

News Review



Issue Eighty-One

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Each month we review the latest news and select key announcements and commentary on feedstocks used in the bioeconomy.

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Foreword

Welcome, subscribers, to the final Feedstocks News Review of the year.

When one is utilising biomass in industrial processes, it is all well and good having a well-developed technology, a business model, and a sustainable feedstock supply, but if your supply chain is in any way disrupted, then the whole process comes crashing down. This has been the case for biorefiners situated along the river Rhine this month, as low water levels have dramatically reduced traffic along the river, limiting both the feedstock input and output of biorefineries along the river. This is just one example of how freak occurrences can disrupt industrial processes, and in a relatively young sector these effects can be significant. Understanding possible supply chains is essential for the development of any industry, and in another river-based story this month, that is the intention of the newly launched Energy Barge project. This project is aiming to map bioenergy markets in eastern Europe, particularly those that lie along the river Danube. This research will enable stakeholders to have a significantly better understanding of the eastern European bioeconomy, identifying possible business partners and markets for those active in the region. As developments in the bioeconomy in this region have lagged behind their western European partners, this development is timely, offering the opportunity to open new markets and create new ventures.

Elsewhere, yet more research has been published relating to the amount of available biomass in the EU for use in bioenergy. The research has concluded that it would be possible to treble the amount of available biomass in Europe, and to do so in both an environmentally sustainable and cost-effective manner and with a key role for agricultural biomass. If this were to be the case, then bioenergy's contribution to the energy mix in decades to come could be much more significant, as, unlike most other renewables, it is constrained by the availability of its feedstock. As world leaders continue to debate and implement sustainability strategies, it remains to be seen what measures the EU, or its member states, will implement in order to best develop and utilise this untapped feedstock potential.

Read on for the latest news.

Policy

CEPI criticises European Commission's guidance on cascading use of wood



PxHere

The publication of the non-binding guidelines on the cascading use of wood fails to live up to the Commission's own ambitions signalled in its recent Bioeconomy Strategy. CEPI has been a long-time proponent of this principle which allows for every wood fibre to be used on average 2.5 times, instead of solely burning wood for bioenergy.

IN CEPI's opinion, the new guidelines ignore the firm call set out by the revision of the Renewable Energy Directive to avoid raw material market distortions and neglect to provide clear instructions on this in the new guidelines.

"The guidance is clearly a missed opportunity for contributing to a circular bioeconomy that is built on the efficient use of biomass and innovative solutions rather than on direct burning of wood for bioenergy. The focus should now turn to ensuring that Member States respect the cascading use principle in their national climate and energy plans and that future revision of these guidelines take account of this principle."

Click [here](#) for more information.

EU agrees market access for organic and recycled fertilisers

The European Parliament and the Council have agreed on new rules enabling access to the EU single market for fertilisers made from organic or recycled materials. This follows a long negotiation on the subject.

Currently only 5% of waste organic material is recycled and used as fertilizers; but if more bio-waste can be recycled, then non-organic fertilizer can be increasingly replaced. However, the existing 2003 Fertilisers Regulation only acts to harmonize the EU conventional fertilisers market, predominantly based on mined or chemically-derived fertilisers.

The new rules will include all types of fertilisers (mineral, organic, soil improvers, growing matters, etc.) and it is aimed at: promoting an increased use of recycled materials for producing fertilisers, for supporting the development of circular economy and reducing dependence on imported nutrients; making it easier the market access for innovative, organic fertilisers, giving farmers and consumers a wider choice and promoting green innovation; establishing EU-wide quality, safety and environmental criteria for "EU" fertilisers (i.e. those which can be traded in the whole EU single market).

The agreement needs to be confirmed by the EU Member States ambassadors and the European Internal Market Committee IMCO. Then it will be put to a vote by the Parliament in plenary session and formally approved by the EU Council of Minister.

Click [here](#) for more information.

Visions for 2050's "bio-society"

The Bio-based Industry Consortium (BIC) has developed its vision of the Bio-society in 2050. The document will be approved by the end of the year.

This vision developed and proposed by the Biobased Industries Consortium and its members will be finalised and agreed upon with other stakeholders and potential private partners of a future PPP once the scope and nature of the instrument has been agreed with the European Commission. Five key drivers to realising the vision are outlined, including:

- integrated and efficient production of food, feed, bio-based products and materials, and energy to help foster food security and satisfy materials needs for a growing world population;
- resource-efficient and sustainable value chains benefit all actors, including primary producers, and create value for society;
- industrial and economic sectors operate in symbiosis, effectively collaborating across geographical and competency boundaries;
- carbon-neutral value chains mitigate climate change and contribute to UN Sustainable Development Goals; and
- informed and participating citizens enable a sustainable, circular bioeconomy.

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UK publishes bioeconomy strategy



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The UK Department for Business, Energy and Industrial Strategy has published the UK's bioeconomy strategy, which outlines the approach that government, industry and the research community will take to harness the power of bioscience and biotechnology.

The bioeconomy represents the economic potential of harnessing the power of bioscience, using renewable biological resources to replace fossil resources in products, processes and services. This will also reduce our dependence on the finite fossil resource. The UK bioeconomy is today worth £220 billion and supports 5.2 million jobs.

Click [here](#) for more information.

Markets

Low water-level on Rhine affecting rapeseed oil market



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AHDB reports that ongoing low water levels on the Rhine have limited demand for rapeseed oil on the continent. Difficulties in transporting raw feedstuffs to biodiesel refineries and subsequent shipping of the finished product are causing significant problems for refineries based along the waterway. As a result, AHDB advises attractive biodiesel margins on the continent are unlikely to translate into support for rapeseed prices.

Meanwhile in Asia, mandated inclusions of biodiesel in transport fuels, in Malaysia, are scheduled to increase from 7% to 10%, according to a statement by government officials issued on 26 November. The increase is scheduled to come into force in February and comes in the wake of subdued palm oil prices, driven by a combination of limited demand and high stocks.

Oil demand expected to continue to rise, according to IEA

LowCVP carries a short review of the findings of the IEA's World Energy Outlook 2018. The outlook forecasts that oil demand for use in cars will peak as a result of growing use of electric vehicles. However, overall demand for oil is projected to continue increasing. The IEA report says that demand for oil used for transport is already falling in some markets and segments, notably buses.

Oil use for cars will peak in the mid-2020s, but demand for petrochemicals, trucks, planes and ships still keep overall oil demand on a rising trend. Meanwhile, improvements in fuel efficiency in the conventional car fleet reduce potential demand by three times more than the 3 million barrels per day (mb/d) displaced by 300 million electric cars projected to be on the road in 2040.

The IEA has cut its longer-term oil price projections compared with last year, partly because of the falling cost of both renewable and conventional sources of energy, but also due to the worldwide push to tackle climate change and improve air quality and to the boom in US shale oil and gas output. The Agency says it expects the oil price should continue to rise towards \$83 a barrel by the mid-2020s.

Click [here](#) for more information.

£2m private investment in Terravesta



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Former IG Group chief executive and current Scotgold chairman Nat le Roux has bought a personal stake in UK renewable biomass business Terravesta.

Le Roux has invested £2 million in the business, reflecting the growing importance of clean energy, and the positive prospects for the rapidly-developing Miscanthus bio-economy.

The investment will see the business grow its operations, allowing for more Miscanthus planting to meet increasing demand and fund further research and development into producing new seed-based varieties and building robust markets for the crop.

Click [here](#) for more information.

The Energy revolution - stocktake

As a contribution to COP24, power utility Drax Group, commissioned a global outlook report by researchers from Imperial College London and E4tech, valuing how rapidly nations are transforming their energy systems, and what lessons can be learned from the leading countries across five energy sectors.

Key conclusions include:

- Several countries have lowered the carbon content of their electricity by 100 g/kWh over the last decade. The UK is alone in achieving more than double this pace, prompted by strong carbon pricing.
- China is cleaning up its power sector faster than most of Europe, however several Asian countries are moving towards higher-carbon electricity.
- Germany has added nearly 1 kW of renewable capacity per person over the last decade. Northern Europe leads the way, followed by Japan, the US and China. In absolute terms, China has 2.5 times more renewable capacity than the US.

Fossil fuels

- Two-fifths of the world's electricity comes from coal. The share of coal generation is a key driver for the best and worst performing countries in clean power.
- Coal's share of electricity generation has fallen by one-fifth in the US and one-sixth in China over the last decade. Denmark and the UK are

leading the way. Some major Asian nations are back-sliding.

- Many European citizens pay out \$100 per person per year in fossil fuel subsidies, substantially more than in the US or China. These subsidies are growing in more countries than they are falling.

Electric vehicles

- In ten countries, more than 1 in 50 new vehicles sold are now electric. China is pushing ahead with nearly 1 in 25 new vehicles being electric and Norway is in a league of its own with 1 in 2 new vehicles now electric, thanks to strong subsidies and wealthy consumers.
- There are now over 4.5 million electric vehicles worldwide. Two thirds of these are battery electric, one third are plug-in hybrids. China and the US together have two-thirds of the world's electric vehicles and half of the 300,000 charging points.

Carbon capture and storage

- Sufficient storage capacity has been identified for global CCS roll-out to meet climate targets, but large-scale CO₂ capture only exists in 6 countries.
- Worldwide, 5 kg of CO₂ can be captured per person per year. The planned pipeline of CCS facilities will double this, but much greater scale-up is needed as this represents only one-thousandth of the global average person's carbon footprint of 5 tonnes per year.

Efficiency

- Global progress on energy intensity is mixed, as some countries improve efficiency, while others increase consumption as their population become wealthier.
- Residential and transport changes over the last decade are mostly linked to the global recession and technological improvements, rather than behavioural shift.
- BRICS countries consume the most energy per \$ of output from industry. This is linked to the composition of their industry sectors (i.e. greater manufacturing and mining activity compared to construction and agriculture).

Click [here](#) for more information.

UK MGT power plant behind schedule

Local news reports that the MGT Teesside project to build the world's largest biomass power plant on Teesside is five months behind schedule, according to a business leader. But no further delays are expected.

MGT Teesside is leading the biomass project on the banks of the Tees which has been more than 10 years in the making.

Jerry Hopkinson, chief operating officer at PD Ports, told the latest meeting of the Tees Valley Combined Authority (TVCA) how the project was "nearing its final stages" but he added it was five months behind schedule. "The biomass power station will be commissioned before the end of this forthcoming year and we'll start to see millions of tons of cargo arriving on the Tees shortly thereafter."

The £650m project has been funded by Danish pension fund PKA and Australian banking group Macquarie.

Click [here](#) for more information.

Research & Development

New research suggests available EU biomass could triple

According to recently published research, the amount of domestically available biomass that is used for bioenergy in Europe can triple within sustainable and environmental limits whilst staying within 'reasonable' cost limits.

The COP24 meetings are focusing on the urgency of fighting climate change. Research into how biomass has a prominent role to play towards a net-zero greenhouse gas emissions economy has recently been highlighted in the EU's new long-term strategy for decarbonisation.

Bioenergy Europe says that bioenergy represents one of the most important solutions to achieve a balance between emissions and removals by 2050. The trade association believes that bioenergy is versatile and flexible and can help to drastically cut carbon emissions in transport, heating and electricity sectors.

Bioenergy's contribution towards the 2050 energy mix is to be determined by the availability of sustainable biomass. Bioenergy Europe states that agricultural biomass plays a key role in the research conducted by Professor Dr André Faaij of the University of Groningen. The research indicated that in order to achieve the potential by 2050, agricultural biomass' energy contribution will need to significantly increase. It will also need to become as important as the energy that is produced from forest biomass.

Click [here](#) for more information.

Seaweed biorefinery opens



Geograph

TNO has announced that its up-scaled seaweed bio-refinery lab is now open. In this facility, the essential process steps for converting seaweed into bio-based fuels and raw materials can be developed.

This is the stepping stone to further expansion of the R&D infrastructure for the development of technology for the production of biofuels based on gasification and bio-refinery.

The facility for seaweed processing at ECN in Petten is a first step in expanding the research infrastructure aimed at technology development for the conversion of biomass into green energy and raw materials. The new research facilities enable ECN, together with companies and other knowledge institutions, to give a powerful boost to the energy transition and the greening of the chemical sector. Special attention will focus on the production of biofuels and co-production of raw materials for the chemical industry.

The seaweed lab consists of a series of flexible test facilities that can be used to develop innovative processing routes from seaweed to biofuels and green raw materials on a 1-10 kg scale. These developments take place within national and European research projects (including MacroFuels) and directly with companies.

Click [here](#) for more information.

Energy Barge project set to map European biomass flow

The Energy Barge project has launched its website providing an update on work undertaken to identify and map bioenergy markets across countries that border the Danube, providing insights into Eastern Europe as well as providing detail on port logistics and a means of identifying potential business partners in the relevant regions. The project will build a picture of biomass flows through the region.

Click [here](#) for more information.

Wood & Crop

Stora Enso increasing capacity at wood pulp plant

Stora Enso has an investment under way to meet the growing demand for wood-based textiles and significantly increase the dissolving pulp capacity of its Enocell Mill in Finland; dissolving pulp is used as a raw material in the textile industry. Stora Enso promotes wood-based innovations together with its customers and partners.

Pure by Stora Enso is a wood-based dissolving pulp that is being used as a raw material in the evening gown made by Aalto University for Finland's First Lady Jenni Haukio to wear at the Independence Day Reception. Stora Enso supports the new method of producing textile fibres developed by Aalto University and the University of Helsinki and supplies dissolving pulp as the raw material for the project. The textile fibre used in Haukio's gown was produced using the new Ioncell method.

The Enocell mill, part of Stora Enso's Biomaterials division, has been producing dissolving pulp since 2012. The mill is currently being converted to focus entirely on the production of dissolving pulp. After the conversion, it will have an annual dissolving pulp capacity of 430 000 metric tonnes. The EUR 52 million investment was announced in October 2017, and the work is expected to be completed in the second half of 2019.

Click [here](#) for more information.

UK's first national farm waste collection service

Dairy hygiene company Deosan has become the first company in the UK to offer farmers a national collection service for waste plastic.

Together with waste service provider Avanti Environmental Group it is offering all farmers a one-stop collection service at any farm location for all plastic waste.

This includes common items such as silage sheet, mineral tubs, hygiene product drums and even used treatment tubes.

Farmers will be charged a monthly fee for the service, which is already available.

Pick-up from the farm can be arranged at a frequency to suit the volume of waste and storage available.

A detailed carbon-savings report will also be provided, illustrating how milk production supports the environment.

Click [here](#) for more information.

Pöyry to develop Estonian torrefied biomass plant



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Biomass magazine reports that Pöyry has announced Baltania OÜ has awarded the company an engineering, procurement and construction management (EPCM) services contract for a torrefied pellet plant under development in Vägari, Estonia.

Construction on the project is currently scheduled to be complete during the first quarter of 2020. Once operational, the plant will have the capacity to produce 157,000 metric tons per year of torrefied pellets made from sustainable biomass sourced from forestry wastes and by-products of the wood processing industry.

The facility will be based on Clean Electricity Generation B.V.'s technology, which converts biomass into torrefied pellets and biochar utilizing its proprietary torrefaction reactor. The torrefied products are produced with no net thermal energy imported from non-renewable system.

Click [here](#) for more information.

Wood silo fire at Scottish biomass plant

An investigation has been launched after a silo owned by UK-based biomass supplier Balcas, containing 12 tonnes of wood pellets, caught fire in Invergordon, Scotland.

The fire broke out at Cromarty Firth Industrial Estate. Invergordon-based fire crews worked through the night to contain the fire.

The pellets were contained in a 49ft (14.9m) tall structure that has a diameter of 328ft(99.9m) and held enough material to fill 600 lorries.

The cause of the fire is still “unknown and will be the subject of a full investigation.”

Balcas’ combined heat and power (CHP) plant has been fully operational at the Invergordon site since 2008 and generates electricity as a by-product of its wood pellet production. The company supplies timber products and pioneers biomass renewable energy in the British Isles.

Click [here](#) for more information.

Starch crop alternatives for Nigeria

The present sources of commercial starch are corn (maize), wheat, potato, cassava and rice. Corn is the major source globally. In 2017, the world starch production was 68 million MT and rose to 72 million MT in 2015. The global share of corn starch accounts for more than 80%, whereas cassava starch accounts for only 7.5%.

Cassava starch has advantages in terms of its greater paste clarity, viscosity, freeze-thaw stability and its high stability in acidic products. But the use of cassava for starch production faces stiff competition in many African countries, where it is a staple for products that currently yield more

income for farmers. Nigeria for example, is the highest producer of cassava with over 40 million MT/annum, yet it contributes less than 2% towards global cassava starch production.

If Africa is to compete in global starch production, new sources of raw materials must be found among the carbohydrate crops that are not fully utilized as staple food crops. A number of research activities have embarked to isolate candidate plant species.

The Raw Materials Research and Development Council in collaboration with Sheda Science and Technology Complex (SHESTCO) and the National Institute for Pharmaceutical Research, Idu (NIPRD), carried out extensive search for alternative indigenous crops for starch production. The initiatives were focused extensively on the properties of relatively underutilized plants such as *Icacina trichantha*, *Tacca involucrata* and *Anchomanes difformis* growing in Nigeria. The result of the R&D efforts showed *tacca* tuber as the most plausible alternative for starch production. As a result of this, a multi-institutional and multi-disciplinary programme was embarked upon to develop *tacca* as a complementary raw material for industrial starch production in the country. Efforts are ongoing to domesticate and encourage the cultivation of the plant in the most adaptable areas in the country for sustainable industrial use.

Within the last three years, over 18 billion Nigerian naira (£41 million) was expended on importation of starch into Nigeria, which is a key driver for domestic development to reduce foreign exchange.

Development trials to improve production and industrial trials of *Tacca* starch are very promising including use in pharmaceutical applications.

Click [here](#) for more information.

Slovakia halts use of quality wood for bioenergy to address deforestation problems



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Slovakia is to scrap subsidies for burning quality wood in biomass facilities. This stems from the amendment to the law on supporting renewable energy sources, authored by the opposition, which was adopted by parliament on December 6.

Under the new rules, only the combustion of wood from energy crops and waste from wood-processing industries will be subsidised, the SITA newswire reported.

One of the reasons for proposing the change was the more obvious deforestation not only of forests, but also river banks and in alleys, driven by bioenergy subsidies.

“Slovakia has lost 760 square kilometres of forests during the past 18 years,” opposition MPs said, as quoted by SITA. “Currently nearly 4 million cubic metres of wood are logged for energy purposes, while the sustainable logging of all wood on forest and non-forest land represents 5.8-6 million cubic metres of wood.”

Restriction on use of quality wood have been flouted.

Based on ÚRSO (Regulatory Office for Network Industries) data from inspections, MPs want to secure the efficient inspection of the quality of combusted wood, SITA wrote.

They also pointed to the fact that generous subsidies increased the prices of wood chips to €58 per tonne. “This has made the processing of any type of wood economically unattractive,” MPs said, as quoted by SITA. “Subsidies thus create conditions resulting in the deformation of the energy market and an increase in electricity prices for consumers.”

Click [here](#) for more information.

Events

Lignofuels 2019 Oslo, 13th-14th February 2019

Now on its 11th edition, this two day conference will once again bring together key lignofuels stakeholders to join our forum discussions and networking, including leaders from advanced generation biofuels companies from across the globe represented by Technical, Strategic and Business Development Executives from First and Advanced Generation Biofuels Producers, Oil Refiners, Process Technology Providers, Enzyme Developers, Engineering Firms and Agribusiness as well as Financiers, Investors, Policy & Regulators, Automotive & Aviation Industries, Consultants, Traders & Brokers and Chemical Companies.

Click [here](#) for more information.

World Bio Markets 2019

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!

At Plant Based Summit, each stakeholder in the biobased economy is able to share, find the best solutions to fit its own specific place and development stage, enabling it to make the decisive leap forward, thus contributing to empower the biobased economy.

Click [here](#) for more information.

EUBCE 2019

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.

Feedstock Prices

UK spot prices of bagged wood pellets, and wheat and barley straw. Arrows indicate rise ↑, unchanged – or fall ↓ from previous month.

Date	UK Wood Pellets Delivered	UK Ex-Farm Barley Straw	UK Ex-Farm Wheat Straw
	(£/tonne, 5% VAT)	(D1000) (£/tonne)	(D1000) (£/tonne)
10 Feb	297-327 (↑-↑)	60-80(---)	45-65(---)

For wood pellets prices we considered UK pellet traders selling prices.

For details on straw spot prices, see <http://www.farming.co.uk>

UK (LIFFE), French (MATIF) and US (CBOT) future prices for wheat, rapeseed, maize, and soybean. Arrows indicate rise ↑, unchanged – or fall ↓ from previous month's predictions.

Date	UK (LIFFE) Feed Wheat (£/tonne)	MATIF Wheat (€/tonne)	MATIF Rapeseed (€/tonne)	CBOT Wheat (cnts/bsh)	CBOT Maize (cnts/bsh)	CBOT Soyabean (cnts/bsh)
Dec-18				527.7 (↑)	375.5 (↑)	
Jan-19	174.6 (↑)					907.00 (↑)
Feb-19			369.5 (↓)			
Mar-19	177.3 (↑)	207.5 (↑)		536.0 (↑)	384.2 (↑)	920.50 (↑)
May-19	179.3 (↑)	208.2 (↑)	369.5 (↓)	541.7 (↑)	391.7 (↑)	933.25 (↑)
Jul-19	181.6 (↑)			547.5 (↑)	398.2 (↑)	945.00 (↑)
Aug-19			366.7 (↓)			949.25 (↑)
Sep-19		190.5 (↑)		554.5 (↑)	399.7 (↑)	950.50 (↑)
Nov-19	162.4 (↑)		370.2 (↓)			
Dec-19		192.0 (↑)		565.7 (↑)	403.7 (↑)	
Jan-20	164.4 (↑)					
Feb-20			371.0 (↓)			
Mar-20	165.7 (↑)	194.2 (↑)				
May-20	166.7 (↑)	195.2 (↑)	371.0 (↓)			
Jul-20	173.1 (↑)					
Sep-20		189.7 (↓)				
Nov-20	159.9 (↑)					

For details on future prices see <http://www.hgca.com>

Other biomass feedstock prices are available upon request, simply contact enquiries@nnfcc.co.uk

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