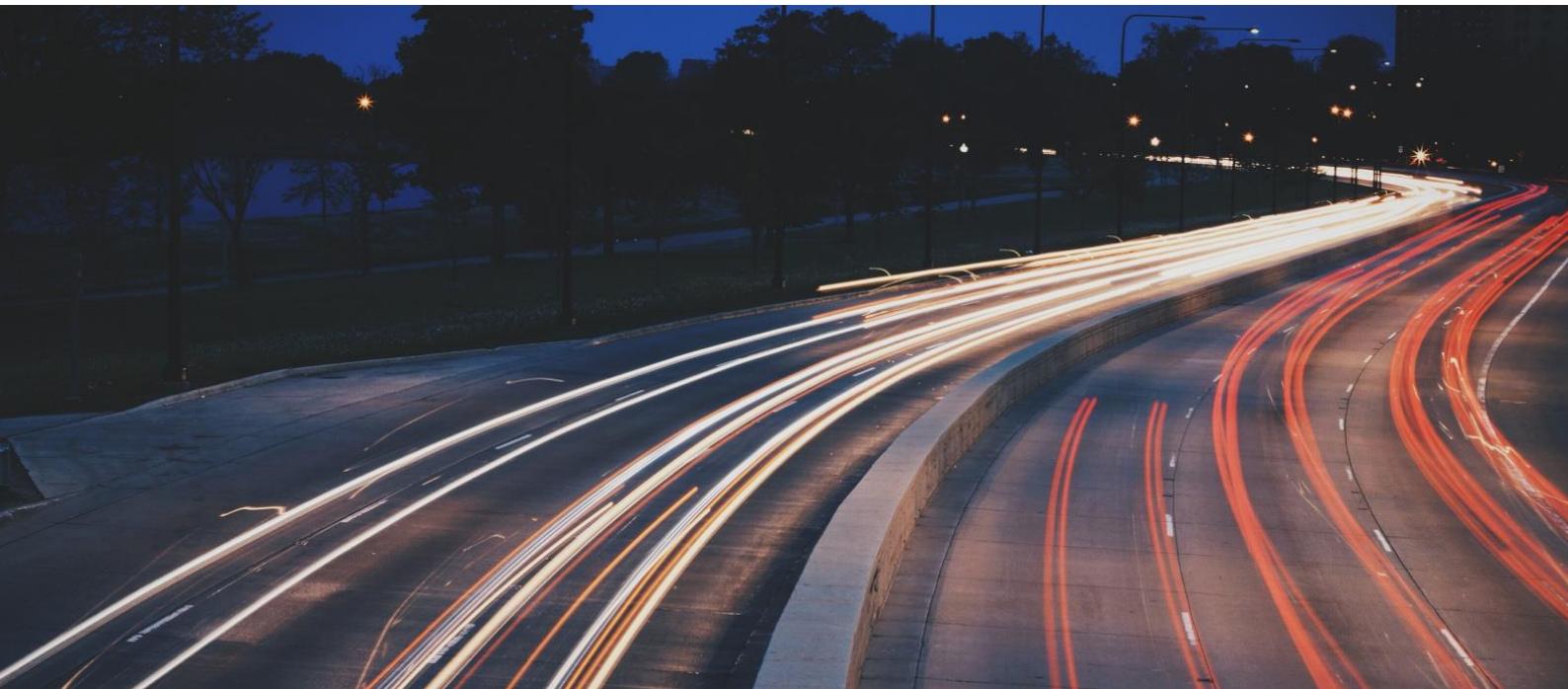


News Review



Issue Eighty-Five
April 2019

Each month we review the latest news and select key announcements and commentary from across the biofuels sector.

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Foreword

Welcome all to April's Biofuels News Review.

With all of the recent controversy surrounding crop-based biofuels in the wake of the publication of the EU's Revised Renewable Energy Directive (RED II), the crop-based biofuels market is going to have to adapt, both in the EU and elsewhere. One of the biggest required changes will be to the palm oil market: as the European Commission has announced that palm oil-based biofuels will receive reduced support under RED II, the world's exporters of palm oil will have to find another outlet outside of the EU. One such exporter is Indonesia, for whom palm oil is the country's biggest export. Of course, a simpler solution than finding a new export destination is to use more domestically, and this is the approach that Indonesia has taken. A trial is ongoing to increase the biodiesel blend limit in the country's transport fuel to 30% – currently it sits at 20%, which is still relatively high – and if the trial is successful, the Indonesian government wishes to implement widespread B30 fuel in the country by next year. There are even small-scale trials of 100% biodiesel ongoing in the nation, but no indication of desire for widespread deployment. The results of these trials will not just inform Indonesian lawmakers, but other countries debating the feasibility of higher biofuel blends. Although, as sustainability concerns remain about palm oil, it is likely other nations will seek alternative feedstock.

With this in mind, this month three European nations (Slovakia, Poland, and Czechia) released a statement declaring that RED II's targets can be achieved by European nations through the use of locally-sourced crop-based biofuels. The countries believe that Europe has massive untapped potential for growing crops for biofuels considered "low risk" of indirect land-use change by RED II. The statement itself does not mention which feedstocks, but highlights that this would benefit EU farmers, rather than relying on imports from elsewhere. The countries have also committed to creating a "favourable environment" for higher blends of bioethanol, such as the 10% E10 blend, which is starting to percolate into the market around Europe.

What is clear is that RED II is going to shake up the biofuels market considerably, and it will be exciting to see what transpires over the coming years.

Read on for the latest news.

Policy

London introduces ultra-low emissions zone



Wikimedia Commons

The Mayor of London has launched the Ultra-Low Emission Zone (ULEZ) in central London.

The ULEZ is central to the Mayor's plans to improve the health of Londoners by cleaning up the city's air, which leads to the early deaths of thousands of Londoners every year.

Most vehicles driving in the ULEZ will need to meet new, tighter emission standards or pay a daily charge to travel within the area. The ULEZ will operate in the same area as the current Congestion Charge Zone and will be in effect 24 hours a day, 7 days a week, all year round.

Vans, lorries, coaches, buses, cars, motorbikes and all other vehicles will need to meet the new, stricter emission standards, or pay the daily ULEZ charge. This is in addition to the weekday Congestion Charge. It will replace the T-Charge (officially known as the Emissions Surcharge) which was introduced in October 2017.

The charge for non-compliant cars is £12.50 a day (in addition to the Congestion Charge). Non-compliant larger vehicles have higher charges.

The Mayor is bringing forward the start date of the central London Ultra Low Emission Zone (ULEZ) from 2020 to 2019 and has confirmed that

ULEZ will expand up to the North and South Circular roads from 25 October 2021.

Diesel cars over 4 years old will typically be affected. Liability for the charge can be checked on the ULEZ site.

Click [here](#) for more information.

Three Eastern European countries back biofuels

Slovakia, Poland and the Czech Republic have signed a joint declaration saying that Europe will be able to de-carbonise transport through the use of locally produced clean biofuels, which will also boost rural areas and farmers.

"We believe that the targets under Renewable Energy Directive (RED II) shall be achieved primarily by the locally sourced production ensuring energy security and preservation of jobs and agricultural activities in the EU," the three countries said in a joint statement at an Agriculture and Fisheries Council meeting last week. They added that crop-based biofuels were one of the "most feasible and widely available sources of renewable energy used in the transport sector".

"The best available science on indirect land use change, including that commissioned by the European Commission, consistently and unwaveringly stresses the massive potential of Europe to produce low ILUC risk crop-based biofuels," the three countries said.

They added that supporting locally produced biofuels would also help accelerate the co-production of protein feed and keep agricultural land productive.

The countries also vowed to take measures to create a "favourable environment" for the use of fuels with higher blends of renewable energy of agricultural origin, such as E10, which is basically petrol containing up to 10% ethanol.

"We believe that the introduction of E10 as the common and only bioethanol blending standard in the Czech Republic, Poland, and Slovakia shall be realised not later than 2020, ensuring effective achievement of energy and climate targets and keeping the option of the utilisation of conventional biofuels at 7% as it is outlined in RED II."

The list of countries in the EU with E10 on market currently includes Germany, France, Finland, Belgium, Romania and Bulgaria, while others are considering whether to introduce it before 2020, including the Netherlands, the UK and Lithuania. The Hungarian government is also expected to make a decision on the issue before the summer.

Click [here](#) for more information.

Markets

8 billion miles driven on E15 in the US



Wikimedia Commons

Growth Energy has announced that US consumers have surpassed 8 billion miles on E15, known to consumers as Unleaded 88 – a fuel blended with 15 percent renewable biofuel that is approved for all cars 2001 and newer. This milestone is a reflection of the growing popularity of the fuel made possible by rapid retail adoption and more terminal availability of the fuel across the nation.

Click [here](#) for more information.

Biofuels creates jobs in US

National Association of State Energy Officials and the Energy Futures Initiative released a report in March that details current employment in a variety of U.S. energy sectors, including ethanol, other biofuels and bioenergy.

The category wood biomass fuel for energy and cellulosic fuels supported 33,166 jobs last year, accounting for just under 3 percent of the fuels workforce. According to the report, the category added more than 1,700 jobs last year.

Approximately 17,747 jobs in the wood biomass fuel for energy and cellulosic biofuel category were under the agriculture and forestry sector, with 4,549 manufacturing jobs; 1,005 jobs in wholesale trade, distribution and transport; and 9,822 jobs in professional and business services.

Woody biomass fuel employers reported expecting more than 8 percent job growth in 2019.

Click [here](#) for more information.

Research and Development

Irish lab to develop biofuels

NUI Galway has officially launched a new research laboratory, featuring the latest analytical equipment to characterise biofuels produced from organic waste as well as the microbial communities which produce these fuels.

The project will develop new technologies to produce biobased renewable fuels (such as hydrogen from dairy effluent) that are generated from waste products (such as butanol from spent brewery grains).

These can be added to Ireland's energy mix, supporting the government's strategy for an energy self-sufficient Irish bioeconomy.

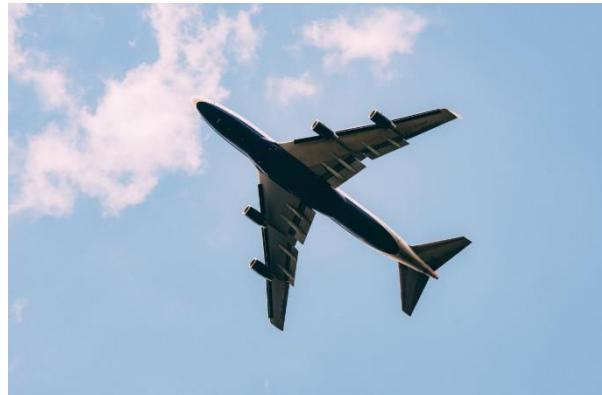
The laboratory performs research on a whole suite of disruptive, high-tech solutions for waste minimisation and material recycling that are already at our disposal, such as anaerobic digesters, a process used for industrial or domestic purposes to manage waste or to produce fuels, that will be developed over the coming years.

Besides high-tech solutions, nature-based technologies will also be developed with the aim of tackling socio-environmental challenges such as climate change, water security, water pollution, food security and human health.

These pollution control technologies are based on processes as they occur in wetlands and algal ponds. Also, the biomanufacturing of new biobased products such as fertilisers and biocommodities (such as polylactic acid and bioplastic).

Click [here](#) for more information.

flexJET project to diversify jet biofuel feedstocks



PxHere

flexJET is a four-year project part funded by the European Commission through the Horizon 2020 research initiative. 13 partners from five different European countries are coordinated by the University of Birmingham in the UK. As part of Horizon 2020's new research and innovation programme, it is assisting in the long-term goal of bringing innovative biofuels from sustainable raw materials to the market.

The innovative flexJET project is diversifying the feedstock for sustainable aviation fuel beyond vegetable oils and fats to biocrude oil produced from a wide range of organic waste, diverting it from landfilling or incineration. The process offers better economics and improved overall sustainability by processing waste feedstocks near the source and at a scale that matches the waste availability. This is also one of the first technologies to use green hydrogen from the processed waste feedstock for the downstream refining process thereby maximising greenhouse gas savings and further contributing towards the Paris Agreement GHG reduction goals.

Click [here](#) for more information.

Biofuels curriculum available to American schools

Growth Energy, in partnership with the National Association of Agricultural Educators (NAAE), has announced the release of a new curriculum aimed at educating high school students to the world of biofuels. The curriculum is the first industry-supported biofuels curriculum that provides students a guided in-classroom experience and will offer agricultural educators the tools needed to provide students with an array of technical skills and historical knowledge in biofuels.

The curriculum offers agricultural educators a two-week long course with six activities. These activities not only allow students to produce their own biofuel and measure its energy content and emissions, but also give them the technological and historical background to ensure a full understanding of why science, technology, engineering and math (STEM) activities and biofuels are so important to agricultural innovation.

Click [here](#) for more information.

Bioethanol

Study finds bioethanol to have significantly lower emissions profile than forecast

In 2010, the U.S. Environmental Protection Agency (EPA) released a life-cycle analysis of the greenhouse gas (GHG) emissions associated with the production and combustion of corn ethanol. EPA projected that by 2022, the emissions profile of corn ethanol from a new refinery would be 21% lower than that of an energy equivalent quantity of gasoline. Since 2010, the 21% value has dominated policy discussions and federal regulations related to corn ethanol as a renewable fuel and a GHG mitigation option. In 2018 new data, scientific studies, technical reports, and other

information allow us to examine the emissions pathway corn-ethanol has actually followed since 2010. Using this information, the authors assess corn ethanol's current GHG profile at 39–43% lower than gasoline. They also develop two projected emissions scenarios for corn ethanol in 2022. These scenarios highlight opportunities to produce ethanol with emissions that are 47.0–70.0% lower than gasoline. Many countries are now developing or revising renewable energy policies. Typically, biofuel substitutes for gasoline are required to reduce GHG emissions by more than 21%. These results could help position U.S. corn ethanol to compete in these new and growing markets.

Click [here](#) for more information.



Pixabay

Novel process to efficiently produce isobutanol with microbes

Taking a step closer to a "green" replacement for fossil fuels, a research team has developed a novel process using an unusual solvent and an exotic microorganism that may make it possible to manufacture isobutanol and other biofuels more economically.

Isobutanol, like ethanol, is an alcohol, but its lower water solubility (which reduces the risk of corrosion associated with many biofuels) and higher energy density (which translates to increased miles per gallon), have created considerable interest in the compound's potential use as a gasoline additive and even a gasoline

replacement. But manufacturing isobutanol, which is typically produced using biotechnology, has proven difficult and costly.

In a paper published recently in *Nature Communications*, researchers describe a novel method for producing and extracting isobutanol that uses supercritical carbon dioxide as a solvent and a bacterium that can thrive in this harsh, antimicrobial liquid. The team genetically engineered the bacterium, which was isolated from a naturally occurring reservoir of high-pressure carbon dioxide, by adding genes for the production of isobutanol. They then showed how supercritical carbon dioxide could overcome two important problems that plague conventional biofuel production methods: low yields and bacterial contamination.

Isobutanol is made in a bioreactor by fermenting biomass using microorganisms. The final product is extracted with organic solvents, which are often flammable, toxic, and costly. The solvents are unable to extract the isobutanol quickly enough, and as its concentration increases, the fermentation process stops. Scientists have tried to boost the reaction's yield using more conventional techniques, including gas stripping, adsorption, distillation, and liquid extraction, but with limited results.

The research team addressed this problem by replacing the organic solvents with supercritical carbon dioxide, which is a fluid state of the gas held at or above its critical temperature and pressure. They showed that by using this abundant and renewable solvent, they were able to extract high-purity isobutanol quickly enough to prevent it reaching levels that might otherwise have brought fermentation to a grinding halt. Their analysis shows the supercritical carbon dioxide process consumes about six times less energy than any other extraction process.

Click [here](#) for more information.

Biodiesel

Indonesia testing 30% biodiesel blend

The Indonesian Biodiesel Producers Association (APROBI) expects its trial of 30 percent biofuel (B30) on vehicles will be completed by October.

The association has begun the trial of B30 biofuel with the Energy and Mineral Resources Ministry, state energy holding company Pertamina, the Agency for the Assessment and Application of Technology, the Association of Indonesian Automotive Manufacturers and the Bandung Institute of Technology.

So far, 40,000 kilometres test drives have been carried out to ensure biofuel does not affect the engines of vehicles.

The trial also tested biofuel's emissions and efficiency as compared to fossil fuels.

The association expressed hope that after the trial was completed, the widespread use of B30 could be implemented in 2020. B30 has been used to fuel power plants since January 2016.

In September 2018, the Indonesian government issued a policy to begin the widespread use of 20 percent biodiesel (B20) and soon after campaigned for the use of B30 to boost domestic consumption of crude palm oil (CPO), given the campaign against the commodity from the European Union.

By using B30, domestic use of CPO could reach 7.8 million tons. As for B20, domestic use is expected to reach 5.4 million tons.

The Indonesian Palm Oil Producers Association recorded that the use of CPO in biodiesel stood at 1.2 million tons in the first two months of this year.

Click [here](#) for more information.

McDonald's to increase grease recovery for biodiesel



McDonald's

Fast food giant McDonald's UK has inked a deal with commercial laundry and dishwashing appliances manufacturer Miele which will see it recover more of its used grease for recycling into biofuels.

The restaurant chain has been sending the used grease from its fryers for reprocessing into biofuel for its own fleet for more than a decade, having installed grease recovery units (GRUs) at all of its UK locations. The new deal will see oil pulled from its used mops, towels and cleaning cloths for recycling.

In order to capture the grease, Miele will update the washing machines which it hosts at 1,300 McDonald's restaurants across the UK to fit them with more modern grease filters, newer hoses, more efficient silicone door seals and lower temperature settings.

Miele claims that the move will boost McDonald's annual biofuel production by 20% once the full roll-out is complete.

McDonald's has been using closed-loop biodiesel made from its own grease to power its UK delivery fleet since 2007, with similar recycling schemes now underway in most of the company's international markets.

Across Europe, around 80% of the company's waste grease by volume was successfully reprocessed into biofuel last year – equivalent to 28% of the fuel used annually across its road fleet. McDonald's has said that it wants to increase this

percentage, but is yet to set time-bound commitments.

As the shift towards low-carbon transport continues to gather pace – and with heavy goods vehicles (HGVs) and air travel remaining two of the most challenging sub-sectors to decarbonise – McDonald's is just one in a string of companies to have invested in biofuel made from waste oil in recent times.

Click [here](#) for more information.

BASF expands production of biodiesel catalyst

BASF will increase the production capacity for its Sodium Methylate plant in Guaratinguetá, Brazil. The nameplate capacity will increase by 30%, from currently 60,000 metric tons to 80,000 metric tons. The new capacity will come onstream in 2020.

Sodium Methylate is an efficient and reliable catalyst that provides a sustainable solution for the production and use of Biodiesel, meeting the requirements of engine manufacturers for high-quality fuels and lower emissions. Sodium methylate supports higher yields and low preparation cost for Biodiesel.

With this expansion, BASF will support the growth of its Sodium Methylate customers. Brazil is an important and significant market for Biodiesel and corresponding catalysts. Customers' demands, and requirements have been evolving to accomplish the environmental and economic strategy of the country, supporting the local agriculture and biofuels production.

BASF's site in Guaratinguetá, Brazil, is ideally suited for the investment to supply the growing customer demand in Brazil and other South American countries. The site is close to the leading biodiesel producers in Brazil, as well as close to Santos port providing logistic advantages for exports to the region.

Click [here](#) for more information.

Norwegian company to convert plastic waste to biofuel

Energy company Quantafuel and Geminor have entered a cooperation agreement to secure deliveries of plastic waste to Quantafuel's plants for low emission fuel production.

Since 2007 Quantafuel has developed and tested its own patented catalyst solution that converts plastic waste into low emission fuels and products for the petrochemical industry. The Norwegian company has previously opened a test production facility in Mexico, and in the third quarter of 2019 the first Scandinavian plant, located in Skive in Denmark, will be ready for production of diesel. The new cooperation sees Geminor as a main supplier ensuring that the optimal volume and quality of plastic waste is delivered to Quantafuel's plants.

The production plant in Skive, which will be the first of several plants in Europe, will convert up to 20,000 tonnes of plastic waste into chemical products annually. According to plan, capacity over the next few years will be increased to around 60,000 tonnes.

Click [here](#) for more information.

Aviation Biofuel

Neste and Air BP in partnership to deliver aviation biofuel to Sweden

Neste, the world's leading renewable products producer from wastes and residues, and Air BP, the international aviation fuel products and services supplier, have entered into an agreement to deliver sustainable aviation fuel to airline and airport customers in Sweden in 2019.

Neste and Air BP announced in 2018 their plans to explore and develop supply chain solutions for delivering sustainable aviation fuel to airports and airlines. As a next step in their collaboration Neste

will combine its expertise in the production and blending of sustainable low-carbon aviation fuel with Air BP's recognized excellence in safe, efficient and effective aviation fuel distribution solutions to jointly develop a viable supply-chain solution for sustainable aviation fuel to the Swedish market.

Currently, sustainable aviation fuel offers the only viable alternative to fossil liquid fuels for powering commercial aircraft. The sustainable aviation fuel which Neste produces has proven its technical capability in thousands of commercial flights. It is produced from non-palm renewable and sustainable raw materials, and can reduce up-to 80% of greenhouse gas emissions over its life-cycle compared to conventional jet fuel.

Air BP has supplied sustainable aviation fuel in the Nordics since 2014 at around 10 airports, including most recently at Kalmar airport in Sweden and Oslo airport where they were the first to supply sustainable aviation fuel produced by Neste through the existing airport fuelling infrastructure, in collaboration with other key industry stakeholders.

Click [here](#) for more information.



Public Domain Pictures

Other Biofuels

SEAT to produce biomethane fuel in Barcelona



SEAT
SEAT

Car manufacturer Seat has announced that it will be launching a project converting organic waste into biomethane in Barcelona.

According to the release, the Life Methamorphosis project uses five steps: recycling, transforming, refining and compressing, refuelling, and 'driving off'.

The company claims that with all the organic waste that is generated they can produce enough biomethane to power 10,000 cars to travel around 15,000 kilometres every year.

The company continues to outline that of all the waste collected at the Ecoparc 2 in Barcelona, biomethane is produced using organic waste and any other useful forms of waste, transforming it into biogas.

Seat claims that the organic waste is then fed into 25m-tall anaerobic digesters, with each holding a capacity of 4,500 cubic metres, turning it into a 65% methane biogas.

Any organic waste that isn't transformed is used as a fertiliser.

Click [here](#) for more information.

Agreement to promote Italian transport biomethane

Eni and the Italian Biogas Consortium (CIB) have signed an agreement to promote the production of advanced biomethane from animal waste, agro-industrial by-products and dedicated winter crops for use in the transport sector. The agreement also involves new opportunities for Consortium member companies by launching business initiatives which will be developed in partnership. A taskforce will be established and will meet periodically to assess and define the most efficient and appropriate opportunities for collaboration. The agreement is a central component in Eni's efforts to promote the principles of the circular economy in energy production

Part of the agreement is in-depth examination with the members of commercial and industrial initiatives through a system that starts from biogas, which is produced currently and already used to generate electricity and thermal energy, being refined so that it can be used as a fuel for road transport, in the form of compressed gas or liquefied natural gas.

Eni is targeting the collection of around 200 million cubic metres of biomethane, which can be produced by CIB members, through the consolidation of methane generated and produced in agricultural and livestock farming processes. The benefits will be lower atmospheric emissions and a more competitive primary sector.

This agreement promotes the refinement of biomethane biogas in complete collaboration and fully integrated with the many agricultural and livestock companies in the Consortium. For Eni, it represents another step forward in the production of advanced biofuels and aligns with the transformation of the Venice and Gela bio-refineries.

Click [here](#) for more information.

Events

World Bio Markets

Amsterdam, 1st-3rd April 2019

Come and connect with the bio-based producers with revolutionary chemical properties for your industry, and gain insights into practical, commercially viable, actionable organisational change from other brands who have been through it with success.

For the wider industry, come and connect with the most exciting bio-based producers, ranging from well-backed start-ups to truly global chemical giants to help your businesses grow or regions succeed – and the brands carrying these products to consumers.

Click [here](#) for more information.

Plant Based Summit

Lyon, 22nd-24th May 2019

In May 2019, Plant Based Summit will launch its 5th edition in Lyon, with an even sharpened positioning on the innovation, the co-development and its operational implementation for the necessary deployment of bio-based products. It will be the opportunity for the participants to contribute to the evolution of plant-based, green and sustainable chemistry!

The 2019 congress is still focused on stimulating biobased product development through a market driven approach. You gain access to more than 700 professionals from all the biobased chemical industry value chain.

Click [here](#) for more information.

EUBCE

Lisbon, 27th-30th May 2019

The EUBCE is the leading platform for the collection, exchange and dissemination of scientific and industrial know-how in the field of biomass.

The EUBCE combines one of the largest biomass science and technology conferences with a high-quality industry exhibition, attracting biomass professionals from around the globe.

Click [here](#) for more information.

RRB 15

Toulouse, 3rd-5th June 2019

The 15th edition of the International Conference on Renewable Resources & Biorefineries will take place in Toulouse, France from Monday 3 June until Wednesday 5 June 2019. Based on the previous RRB conferences, this conference is expected to welcome about 350 international participants from over 30 countries.

The three-day international conference will consist of plenary lectures, oral presentations, poster sessions and an exhibition. Companies and research organizations are offered the opportunity to organize a satellite symposium.

Click [here](#) for more information.

UK AD and World Biogas Expo

Birmingham, 3rd-4th July 2019

As the largest international trade show dedicated solely to AD and biogas, UK AD and World Biogas Expo 2019 offers a unique combination of industry insight, innovation and investment opportunities for both the UK and international markets. UK AD and World Biogas Expo is unique in covering all sectors and regions where AD offers solutions – from UK farming to world mega cities, from local waste and water management to global energy generation and transport.

UK visitors will hear about the latest domestic market news, including policy and regulations, as well as discover international trends and developments. International visitors will be able to explore business prospects in the UK as well as showcase their success stories.

Click [here](#) for more information.

EFIB

Brussels, 30th September - 2nd

October 2019

Click [here](#) for more information.

Progress in Biomethane Mobility

Schwäbisch Hall, 15th-17th October

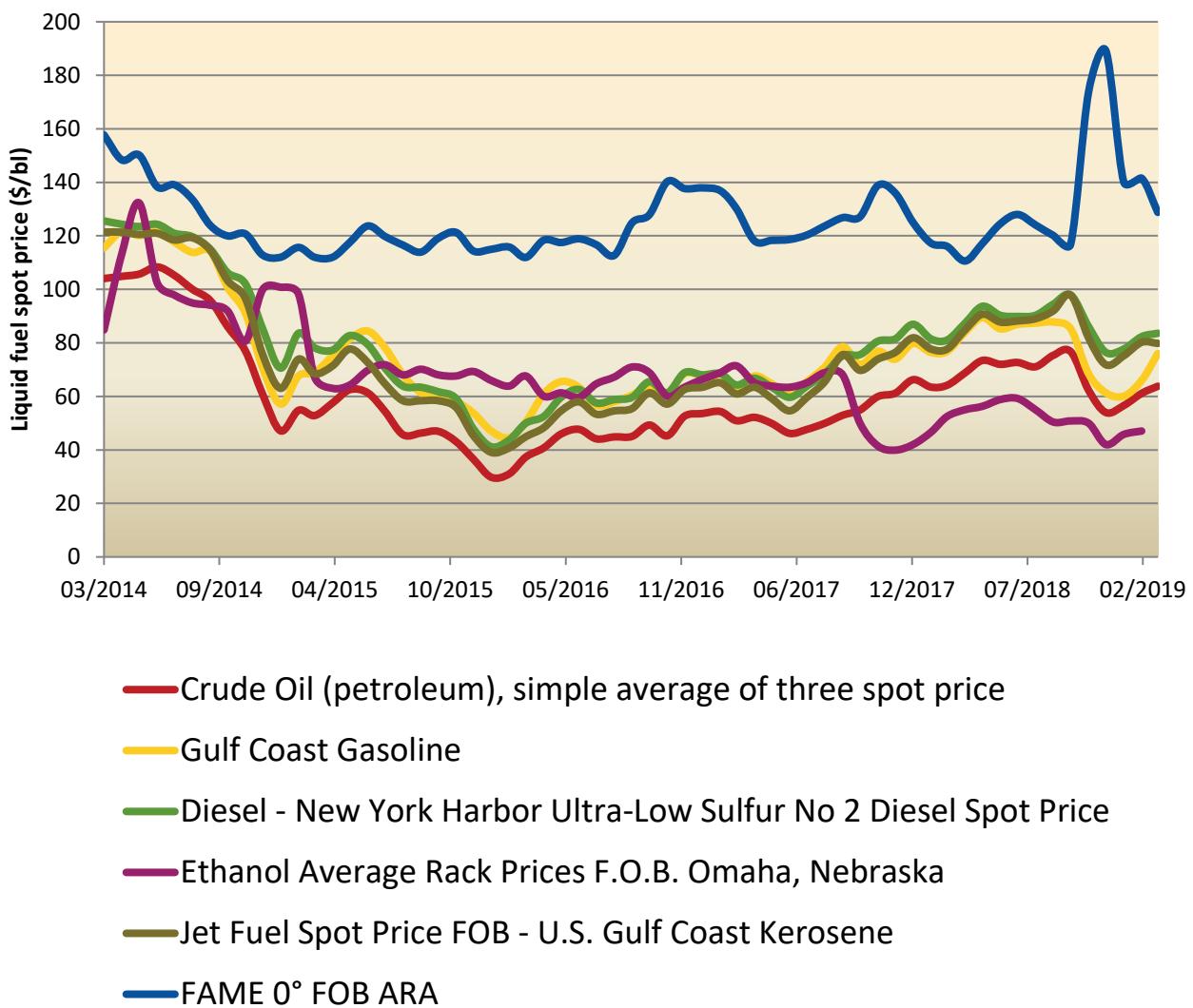
2019

IBBK's 3-day conference "Progress in Biomethane Mobility" will bridge the gap between the technology and the end user. We address the international scientific community as well as practitioners to present you the status quo and new and modern technologies.

Click [here](#) for more information.

Price Information

Historical spot prices of liquid fossil fuels and liquid biofuels. Five years prices and up to March 2019 are given in \$ per barrel.



Prices of Crude oil, diesel, gasoline, and jet fuel are recorded from www.indexmundi.com; Price of ethanol from www.neo.ne.gov; Biodiesel spot prices from <http://www.kingsman.com>

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