exemptions for biofuels

Sweden has exempted liquid biofuels from energy and CO₂ taxation since 2002. The measure has already been prolonged several times, the last time in October 2020). By the new decision, the Commission approves an additional one-year prolongation of the tax exemption (from 1 January to 31 December 2022). The objective of the tax exemption measure is to increase the use of biofuels and to reduce the use of fossil fuels in transport.

The Commission assessed the measure under EU State aid rules, in particular the Guidelines on State Aid for environmental protection and energy. The Commission found that the tax exemptions are necessary and appropriate for stimulating the production and consumption of domestic and imported biofuels, without unduly distorting competition in the Single Market. In addition, the scheme will contribute to the efforts of both Sweden and the EU as a whole to deliver on the Paris agreement and move towards the 2030 renewables and CO₂ targets. The support to food-based biofuels should remain limited, in line with the thresholds imposed by the revised Renewable Energy Directive. Furthermore, the exemption can only be granted when operators demonstrate compliance with sustainability criteria, which will be transposed by Sweden as required by the revised Renewable Energy Directive. On this basis, the Commission concluded that the measure is in line with EU State aid rules.

Click [here](#) for more information.

New York State to phase out ICE cars by 2035



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Governor Kathy Hochul has announced new actions to reduce climate-altering greenhouse gas emissions and air pollution from the transportation sector. The Governor signed legislation (A.4302/S.2758), setting a goal for all new passenger cars and trucks sold in New York State to be zero-emissions by 2035.

In addition, the Governor directed the Department of Environmental Conservation to release a proposed regulation that would significantly reduce air pollution from trucks. If adopted, the regulation would accelerate zero-emission truck sales, resulting in improved air quality statewide and in particular those communities disproportionately impacted by transportation-related pollution.

The actions announced in advance of Climate Week 2021 support New York's ambitious goal of reducing greenhouse gas emissions by 85% by 2050, as outlined in the Climate Leadership and Community Protection Act, or CLCPA.

Click [here](#) for more information.

Markets

Maersk invests in WasteFuel

Maersk's investment will enable WasteFuel to develop biorefineries that utilise the most effective technologies available to produce sustainable fuels from unrecoverable waste that would otherwise degrade, and release methane and other harmful emissions into the atmosphere.

Maersk is confident that green bio-methanol is one of the promising fuels of the future as it can be scaled up and play an important role in decarbonising supply chains within the next 10-15 years. For each feedstock and project, we evaluate its sustainability as well as the emission reductions, using lifecycle analysis including all greenhouse gases.

WasteFuel is also developing projects in Asia and the Americas including a biorefinery in Manila, Philippines, to produce low-carbon fuels. The company has announced an offtake agreement with NetJets – the world's largest private jet company owned by Berkshire Hathaway.

Click [here](#) for more information.

Braskem invests more than 5 million Brazilian Real to double its ETBE production



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To meet the world's growing demand for sustainable solutions, Braskem has doubled its ETBE (ethyl tert-butyl ether) production in Brazil, an automotive gasoline bioadditive that improves its performance and is produced in part from ethanol. For that purpose, the company invested more than 5 million Brazilian Real in converting its MTBE (methyl tert-butyl ether) unit in the Triunfo Complex, in the state of Rio Grande do Sul, including adjustments in the plant, asset recovery and procurement of a strainer for receiving Hydrated Ethanol, raw material used as Methanol replacement.

ETBE, already produced in the Camaçari Complex in Bahia state since 2009, is obtained from the reaction of ethanol (43%) with isobutene (57%). As it contains raw materials from renewable sources, it is a sustainable alternative to MTBE, a component that is used in gasoline in various countries, which is made from methanol.

Click [here](#) for more information.

Shell to build one of Europe's biggest biofuels facilities



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Shell has announced a final investment decision to build an 820,000-tonnes-a-year biofuels facility at the Shell Energy and Chemicals Park Rotterdam, the Netherlands, formerly known as the Pernis refinery. Once built, the facility will be among the biggest in Europe to produce sustainable aviation fuel (SAF) and renewable diesel made from waste.

A facility of this size could produce enough renewable diesel to avoid 2,800,000 tonnes of carbon dioxide (CO₂) emissions a year.

The new facility will help the Netherlands and the rest of Europe to meet internationally binding emissions reduction targets. It will also help Shell to meet its own target of becoming a net-zero emissions energy business by 2050, in step with society's progress towards achieving the climate goals of the Paris Agreement. The facility is expected to use technology to capture carbon emissions from the manufacturing process and store them in an empty gas field beneath the North Sea through the Porthos project.

Click [here](#) for more information.

SCA and St1 enter joint venture to produce and develop liquid biofuels

SCA and St1 have entered a joint venture to produce and sell liquid biofuels. SCA will supply tall oil to the joint venture and will invest approximately SEK 0.6 billion in the company.

SCA and St1 will be equal shareholders of the joint venture, which will itself have a 50% share in the St1 Gothenburg Biorefinery, which is now making an investment in a biorefinery with total capacity of 200,000 tonnes of liquid biofuels, estimated to a total investment cost of SEK 2.5 billion. The new biorefinery will be operational in Q2 2023.

Click [here](#) for more information.

Chevron and Gevo intent to pursue sustainable aviation fuel investment

Chevron U.S.A. and Gevo have announced a letter of intent to jointly invest in building and operating one or more new facilities that would process inedible corn to produce sustainable aviation fuel, which can lower the lifecycle carbon intensity of fuels used in the aviation industry. The new facilities would also produce proteins and corn oil.

Through the proposed collaboration, Gevo would operate its proprietary technology to produce sustainable aviation fuel and renewable blending components for motor gasoline to lower its lifecycle carbon intensity. In addition to co-investing with Gevo in one or more projects, Chevron would have the right to offtake approximately 150 million gallons per year to market to customers.

Click [here](#) for more information.

Neste Capital Markets Day 2021



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Neste says sustainable aviation is a high growth and very attractive market as regulations and voluntary demand scale up, and it expects the global SAF demand to exceed 12 million tonnes per annum by 2030. Neste plans to support market growth with 1.5 million tonnes per annum planned capacity already available by the end of 2023 and aims to grow its capacity even further to be able to serve sustainability minded aviation customers.

In Renewable Polymers and Chemicals, Neste sees the size of the addressable market to be over 100 million tonnes per annum in 2030. In Renewable Road Transportation, it sees the global renewable diesel demand has potential to exceed 30 million tonnes per annum by 2030.

Neste's ambition is to make Porvoo the most sustainable refinery in Europe by 2030. That will be achieved by reducing the refinery's GHG emissions by 50% by 2030 and reaching carbon neutral production by 2035. It also aims to increase the share of renewable and circular feedstock to over 10% of the refinery feed by 2030.

Click [here](#) for more information.

Research & Development

POET pledges carbon neutrality by 2050

The largest biofuel manufacturer in the U.S., POET, announced a new goal this week of reaching carbon neutrality by the year 2050.

The company said in a sustainability report that it has a number of benchmarks it aims to meet toward that objective, including reducing the carbon intensity of bioethanol by 70% and investing in technology to advance low-carbon bioproducts. The company also said it would aim to advance policies that support these goals.

Carbon neutrality differs from zero emissions as companies that commit to neutrality aim to offset their carbon footprint by attempting to remove the same amount of CO₂ from the atmosphere that they contribute. Many companies do this by buying carbon offset credits that go toward sustainability projects.

In its report, POET claimed to be the fastest-growing renewable CO₂ business in the U.S. The company said it would "consider" numerous ways of reducing carbon emissions including investing in solar power as well as technologies to capture and store CO₂.

Click [here](#) for more information.

Gevo awarded patent for process to upgrade or convert ethanol and biobased alcohols

Gevo announced that it has received a patent from the United States Patent and Trademark Office (“USPTO”) for a process that encompasses upgrading ethanol and bio-based alcohols into drop-in, bio-based diesel and jet-fuel products.

The USPTO has awarded Gevo U.S. Patent No. 11,078,433 titled “Conversion of Mixtures of C 2 -C 8 Olefins to Jet Fuel and/or Diesel Fuel in High Yield from Bio-Based Alcohols.” The patented process establishes a new technology and route to hydrocarbons that did not previously exist. This creates an opportunity for Gevo to diversify ethanol production to help meet increasing demand for renewable diesel and jet fuel.

Securing the patent falls in line with Gevo’s business model to develop, apply, and scale technology that can be used to produce drop-in hydrocarbon fuels. These fuels, when coupled with Gevo’s integrated-systems approach that includes regenerative agriculture and non-fossil-based renewable energy, could produce net-zero greenhouse gas (GHG) emissions over the lifecycle of the product.

Click [here](#) for more information.

Bioethanol

US corn interest to support E85 rollout



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In California, Nebraska Corn Board (NCB), along with the corn checkoff programs from Kansas and Missouri, will provide California fuel retailers \$1.25 million over the next year to increase availability of E85 (an 85% ethanol blend). Fuel will be supplied by Pearson Fuels, the largest E85 distributor in California with nearly 250 retail stations located throughout the state.

Growers from the three corn checkoff organizations met with representatives from Pearson Fuels in San Diego in July to discuss potential opportunities to grow E85 demand. California is by far the largest E85 market in the country, accounting for over 40 million gallons in 2020 and is on track to reach 50 million gallons in 2021.

Click [here](#) for more information.

Ethanol production value to Europe highlighted by ePURE members

European renewable ethanol association (ePURE) members produced 5.57 billion litres of ethanol and 6.16 million tonnes of co-products in 2020, according to audited data released by the industry group. The figures showed a significant increase in production of ethanol for industrial use, including for hand sanitisers and disinfectants.

The new statistics confirm the importance of European renewable ethanol biorefineries to achieving EU Green Deal objectives by reducing transport emissions and ensuring sustainable domestic production of animal feed and other beneficial co-products, including captured CO₂. More than 98% of the feedstock used to produce renewable ethanol by ePURE members – including cereals, sugars, wastes and residues – was grown or sourced in Europe.

Of the total ethanol output from ePURE members in 2020 (the most recent year for which data have been compiled and audited), more than 79% was for fuel use, with an average of more than 75% greenhouse-gas savings compared to fossil petrol.

Of the remaining ethanol production in 2020, 5.6% was for food and beverage uses and 15.2% was for industrial applications, including hand sanitiser and other hygienic uses. When the COVID-19 pandemic surged in early 2020, several EU ethanol biorefineries swiftly adapted production to supply ethyl alcohol for medical use, while continuing to make low-carbon renewable fuel ethanol.

Click [here](#) for more information.

Biodiesel

ExxonMobil affiliate to produce renewable diesel to help reduce transportation emissions in Canada



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ExxonMobil has announced its majority-owned affiliate, Imperial Oil Ltd., is moving forward with plans to produce renewable diesel at a new complex at its Strathcona refinery in Edmonton, Canada.

When construction is complete, the refinery is expected to produce approximately 20,000 barrels per day of renewable diesel, which could reduce emissions in the Canadian transportation sector by about 3 million metric tons per year. The complex will utilize locally grown plant-based feedstock and hydrogen with carbon capture and storage (CCS) as part of the manufacturing process.

Click [here](#) for more information.

Argentina to challenge US biodiesel import duties



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The Argentine government announced it would be appealing a US ruling that maintains high import duties on biodiesel supplies from the South American nation.

Argentina, which is currently one of the global lead producers of biodiesel, has seen heavy tariffs from the US since 2018, at which time a commerce ministry investigation into industry malpractice deemed the country to be engaging in 'unfair trade practices' and essentially formed a blockade on Argentine imports of the fuel alternative. A motion from Argentina to change the ruling was rejected earlier this week by the US Court of International Trade, and it is this decision that the Argentine government will seek to appeal.

"Argentina regrets the US court decision," the foreign ministry said in a statement. "The Argentine government will work jointly with the private sector of our country to reverse this decision."

By contrast, the decision has been applauded by the US National Biodiesel Board, who said the ruling was 'reasonably determined and supported by substantial evidence.'

Click [here](#) for more information.

Aviation and Shipping Biofuels

Growing SAF prospects highlighted by Gevo

Argus interviewed US-based SAF and renewable gasoline producer Gevo's chief commercial officer Tim Cesarek on where the opportunities and challenges lie for the industry, the pros and cons of various technology pathways on offer and navigating regulatory incentives offered by lawmakers.

Gevo has a 100,000 USG/yr demonstration plant at Silsbee, Texas and is planning a net-zero 1 project in South Dakota set for completion in 2024, which will use agricultural residue to produce 46mn USG/yr of SAF and renewable gasoline, 340mn lb of high-value protein products, and 30mn lb of corn oil products. The company is looking to secure additional plant sites for net-zero 2 and/or 3 to accommodate additional offtake agreements, which will require 60-70mn USG/yr of capacity in 2024.

Unlike Europe, the US does not have the volumetric mandates for SAF, although California's Low-Carbon Fuel Standard (LCFS) and Oregon's Clean Fuels Programme allow SAF to generate compliance credits. But actual SAF offtake under the LCFS programmes has been minimal to date.

Click [here](#) for more information.

British Airways to source SAF for COP26



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British Airways (BA) said it will source sustainable aviation fuel (SAF) to transport delegates between London, Glasgow and Edinburgh during the COP26 climate conference.

The COP26 conference in November will see world leaders discuss how to tackle climate change following the Paris Agreement that was signed in 2015. BA said that the SAF it intends to use provides a lifecycle carbon reduction of up to 80% compared to traditional jet fuel.

BA has also announced a programme allowing its customers to purchase SAF to help reduce their personal carbon footprint via its not-for-profit organisation Pure Leapfrog.

BA said it would invest £290 million (€337 million) over the next 20 years into further development of SAF, including partnerships with a number of technology and fuel companies such as Velocys in the UK and LanzaJet in the US.

Click [here](#) for more information.

Velocys FT technology for Japanese SAF plant

Velocys has revealed that its collaboration partner, Toyo Engineering Corporation (TOYO), is starting the advanced engineering and design phase of a commercial scale biofuel refinery in Japan.

TOYO's engineering study will start to establish commercial-scale production of sustainable aviation fuel (SAF) in the country.

During this phase of the project, TOYO will integrate Velocys' Fischer Tropsch (FT) technology and other process technologies to efficiently convert woody biomass into SAF.

This scheme is part of the "Biojet Fuel (or SAF) Production Technology Development Project" of the Japanese Government's New Energy and Industrial Technology Development Organisation.

Click [here](#) for more information.

New reports updates SAF production potential and feedstocks

A new study titled Renewable Diesel and Sustainable Aviation 2030, Vol 2 highlights that in 2018 when Emerging Markets Online released their first white paper on Renewable Diesel, there were only 15 of SAF plants in the world that were operating or in planning. Now, in 2021, three years later, there are more than 70 players in operation or planning. 29 of them are in the United States, six are in Canada, 14 are in Asia, 18 in Europe, and two are in Latin America.

Most of the new plants have new partnerships with growers of sustainable feed stocks that are non-food-based and are low carbon, circular, sustainable, feedstocks such as

Camelina, PennyCress, Algae, Tree Oils, Agricultural Waste, Municipal Waste, Carinata, Tobacco Oil, Castor Oil, Pongamia, and a significant amount of growth around the world. An emerging highlight is in Canada, for canola to be used as sub-zero truck and jet fuel.

One key trend of SAF & renewable diesel retrofits of large global petroleum refineries is now being accompanied by the emergence of smaller scale, localized, circular renewable diesel and sustainable aviation refineries. This favors specialized, low-carbon, circular feedstocks in geographically advantaged areas that can benefit the specialty-scale RD/SAF integrated refinery.

Click [here](#) for more information.

Events

Lignofuels 2022 **Helsinki, 2nd – 3rd February 2022**

Building on the success of Lignofuels annual conference series which celebrated its 10th anniversary by bringing 140+ senior level attendees to Finland, we are looking forward to returning to Helsinki for the 11th edition which will take place on the 2nd & 3rd of February 2022 – this time also featuring an exclusive site visit to UPM Lappeenranta Biorefinery.

The 2022 edition of the conference will once again bring together key lignofuels and advanced biofuels & materials stakeholders to join our forum discussions, hear latest industry case studies and benefit from excellent networking opportunities.

Click [here](#) for more information.

Low Carbon Agriculture **Stoneleigh, 8th-9th March 2022**

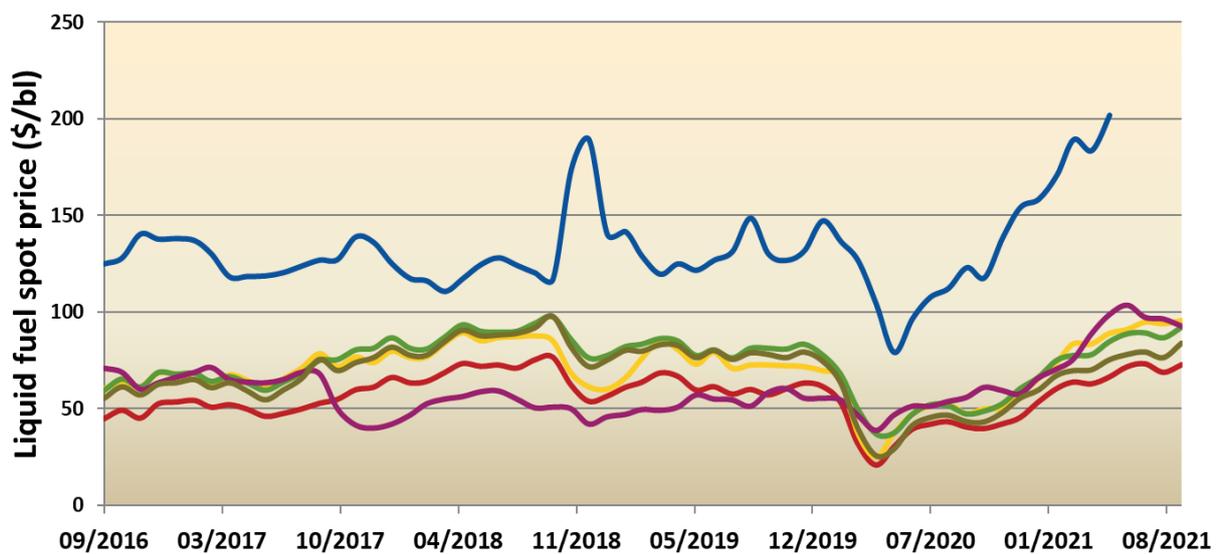
Supported by NNFCC, the event will provide practical guidance on sustainable land use, renewable energy generation and emission control, cutting through the noise to get to the heart of what new changes mean for farmers, by covering specific pressing topics such as policy, carbon storage, soil health, natural capital, net zero, renewable energy, low emission vehicles and agri-tech.

Low Carbon Agriculture show incorporates four expos including: 'Environmental Business Expo', 'Farm Technology Expo', 'Energy Now Expo' and 'Low Emission Vehicles Expo.'

Click [here](#) for more information.

Price Information

Historical spot prices of liquid fossil fuels and liquid biofuels. Five years prices and up to September 2021 are given in \$ per barrel.



- Crude Oil (petroleum), simple average of three spot price
- Gulf Coast Gasoline
- Diesel - New York Harbor Ultra-Low Sulfur No 2 Diesel Spot Price
- Ethanol Average Rack Prices F.O.B.
- Jet Fuel Spot Price FOB - U.S. Gulf Coast Kerosene
- FAME 0° FOB ARA

Prices of Crude oil, diesel, jet fuel and gasoline are recorded from www.ycharts.com

Prices of ethanol from www.markets.businessinsider.com

Prices for FAME 0° from www.indexmundi.com

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NNFCC

Biocentre | York Science Park | Innovation Way | Heslington | York | YO10 5NY
Phone: +44 (0)1904 435182 | Fax: +44 (0)1904 435345 | Email: enquiries@nnfcc.co.uk
www.nnfcc.co.uk