The Bioeconomy Consultants



News Review

Issue Seventy January 2018

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 first Feedstocks News Review of 2018.

When it comes to bioeconomy feedstocks, we are often preoccupied with land-based biomass. This makes sense as it is where the overwhelming majority of farming and forestry take place, and the biomass itself is much easier to access (harvesting a field is much less of a logistical operation than harvesting, say, a seaweed bed). As such, bioeconomy processes tend to rely on agriculture and forestry to provide biomass feedstocks, but this may have to change in future. Although we reported last month that there is more available crop area than we thought, there is still not enough land area to provide all the necessary biomass for an ever-increasing population if we wish to maintain the lifestyle we already lead. This is what has led the European Commission's Scientific Advice Mechanism to look to the oceans. By cultivating aquatic plants and animals, the Mechanism believes that an additional 400 million tonnes of biomass could be cultivated for Europe, predominantly as food. Such an increase in food production would actually spell good news for those who use land-based biomass for processing. This would go some way to alleviating concerns about energy crops displacing food crops, if more food were available from elsewhere. There is also potential in utilising the great amount of biomass in the oceans as plankton, but this would likely involve technological development, and given the bioeconomy's mixed track record with algae, may prove a challenge.

Elsewhere, there is a report this month that hemp may be undergoing a revival as a crop. Hemp is undoubtedly useful, being fast-growing source of biomass for fibres, with the whole plant useable in some way. Europe is developing an interest in using hemp for materials, but the biggest committers are China and Canada. China already grows 20% of the world's hemp, with its government pledging to grow 1 million hectares of the plant. Canada is also looking to realise the potential of hemp seeds, planting 60,000 hectares in 2017 alone. There is a big market for hemp too: one projection has the value of hemp at almost \$2bn in the US alone by 2020. NNFCC have worked with hemp in the past, in its form as Hempcrete, a construction material for houses, with the potential to reduce carbon emissions in the construction industry, but further development of the technology is still needed.

Read on for the latest news.

Policy

BEIS sets out plans for coal phase-out



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In November 2015 the UK government announced its intention to consult on proposals to end unabated coal generation in Great Britain by 2025. In November 2016 the Department for Business, Energy and Industrial Strategy (BEIS) published a consultation on proposals for how to put that into effect. The consultation ran from 9 November 2016 to 8 February 2017.

In response, the government has ruled out mandating carbon capture and storage and instead will set an emissions limit for generators set at an intensity limit of 450g CO2 per kWh of electricity generated. This is broadly the emissions intensity of an unabated gas generator and is in line with the existing Emissions Performance Standard that applies to new build fossil fuel plant. This limit will be applied on a unit-by-unit basis. Units could meet this standard by investing to abate CO2 emissions significantly.

It is expected most coal units will phase out during the 2020's due to existing pressures from the existing Emissions Directive which limits running hours (for example Eggborough must close by 31 December 2023), the rising carbon price and the current relative poor economics of coal generation.

Some generators could cut emissions by increasing biomass co-firing. However, any increase in co-firing levels by generators accredited under the Renewables Obligation (RO) scheme would give rise to additional pressure on the Levy Control Framework (LCF), with a consequent impact on consumers' bills. BEIS recognises that it might be necessary to identify action to enable control of spend on biomass cofiring under the RO. In September 2017 the government consulted on proposals to ensure that the costs to consumers of new biomass cofiring or conversion under the RO are controlled. A response to that consultation will be published soon.

Click here for more information.

Scottish Forestry Bill met with positive response

Confor has welcomed the "pragmatic and positive" approach by politicians to the new Forestry and Land Management (Scotland) Bill after the latest version was published.

Chief Executive of Confor, Stuart Goodall, said better legislation had emerged as a result of careful consideration of more than 130 amendments put forward to the draft Bill - the first new forestry legislation in 50 years, which completes the full devolution of forestry to Scotland.

Confor worked closely with MSPs on the Rural Economy and Connectivity Committee to press for what it saw as crucial changes to the original draft. This led to a commitment to guarantee future timber supply and a recognition of the need for forestry expertise at the heart of government with a commitment to appoint a Chief Forester or similar new role to ensure this happens.

Confor is also hopeful that a call to guarantee new woodland creation in the Bill will be proposed before the Bill proceeds to Stage 3. There will be a debate on Stage 3 of the Bill in the New Year, with legislation expected to be on the statute books before the summer.

Click here for more information.

Report recommends compulsory food waste separation in England

England should follow Scotland in introducing compulsory food waste separation for businesses, according to two top Government scientists.

A long-awaited report on waste and resource efficiency, written by the Government chief scientist Mark Walport and Defra chief scientist Ian Boyd, was published on 14 December.

Whereas the main report was written in general terms, a separate food waste report made a number of specific policy recommendations for the Government, businesses and local authorities.

It said the biggest contribution to tackling food waste was to focus on the hospitality and food services sectors which, between them, generate around a million tonnes of food waste every year. The report said 88% of this ended up in landfill or energy-from-waste facilities.

Click here for more information.

US may change biofuel rules regarding sorghum oil



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Biomass magazine reports the U.S. EPA has released a notice of proposed rulemaking related to fuel pathways using distiller sorghum oil as feedstock for biofuel production. A 30-day comment period on the proposal is set to close Jan. 26.

The proposed rule contains the EPA's analysis of the lifecycle greenhouse gas (GHG) emissions associated with certain biofuels produced using grain sorghum oil extracted at dry mill ethanol plants at any point downstream from sorghum grinding, also known as distiller sorghum oil.

EPA's assessment concludes that using distillers' sorghum oil as feedstock results in no significant agricultural sector GHG emissions. The agency's analysis determined that biodiesel and heating oil produced from distillers' sorghum oil via a transesterification process, and renewable jet fuel, heating oil produced from distillers' sorghum oil via a hydrotreating process, would meet the lifecycle GHG emissions reduction threshold of 50 percent required for advanced biofuels and biomass-based diesel under the Renewable Fuel Standard.

The rule proposes to amend RFS regulations to define the term distillers' sorghum oil. It also

proposes to add approved pathways to the RFS regulations for biodiesel and heating oil manufactured from distillers' sorghum oil using the transesterification process, and for renewable diesel, jet fuel, heating oil, naphtha, and LGP produced from distillers' sorghum oil via a hydrotreating process.

Growth Energy has released a statement noting it has worked extensively with its producers, as well as the National Sorghum Producers, to make this update to the RFS program in order to provide additional market opportunities.

Click here for more information.

Markets

Japanese demand is a good sign for Canadian pellets

Despite turbulent fortunes in Canadian pellet facilities in recent months, Canadian biomass magazine reports on data from US Future metrics that projects that Japanese demand for biomass fuels – including wood pellets, palm kernel shells (PKS), domestic biomass, and imported woodchips – will increase 351 per cent from 2017 to 2025 as Japan embraces biomass as a significant part of its energy future. Wood pellet demand alone is projected to reach nearly 10 million tonnes by 2025.

The projection is part of FutureMetrics' new research paper, the 2017 Japanese Biomass Outlook, which presents the first comprehensive outlook for biomass markets in Japan.

Click here for more information.

Hemp sector undergoing a revival



Pixabay

Hemp can be harvested in as little as twelve weeks from sowing, requires little or no chemical inputs such as pesticides, and the whole plant can be used in one way or another for textile and technical fibres, the woody hurds left after fibre extraction can be used for hemp-lime construction and the seeds contain healthy essential oils and other compounds of interest.

The Chinese are the world leaders in hemp production, currently producing 20% of all hemp. In the 2016 season, China grew over 400,000ha, with their government pledging to grow over one million hectares. Europe grew 33,000ha in the 2016 season, and have been steadily rekindling their own industry, which is growing rapidly due to a strong European Union (EU) incentive and the growing interest in green materials.

In America, 32 states have cannabis legislation of one kind or another, and Canada is rapidly positioning itself as the world leader in hemp seed production, with over 60,000ha planted in the 2017 season, about 90% of which is planted for seed production. The projected market for hemp products in the United States alone is \$1,85bn by 2020.

China showing interest in dandelion rubber



Maxpixel

Bioplastics magazine reports that China currently imports some 80% of the rubber it consumes. Now, the country is showing new interest in an alternative rubber made from dandelions. Shandong Linglong Tire Co. plans to invest \$450 million to create a new company that will focus on the development of dandelion rubber.

The tire company recently hosted the 2017 Dandelion Rubber Technology Innovation Forum in partnership with the Dandelion Rubber Industry Technology Innovation Strategic Alliance in Beijing, China. The forum focused on innovations in the dandelion industry, the company says, "aiming at accelerating the development of China's dandelion rubber industry."

Linglong Tire plans to invest \$450 million to set up a company tentatively named Linglong Dandelion Science and Technology Development Company to gather various talents to break the bottleneck in the key technology of industrialization of dandelion rubber.

Click <u>here</u> for more information.

Latest US pellet production statistics

Biomass Magazine reports the U.S. Energy Information Administration has released the December edition of its Monthly Densified Biomass Fuel Report, announcing respondents reported producing 433,464 tons of utility pellets and 133,344 tons of heating pellets in September.

The EIA said it collected data from 88 operating manufacturers of densified biomass fuel in September. These manufacturers reported a combined production capacity of 11.92 million tons per year and had the equivalent of 2,030 fulltime employees.

The report states the U.S. currently has a total of nearly 12.71 million tons of densified biomass fuel manufacturing capacity in place, including 2.41 million tons in the East, 9.39 million tons in the South, and 904,320 tons in the West. Of the 12.71 million tons of capacity, nearly 11.99 million tons is listed as currently operating or temporarily not in operation. An additional 163,500 tons is listed as under construction.

Domestic sales of biomass fuel reached 219,369 tons and averaged \$156.45 per ton. Exports in September reached 489,020 tons and averaged \$116.43 per ton.

Pinnacle Renewable Energy to offer common shares



Pinnacle

Canadian pellet producer Pinnacle Renewable Energy filed a preliminary prospectus with securities regulatory authorities in Canada for a proposed initial public offering (IPO) of common shares. The company is the third largest pellet producer in the world. The company produces industrial wood pellets that are used by utilities and large-scale power generators to produce renewable, baseload power. Pinnacle currently operates six pellet facilities, located in the British Columbia cities of Armstrong, Williams Lake, Meadowbank/Hixon, Houston, Burns Lake, and Lavington. The company also has a port terminal and new production facilities under development in Entwistle, Alberta, and Smithers, British Columbia. Pinnacle said it has entered into longterm take-or-pay contracts with utilities in the U.K., Europe and Asia that represent 100 percent of its production capacity through 2021 and nearly 80 percent of its production capacity through 2026.

Click here for more information.

Rentech files for bankruptcy

Biomass magazine reported on mixed fortunes in the Canadian pelleting market.

Rentech has filed for bankruptcy, and sold off the bulk of its assets, including one of its Ontario wood pellet plants, and U.S. wood pellet business New England Wood Pellet. Rentech's Wawa, Ontario, pellet plant has been plagued with operational issues over the past couple of years, resulting in contract shortcomings to UK pellet customer Drax. The Wawa facility has been idle since early this year, and in October, Rentech announced it had entered into a deed of contract termination between Drax and the Wawa plant.

The second pellet plant at Atikokan, Ontario continues to operate, although a reduced capacity to supply Ontario Power Generation.

Despite its financial turmoil, in Rentech's most recent quarterly financial results report, the company stated it expects its New England Wood Pellet (NEWP) and Fulghum Fibers businesses to continue to generate positive cash flow, and be self-sufficient from a liquidity perspective. Rentech acquired NEWP in May 2014, which added to its portfolio of three US pellet facilities in Jaffrey, New Hampshire, and Schuyler and Deposit, New York.

Lignetics has agreed to acquire substantially all of the assets and assume certain specified liabilities of Rentech, for a purchase price of \$35 million. The purchase of NEWP adds to Lignetics current annual capacity of 650,000 tons. This will bring Lignetics total pellet plant count to 12, with facilities located all across the U.S. Rentech's Atikokan facility will be purchased by Ontario Inc., an affiliate of True North Timber, a forest resources company in Ontario.

Research & Development

Europe's biomass future may lie in the oceans



Wikimedia Commons

Tiny sea creatures lower on the food web and underwater plants are a huge untapped source of food and biomass for a growing population, and Europe must expand its hunt for them, the European Commission's Scientific Advice Mechanism says in its latest opinion.

The six-member science panel, more commonly known as SAM, was asked by the Commission to investigate how more food and biomass can be obtained from the oceans in a sustainable way.

The report looks at the management and socioeconomics in Europe of mariculture, which is a branch of seawater farming that involves cultivating fish, crustaceans, molluscs and aquatic plants under controlled conditions, and presents evidence and a buffet of policy options to support the industry's growth. The analysis also draws on research produced by the Horizon 2020-funded Science Advice for Policy by European Academies, or SAPEA, consortium. Mariculture's promise is that, according to figures collected by SAPEA, it could add an extra 300 to 400 million metric tonnes of biomass for food or feed each year, a three to fourfold increase on current levels of extraction, which would help compensate declining figures for wild catches.

The ocean accounts for almost half of the planet's biological production, but a much smaller proportion of human food – about 2 per cent of overall calorie intake and 15 per cent of protein intake.

Oceanic farming is not a perfect food supply, the group acknowledges, and needs to be regulated prudently and efficiently.

But to nudge along the growth of mariculture farming, "it is essential for entrepreneurs and investors that sufficient amounts of appropriate space be made available," the report says.

Click here for more information.

Switzerland's untapped biomass resources

Currently, biomass is Switzerland's second-mostimportant source of domestic renewable energy, the first being hydropower. But now researchers at the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) say that the amount of sustainable energy obtained from biomass could be twice what it is today.

Their argument is based on the first comprehensive calculation of potential energy from all types of Swiss biomass – whether it's wood from the forest, manure from farms, or scraps from the table. The WSL team estimates that in theory, all that biomass could be used to produce 209 petajoules (PJ) of energy each year – roughly equivalent to the energy content of 4.8 million tons of crude oil, or 19% of Switzerland's total energy consumption.

But 209 PJ is just the theoretical amount of energy; in reality, only about half of that can be obtained from biomass in a cost-effective and environmentally friendly way. And since Switzerland already uses about 53 PJs' worth of biomass each year for energy, that leaves an additional 44 PJ a year of unexploited, sustainable potential energy from biomass.

The WSL researchers found that the majority of the additional 44 PJ of sustainable biomass energy they identified is contained in farm manure, with a smaller proportion in forest wood. The remaining sources include crop residues, waste wood, industrial and household organic waste, and sewage sludge.

Click here for more information.

Nestlé develops system to minimise food waste



A new, innovative approach to minimising food waste has been developed by Nestlé UK and Ireland in partnership with Company Shop and supported by WRAP's work.

The integrated approach aims to make sure that significantly more surplus food is redistributed

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and available for both charitable and commercial use.

The partners are undertaking detailed site assessments to identify any opportunity to reduce food waste at the source, and find ways that any part-processed products can be redistributed instead of being used for animal feed or anaerobic digestion.

Finished, packed products are easier to redistribute and much of this surplus already goes to Fareshare. Looking at foods that require more involved approaches to make redistribution possible means that redistribution organisations will now be able to access much more of Nestlé's surplus.

The method has been tested at a number of Nestlé's factories and has proved to be an economically sustainable way for food manufacturers to tackle operational food waste. Increasing the amount of food being distributed in this way will also help the national redistribution infrastructure to grow and support the food industry's efforts to reduce waste.

Click <u>here</u> for more information.

Arizona explores options for biomass from tree thinnings

A major hurdle for forest restoration in northern Arizona is what to do with biomass produced from tree thinning operations.

Meetings have been held with representatives from some of the state's largest utilities, businesses, non-profits, the Forest Service, and state and local governments all had a chance to weigh in at the workshop, which focused on the problem of biomass in Arizona's forests and the opportunities and commercial viability of using that forest material to generate power. Among the topics discussed was what it might cost ratepayers to support an expansion of bioenergy in the state to use the collected material.

The Forest Service and others involved in forest restoration in northern Arizona say that one of the biggest challenges to speeding up much-needed thinning of the region's forests is finding a way to use up biomass. The other option is to leave it on the ground and burn it, but that is time intensive, costly and produces smoke that affects nearby residents. Grinding up the biomass and burning it for power not only uses up the biomass but turns the material into a valuable product.

State power generators and others want to schedule another workshop that will look at the use of biomass from pinyon pine and juniper trees, instead of just ponderosa pine trees, as well as minimum fuel supply needs and ways to spread costs among all Arizonans.

Click here for more information.

Wood & Crop

New high for UK bioenergy crop area



Pixabay

The area used for bioenergy crops surged to an all-time high in 2016, with a 41% increase in land use on the previous year.

According to fresh Defra data, 132,000ha of arable land was used to grow a number of different energy crops, with maize and wheat accounting for the majority.

Despite the rise, bioenergy crops still only make up 2.2% of the arable land in the UK and the type of crops being used has fluctuated wildly in the past six years of data from 2010-2016.

Bioenergy crops have two major uses, with the land area used for growing them split almost equally between the biofuel market and the heat and power production market.

The data is a significant underestimate as it fails to capture information on crops like oilseed rape exported for conversion to biofuels in mainland Europe, which could account for a s much as 60% of UK oilseed rape production.

While biofuel can refer to both bioethanol and biodiesel, domestic biofuel production from agricultural cropping in the UK is currently entirely for bioethanol, as there are greater incentives for biodiesel production from waste oils.

Bioethanol production is chiefly from wheat, but it can also be derived from sugar beet, with a dramatic shift in crop use taking place between 2015 and 2016.

The sugar beet area for biofuel production decreased by nearly 60% in 2016, with the area of wheat increasing by the same amount.

David Turley, lead consultant for biobased feedstocks at the National Non-Food Crop Centre (NNFCC), says AB Foods, (which owns British Sugar and the Vivergo bioethanol plant), would have diverted production from ethanol to sugar to take advantage of the high European sugar price, during a time of low ethanol prices in the EU.

Despite recent turbulence in the bioethanol production market, with the Vivergo plant being taken out of production for extended maintenance, he predicts the market, and the land area used, will remain stable.

"What we need to see is plants running," he said, predicting that Vivergo would come back online in the new year.

Ensus, the other significant bioethanol production plant, located in Teesside, has also had a history of stop-start production, reflecting its role in marginal ethanol production in Europe, but is currently up and running.

However, Mr Turley warned the UK market will face an upper limit by 2020, when the Department for Transport is going to impose a cap on how much of the biofuel target can be met by agricultural crops.

This makes it unlikely further factories will be built in the foreseeable future, he said.

Click here for more information.

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Drax Biomass pellet plant comes online

Drax Biomass Inc. (DBI), a leading manufacturer of sustainably sourced compressed wood pellets, began start up production at its newest facility, LaSalle BioEnergy in Urania, Louisiana.

LaSalle BioEnergy will employee approximately 78 employees and is the third pellet plant in DBI's portfolio including Morehouse BioEnergy in Bastrop, Louisiana and Amite BioEnergy in Gloster, Mississippi. The wood pellet manufacturing facility, which is roughly 160 miles northwest of Baton Rouge can produce approximately 450,000 metric tons of wood pellets per year.

A series of upgrades and repairs have been ongoing at the plant since the acquisition in early April of 2017, supporting a further investment of more than \$20 million for the region. The asset was a strategic investment considering LaSalle BioEnergy's proximity to an abundant wood basket and its production capacity that supports DBI's strategy of increasing self-supply.

LaSalle BioEnergy further demonstrates DBI's commitment to the revitalization of the local wood products sector, which has suffered in recent years from the closure of several largescale paper mills. Drax Biomass is committed to expanding its positive presence and supporting the communities in which it operates by promoting sustainable forestry and investing in local economic development.

Enviva to build new pellet plants

Enviva Holdings LP has announced that its development subsidiary, Enviva Development Holdings, LLC, entered into a new joint venture, Enviva JV Development Co. LLC, with affiliates of The John Hancock Life Insurance Co. (U.S.A.) to acquire, develop and construct wood pellet production plants and deep-water marine terminals in the South-eastern United States. In addition, the new joint venture has agreed to acquire a wood pellet production plant in Greenwood, South Carolina from its Portuguese paper and pulp owner, The Navigator Company.

Enviva and John Hancock will provide the capital to the new joint venture needed to fund the acquisition of the Greenwood plant as well as the planned development of a deep-water marine terminal at the Port of Pascagoula, Mississippi and at least two additional wood pellet production facilities.

The Greenwood plant commenced operations in October 2016. The new joint venture expects to complete the production ramp and invest incremental capital in the Greenwood plant required to improve the operational efficiency and increase the production capacity of the facility.

The existing joint venture between affiliates of Enviva and John Hancock will retain ownership of Enviva Pellets Hamlet, LLC, the entity constructing a 600,000 metric tons per year production plant in Hamlet, North Carolina. Enviva expects the Hamlet plant will be operational in the first quarter of 2019. Production from the Hamlet plant is contracted to supply MGT Power's Teesside Renewable Energy Plant, which currently is under construction in the United Kingdom.

Click here for more information.

Other Feedstocks

Waste-to-Energy rate catching up to recycling in UK

England's recycling rate is starting to be closed on by the amount of waste material sent for recovery via energy from waste plants, with a gap of just 6.5% between the two figures.

According to figures for all local authority waste released by Defra in 2016/17, over the financial year 38.6% of waste was sent for energy recovery while 45.1% was recycled. However, slight differences in terminology mean that in the outlet calculations Defra uses a recycling rate lower than the headline figure, meaning that the gap between the two treatment routes is even smaller.

Five years ago, while the recycling rate was broadly similar to now, just 19.1% of waste was recovered for energy. The change coincides with a reduction in the use of landfill and an increase in RDF exports to the continent from municipal contracts.

Events

ECO-BIO 2018 Dublin, 4th-7th March 2018

ECO-BIO 2018 will highlight the latest research and innovation towards developing industrially viable, safe and ecologically friendly biobased solutions to build a sustainable society.

A topical and comprehensive programme will include plenary and invited speakers, forum discussions, contributed oral presentations, a large poster session and exhibition.

The conference will bring together all concerned with the biobased economy to review industrial, academic, environment and societal approaches, discuss the latest research and progress, and encourage new research partnerships to enable new cascaded biobased value chains.

Click here for more information.

2nd International Conference on Marine Biomass as Renewable Energy Glasgow, 5th-6th March 2018

One source of biofuels has been identified as marine biomass or marine algae. Many researchers are working on the feasibility of using algae as a feedstock for producing bio-fuels. One example of biofuel from marine algae would be the conversion of Marine biomass to methane via anaerobic digestion, which can generate electricity. Another potential for algae is its potential for biodiesel.

One great characteristic of micro-algae is that it doesn't rely on soil and land. They thrive in water which is salty or dirty. Therefore, they do not need

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fresh water resources. Algae also have high growth rates, good growth densities which also makes them a good source for biofuels. Algae can be grown in a variety of climates and in different types of production methods. These can be from photo bioreactors, ponds and fermenters.

The conference aims to explore the challenges and opportunities in the area of marine algae as a source of biofuel. It will highlight the recent developments in research areas such as cultivation of marine algae and research & development of algal—biofuel production.

Click here for more information.

World Bio Markets Amsterdam, 20th-22nd March 2018

With governments committed to reducing emissions and consumers becoming more educated about where their products come from, there are opportunities for the bio-based sector to become a true contender to fossil oil. Yet long development times, lack of investment, and challenges in attaining a secure and sustainable supply chain have made it difficult for the bioeconomy to achieve commercial success.

This event provides a platform for the entire global value chain, from feedstock producers to consumer brands, to work together to overcome these challenges.

Global Bioeconomy Summit Berlin, 19th-20th April 2018

The first Global Bioeconomy Summit was held in 2015 and brought together more than 700 bioeconomy stakeholders from over 80 countries. Since then, Bioeconomy has taken a steep and exciting way forward. Many notable initiatives and collaborative efforts have been initiated by the bioeconomy community in order to drive the development of sustainable bioeconomies in their countries and regions.

The 2nd GBS will focus on emerging concepts and future trends in bioeconomy, the latest on challenges and opportunities related to ecosystems, climate action and sustainable development along with the bioeconomy innovation agendas and global governance initiatives to manage them.

Click here for more information.

EUBCE 2018 Copenhagen, 14th-18th May 2018

We look forward to the 26th EUBCE in 2018 in Denmark and to the many vibrant topics that will be included in the agenda.

Members of the national organising committee will organise special technical visits to sites in the centre of the country where biomass is the key renewable feedstock into processes producing renewable energy, biofuels, biochemicals and biomaterials as well as integrating bioproducts into traditional established fossil-based systems.

Click here for more information.

RRB 14 Ghent, 30th May - 1st June 2018

The 14th edition of the International Conference on Renewable Resources & Biorefineries will take place in Ghent, Belgium from Wednesday 30 May until Friday 1 June 2018. Based on the previous RRB conferences, this conference is expected to welcome about 350 international participants from over 30 countries.

Delegates from university, industry, governmental and non-governmental organizations and venture capital providers will present their views on industrial biotechnology, sustainable (green) chemistry and agricultural policy related to the use of renewable raw materials for non-food applications and energy supply. The conference further aims at providing an overview of the scientific, technical, economic, environmental and social issues of renewable resources and biorefineries in order to give an impetus to the biobased economy and to present new developments in this area.

The conference will provide a forum for leading political, corporate, academic and financial people to discuss recent developments and set up collaborations.

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.

Feedstock Prices

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

		UK Ex-Farm Barley Straw	UK Ex-Farm Wheat Straw	
UK Wood Pellets Delivered		(D1000)	(D1000)	
Date	(£/tonne, 5% VAT)	(£/tonne)	(£/tonne)	
10 Feb	240-318 (↓)	70-98(↑)	65-88(↑-↑)	

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

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

UK (LIFFE), French (MATIF) and US (CBOT) future prices for wheat, rapeseed, maize, and soybean. Arrows indicate rise \uparrow , unchanged – or fall \downarrow 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)
Jan-18	139.2 (↑)					944.25 (↓)
Feb-18			354.0 (↓)			
Mar-18	141.6 (↑)	159.7 (↓)		429.5 (↑)	349.0 (–)	953.75 (↓)
May-18	142.5 (↑)	163.7 (↓)	355.5 (↓)	443.2 (↑)	356.7 (↓)	964.75 (↓)
Jul-18	144.2 (↑)			456.0 (↑)	365.0 (↓)	974.00 (↓)
Aug-18			352.0 (↓)			976.00 (↓)
Sep-18		167.5 (↓)		469.5 (↑)	372.7 (↑)	973.00 (↓)
Nov-18	143.3 (↑)		356.5 (↓)			
Dec-18		170.7 (–)		487.7 (↑)	382.2 (↑)	
Jan-19	144.8 (↑)					
Feb-19			360.0 (↓)			
Mar-19	146.8 (↑)	174.2 (–)		500.2	392.0	
May-19	147.6 (↑)	177.2 (↑)	362.0 (↑)			
Jul-19	147.6 (↑)					
Sep-19		177.2 (↓)				
Nov-19	145.2 (↑)					
Dec-19		179.7 (↑)				

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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