

News Review



Issue Seventy-Three

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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 to April's edition of NNFCC's Feedstocks News Review.

We begin with a genetic discovery. Scientists at the US Cold Spring Laboratory have made a discovery relating to the genetic framework behind flower growth in Sorghum. By suppressing one plant hormone, scientists have been able to treble seed production by the modified plants. In wild-type sorghum plants, not all of the flowers are fertile, but with this genetic modification, all of the flowers become fertile, producing seeds. Not only will this discovery be a breakthrough for sorghum yields, and the livestock feed and biofuels sector that utilises grain sorghum as a feedstock, but it is also postulated that similar modifications may be successfully implemented in other grain crops. Shortage of food, fuel, and raw materials is one of the biggest challenges that the world is going to have to face in the future, and developments like this, that increase crop yields without compromising on land usage, are going to be key to overcoming this challenge, particular in energy efficient and drought tolerant crops like sorghum.

Elsewhere, there is discussion of a potential "trade war" escalating soon. It's not often in these news reviews that we discuss metals, but they are the issue at hand here. Recently, the US has announced that it will be imposing tariffs on imports of steel and aluminium. This hike in tariffs is potentially the first part of a chain reaction that could influence global crop prices. In response to the metal tariffs, other nations have threatened to impose tariffs on US exports, including agricultural products including grains and oilseeds. This could in turn cause a drop in US crop prices as demand falls, stimulating further change in the global market, as Chicago futures prices are often used as the benchmark against which the global market is measured.

Lastly, there has been an announcement from the Horizon2020 BioBased Industries Joint Undertaking calling for the fifth round of proposals for funding for European bioeconomy projects, with the aim of supporting sustainable supplies of biomass, developing efficient processing methods and innovative new products, plus supporting market uptake. NNFCC has a great deal of experience with European projects, having been major partners in current and previous projects funded by Horizon2020 and Interreg. Projects in need of partners to provide analysis of markets, value chains, or business models, should contact NNFCC to discuss specific needs.

Read on for the latest news.

Policy

Improving London's recycling



Pixabay

London's Mayor has pledged to increase London's recycling rates from 52 per cent to 65 per cent by 2030 and to send zero biodegradable or recyclable waste to landfill by 2026.

The London Assembly Environment Committee publishes its report, 'Wasting London's Future' today, which examines London's waste management credentials by looking at the potential of the circular economy, London's household recycling record and the potential of energy from waste.

The report found that opportunities to reduce waste by recovering and re-using valuable materials are being missed. London's recycling rate is "rubbish" – household recycling rates are below the national average and have barely increased over the past five years. Londoners want to recycle, and authorities should make it easy for them. Recycling lacks consistency across the different boroughs and some flats have no home recycling facilities whatsoever. London's recycling

service is not fit for purpose and cities like Milan put London's recycling rates to shame. Separating food waste would help with the production of green gas, helping London meet its energy needs. London burns over half its waste for energy. Although this reduces reliance on landfill and produces energy and heat, burning wastes valuable resources, generates carbon dioxide emissions and contributes to air pollution.

The committee makes a series of robust recommendations to improve London's waste management, suggesting the Mayor should: keep a close eye on borough recycling rates and, if targets are not met, he should step in when contracts are up for renewal; explore funding options to implement a consistent recycling service across London including flats; lobby the Government to make it easier for local authorities to fine serial recycling offenders who fail to comply with recycling regulations; set targets to reduce the amount of biodegradable waste sent to landfill and incineration by 2026; promote the circular economy and lobby the Government to press manufacturers to reduce plastic waste and to include better signage on products.

Click [here](#) for more information.

Markets

US metal tariffs could shake global grains market

AHDB reports that the US government announcement that it would impose tariffs on imports of steel and aluminium has raised concerns over the potential for a 'trade war' between the US and some of its key trading partners. Tariffs of 25% and 10% on steel and aluminium respectively may see other countries imposing tariffs on imports of US goods in retaliation.

The EU Commission stated a readying of a 3-pronged retaliatory response to include tariffs and restrictions worth nearly €3 billion on agricultural, industrial and consumer products to counter-match any US tariff levels.

Export markets are a key source of demand for US maize, wheat and soyabeans. Any increased tariffs on these commodities would likely reduce demand for US products in favour of other origins and so have pressured US prices.

For now, it is the threat, rather than the reality of import tariffs weighing on US prices, particularly for soyabeans. The particular impact on soyabeans is because China, which has been highlighted by the US President in terms of unfavourable trade, is the top destination for US soyabean exports.

As Chicago futures prices are often treated as the global benchmarks for these commodities, further developments to this situation could have knock on effects in wider grain and oilseed markets.

Click [here](#) for more information.

Increased imports reducing EU rapeseed production



Flickr

AHDB reports that EU biodiesel production is reported to be under pressure from increased imports as a result of World Trade Organisation (WTO) rulings and free trade discussions. Production of biodiesel by EU Member States reached 11.9Mt in 2017, up from 11.7Mt in 2016. But Strategie Grains has cut its 2018 forecast to 11.6Mt due to increased imports from Argentina (Reuters).

Below are some of the factors currently affecting EU biodiesel uncertainty:

The EU cut import duties on Argentine biodiesel last September following a successful WTO challenge. The cut was just weeks after the United States imposed steep duties on imports, effectively halting US imports of Argentinian biodiesel

The EU is now also considering whether to cut duties on biodiesel imports from Indonesia, following a January WTO conformity ruling.

There are ongoing free trade discussions between the EU and Malaysia. A key negotiating point for Malaysia is the ability to continue to export palm oil to the EU for use in biodiesel. The EU announced its intention to ban the use of palm oil

in biodiesel production from 2021, earlier this year.

Rapeseed oil is the main vegetable oil used in EU biodiesel production, with an average of 6Mt used per year. This equates to around 60% of total EU rape oil production. As a result, what happens to EU biodiesel production is likely to impact demand for rapeseed. Imports from Argentina have soared in recent months.

Click [here](#) for more information.

Biofuels as solution to European plant protein shortage

Farm Europe reports that Despite 30 years of efforts and no less than 5 “protein plans”, the European Union still suffers from a considerable chronic deficit in plant proteins: more than 30 million tonnes of soybean crops were imported during 2016-17. This figure comes under the spotlight in a report entitled: Proteins and Renewable energy – One and the same challenge together with Farm Europe’s Protein Independence indicator.

The review of all policy measures adopted by the EU since 1992 to reduce its dependence on imports of animal protein from Latin America, shows that two measures have had a significant impact in recent years – measures on which the protein independence of the EU depends today.

On the one hand, the development of the biofuels sector. Thanks to the co-generation of 13 million tons of Protein-rich products per year, it is the largest “protein plan” in terms of its size and capacity to reduce substantially European dependence on soybean imports. Specifically, Farm Europe’s Protein Independence Indicator highlights that biofuels produced in the European Union have increased the level of EU

independence from 18% to 34% over the period 1994-2014.

On the other hand, more recently, the greening of the 2013 CAP and in particular the measure authorizing nitrogen-fixing crops on the so-called Ecological Focus Areas (EFAs) doubled the volumes produced in Europe of field peas, broad beans and soy beans (+40%), this represents 2,3 million tons of protein rich products, “Made in EU”.

In Farm Europe’s view, it is therefore urgent, in order to develop a real European protein strategy by 2020, to build on the efforts made in recent years, not by destabilizing the European biofuel sector but, on the contrary, enhancing and valuing the protein dimension of the co-generation of green energy by taking the opportunity of the ongoing RED2 review. Moreover, it is necessary to re-establish at European scale, a solid and coherent green architecture for the future CAP combining environmental and economic sustainability.

Click [here](#) for more information.



Pixnio

Research & Development

Latest call for Bio-Based Industries Joint Undertaking proposals



The H2020 Biobased Industries Joint Undertaking (BBI JU) 2018 call for proposals has opened, providing up to €115m in funding.

The Call for proposals 2018 is the fifth in a total of seven for the period between 2017 and 2020 and is built around 4 strategic orientations: Feedstock, Process, Products, and Market uptake. The current Call moves away from a strict biomass feedstock 'push' based on historic value chains, towards a demand for biomass that enables processing in order to respond adequately to a 'pull' from the end markets.

All proposals need sound business cases and business plans, and need to demonstrate sustainable biomass supply chains that do not compete with food chains. A commitment to Life Cycle Assessment should be incorporated and proposals should include a check of economic viability covering the value chain and market analysis.

NNFCC has experience of providing business advice and support within EU-funded projects, covering market analysis, elucidation of possible value chains and business models for exploitation of novel bio-based opportunities. If you're looking for supporting partners to address such areas, please contact NNFCC to discuss your specific needs.

Click [here](#) for more information.

Attis develops scalable lignin process

Biobased World quarterly interviews Attis Innovations who believe that by capitalizing on new bioeconomy markets, existing pulp and paper and cellulosic ethanol facilities can generate between 35% to 100% more revenue per ton of biomass processed.

By employing a process that requires significantly less capital than traditional recovery methods while also delicately extracting and purifying the lignin, Attis can preserve the product's natural properties at a fraction of the cost. Additionally, during this process, functional additives can be introduced to increase the performance of the lignin in a myriad of applications. Attis capitalizes on lignin's inherent properties and offers companies and even entire industries a cost-effective strategy for introducing bio-based content into their product portfolios.

Attis' technology, can not only can it process nearly any form of biomass, but it is also simple enough to be economically scaled-down to a size that fits unique feedstock opportunities. Most biomass processing facilities require massive economies of scale and feedstock inventory to justify their investment.

Since its founding in May 2017 Attis Innovations has made rapid progress in commercializing its

lignin extraction process and developing a portfolio of bio-based materials. This started with Attis' announcement of the exclusive license to American Science and Technology's (AST) biomass processing facility and associated intellectual property.

The company has made great strides in the development of bio-based materials from its unique, meltflowable lignin. February saw them announce the successful completion of performance testing for their lignin-based resins products with the results demonstrating outstanding mechanical and processing characteristics compared to virgin plastics materials. Attis was able to blend its melt-flowable lignin at 15-25% inclusion rates in both polypropylene and polyethylene materials while retaining 100% of the tensile modulus, 100% of the impact strength, and over 90% of the tensile strength. These impressive results come as part of the company's rapid development curve, and this offering could be used across a host of plastics applications, including automotive components, agricultural products, building and construction and other durable goods.

Click [here](#) for more information.

Photocatalysis shows promise for biomass conversion

Photocatalytic conversion of biomass into valuable products: a meaningful approach? A new book from the Green Chemistry journal.

The innovative combination of photocatalysis and biomass utilization represents a new and promising approach to achieve a higher grade of sustainability in chemical processes. A growing number of publications deal with topics like biomass conversion to solar fuels and the selective production of fine chemicals from waste. Despite

the recalcitrant structure of several biological waste streams, which hampers the technical processing, huge progress has been achieved by the use of photocatalytic systems. This new review analyses recent examples of this promising field and investigates their potential for large-scale applications. Overall, the major critic is the lack of mechanistic investigations hampering the development of photocatalytic systems for biomass conversion. Therefore, this review represents a guideline, emphasizing the strategy and mechanistic considerations for the technical application of sustainable photocatalytic and photochemical reactions.

Click [here](#) for more information.

Switch to biomass creates need for port space

As world biomass exports increase, Port Strategy reports that ports are taking a hard look at the choice between coal and renewable biomass.

These exports are overwhelmingly geared to wood pellets and similar products with customers mostly in power generation in Europe and the UK (Drax being the most notable).

European industrial wood pellet demand is expected to grow to 19m tons by 2021, a 14% annual growth rate. Japan is targeting 6.0 to 7.5 gigawatts of biomass-fired generation capacity by 2030.

In moving to wood pellets, industry analysts caution that the physical properties of pellets have to be considered carefully as there is an inherent safety danger in the form of fire. Added to this is the dust hazard if pellets are not handled properly. Both Enviva and Logistec have been hit by fires in the past four years.

Storage facilities for solid biomass also require large areas due to low bulk density and energy content.

To meet the need for an uninterrupted supply, power stations typically ask for storage capacities of about 100,000 tonnes which requires covered storage of around 200,000 cubic metres (wood pellets). In addition, because of their lower bulk density, a greater volume of solid biomass needs to be stored. With the same stacking method, 1.3 times more land is needed (lower volumetric performances for biomass).

The storage time of solid biomass also needs to be controlled. Depending on the moisture content, the recommended storage time varies from three weeks (for fresh wood chips) to three months (wood pellets). There is four times more volume of solid biomass required for the same energy output compared with coal.

Acknowledging these factors, exporters are emphasising versatility and adaptability for other products. Fibreco of Canada is adding agricultural products (grain and lentils), while the port of Belledune in New Brunswick, Canada is considering the use of its pellet conveyor system, used for less than three months a year, for coal as well.

Click [here](#) for more information.



Flickr

Interest in Ramie piqued in India

Ramie, from the nettle family (a poisonous leaf that stings you), has got Indian designers excited, with many calling it the next big thing after linen.

Compared to cotton, it is more expensive to grow. However, because of its stiffness, like linen, Ramie can be woven into lightweight open-weave pattern which is useful for humid climates because it stays cool. It is found in abundance in Meghalaya because of the heavy rainfall in the region. Ramie shows great strength when wet.

One of the oldest fibre crops (it's been around for at least 6,000 years), China is the global leader in the production of Ramie, and a few other countries, including Japan, Taiwan, Brazil and the Philippines too have been traditional growers of the plant. Ramie is stronger and easier to work with than silk.

Click [here](#) for more information.

Report into bioeconomies of European countries

The Bio-based Industries Consortium (BIC), the private partner in the Bio-based Industries Joint Undertaking (BBI JU), has published three new Country Reports mapping the potential and identifying opportunities for expanding the bio-based industry in Poland, Portugal and Romania.

Poland's bioeconomy sector is focused on agriculture, forestry and food processing, areas which are already central to the country's economy. Bio-based industrial activities feature prominently in its national Smart Specialisation Strategy.

In Portugal, bio-based potential is found in side streams and residual streams from its large agri-

food, forestry and fisheries industries. The country's manufacturing of cork products and leather goods also promises further bio-based opportunities.

Romania boasts one of the largest European agricultural sectors, which offers ample potential for valorisation of residual streams through bio-based operations. The country can also leverage its strong chemical sector to establish a nationwide bio-based industry by gradually increasing the use of biomass feedstock.

Later this year, action plans will be launched in these three countries to assist local actors in stepping up their bio-based activities. BIC will be visiting Portugal in April, Poland in July and Romania in September to help raise awareness of the enormous bio-based potential and connecting local actors to the European bio-based industry initiatives and networks.

BIC will be publishing similar reports on the bio-based potential of the three Baltic states. With a Coordination and Support Action (CSA) in BBI JU's Annual Work Plan 2018 set to be launched in April, five further country mappings are expected to be completed by mid-2020.

Click [here](#) for more information.

Wood & Crop

GM sorghum shows tripling in number of grains



Pixabay

Genetic modification can triple the grain number of sorghum, a drought-tolerant plant that is an important source of food, animal feed, and biofuel in many parts of the world. In new research reported in *Nature Communications*, scientists at the US Cold Spring Harbor Laboratory have figured out how that genetic change boosts the plant's yield: by lowering the level of a key hormone, generating more flowers and more seeds. Their discovery points toward a strategy for significantly increasing the yield of other grain crops.

An unknown genetic mutation introduced by chemical mutagenesis—a method used for many decades by breeders and researchers to induce genetic variations in plants—resulted in an increase in the number of grains, i.e., seeds contained within fruits, that each plant produced.

Like many cereal crops, sorghum's grains are produced in clusters of flowers that develop from an elaborately branched structure at the top of the plant (the panicle). Each panicle can produce hundreds of flowers. There are two types of

flowers, and usually only one of these, known as the sessile spikelet (SS), is fertile. The other flower type, called pedicellate spikelets (PS), do not make seeds. In the modified plants, both sessile and pedicellate spikelets produced seeds, tripling each plant's grain number.

By completely sequencing the genomes of the modified plants, they found that the key mutations affected a gene that regulates hormone production. Plants carrying the mutation produce abnormally low levels of a development-regulating hormone called jasmonic acid, particularly during flower development.

Through subsequent experiments, the team learned that jasmonic acid prevents pedicellate spikelets from producing seeds.

Click [here](#) for more information.

Investigating the potential of "black" pellets

Biomass magazine reports on Future Metric analysis of the value of advanced 'black' pellets.

Advanced wood pellets, often called black pellets due to their appearance after thermal treatment, have long been touted as a superior fuel to conventional white wood pellets. Black pellets are supposed to address some of the potential shortcomings associated with white wood pellets for use as a substitute for coal in pulverized coal power plants. Black pellet key advantages that have been put forward over the years include the elimination of the need for dry storage and transportation, better grindability, less dust formation during handling and storage, and higher specific energy density. Black pellets generally refer to two distinct technological approaches to developing an advanced wood pellet: torrefaction and steam explosion (SE).

Torrefaction is a form of pyrolysis that results in partial thermal decomposition in the absence of oxygen. Typically, torrefaction is conducted between 200 degrees Celsius and 300 degrees Celsius to remove volatiles from the wood, and the resultant material is then densified into pellets.

The steam explosion process causes the lignin to emerge on the surface of the fine wood fibres in the form of small beads. When the fibre is densified in the pellet press, these beads form a film-like surface coating of the broken-down wood fibres, and results in hard, highly water-resistant pellets that produce almost no fires.

Technological constraints and high production costs have prevented large-scale adaptation. In early attempts to manufacture SE pellets, energy consumption, mass and energy content loss, and problems associated with the characteristics of the gasses released from the SE reaction outweighed the advantages of the product. The ability of the SE pellet plant to run reliably has also been a challenge to the development of a competitive SE pellet sector.

Click [here](#) for more information.



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How to deal with pellet silo fires



Wikimedia Commons

Although water may help with controlling the flames of an out-of-control silo fire incident, deluging or spraying water on top of the pellets in a silo, dome, or flat storage will never aid in extinguishing a smouldering mass of wood pellets. The wood pellets on the top of the pile will absorb the water and swell, creating a blanket of material, restricting the ability of water to penetrate anywhere near the core of the smouldering pellets located somewhere within the centre of the pile of pellets. Water contacting hot, pyrolyzed wood pellets will generate carbon monoxide (CO) and hydrogen, which add to the seriousness of the conflagration, and is not helpful for extinguishing a silo fire. Water may also create pinnacles and/or columns within the silo, which may become a problem when trying to remove the product.

To immediately begin removing the wood pellets from the silo, dome or flat storage pile before the pyrolysis activity within the core of the pile has been extinguished, is a recipe for disaster. The gases being released by the pyrolysis activity are nasty and dangerous, especially the methane, CO and other life-threatening gases. The ignition point of methane released from wood pellets is very low, and will ignite when it encounters the smouldering core, and the supply of oxygen from the open air. In other words, when removing the

pellets down to the level where the pellets are exposed to both the smouldering core and atmospheric air, chances of an explosion and/or a rapidly spreading fire are very high.

Inert gas injection significantly lowers the probability of negative outcomes. The danger of a gas and/or dust explosion causing serious injury, and extensive property damage is very possible. Nitrogen is most effective for minimizing these risks, and provides a low-risk pathway to gain control of the smouldering pyrolysis inside the pile while emptying the material.

Nitrogen injection is recognized as the better solution as an inert gas for mitigating silo fire incidents—it is more readily available in large quantities, is easier to vaporize, and is more economical than CO₂.

Click [here](#) for more information.

Teesside set for "Subcoal" plant

Let's Recycle reports that Dutch alternative fuel firm N+P Group is set to open its first UK production facility on Teesside on a site formerly owned by Impetus Waste Management, which entered administration in 2016.

In an announcement, the company said that the facility, which will produce higher grade SRF/RDF pellets known as "Subcoal" is expected by mid-2018.

The Subcoal pellets are produced from residual (non-recyclable waste), which otherwise would have been deposited in a landfill site or disposed of via a waste incinerator, N+P said. The pellets are now used as fuel in energy intensive industries such as in cement kilns or power plants.

N+P said by using alternative fuels these industries make 'significant savings' on their

energy costs. And, the company said millions of kilos of fossil fuels are replaced every year.

N+P expects a yearly growth of the production capacity to 500 – 750k tonnes every year. In June, a UK subsidiary of N+P Group was awarded a long-term contract estimated to involve up to 1.5 million tonnes of waste as RDF for energy recovery in the UK from CoGen.

N+P Group has bought out Dutch businesses Subcoal International and Subcoal Production following various investments in the original production facility in Delfzijl (in the north of the Netherlands). According to N+P, the Subcoal concept was developed in 1998 by Dutch chemical company DSM, but was only fully implemented for the first time on a large scale in 2010.

N+P said since the company's involvement, the concept has developed globally. It also said demand for Subcoal as an alternative fuel has increased 'strongly'.

Click [here](#) for more information.

Fire at Enviva facility

Local press reported that a fire had started at Enviva's Chesapeake, Virginia deep-water marine terminal used to distribute some of its wood pellets. The company reported that the fire was under control.

Onsite personnel, the terminal's fire suppression systems and emergency services fought the blaze. No injuries were reported.

According to a release from the local fire department, responders were called at 11PM and found the fire in 'a complex conveyor system that extended into control rooms at the top of both 200ft tall storage domes'. Conventional techniques to fight the fire were not effective due

to the height of the structure. Almost 60 firefighters attended the scene. The cause of the fire has not yet been determined.

Enviva released a statement 1 March saying that it plans to use alternate storage facilities, including its deep-water marine terminal in Wilmington, North Carolina, while the Chesapeake terminal is returned to operation.

The incident may affect the timing of shipments.

Click [here](#) for more information.

Stobart could deliver 2million tons of biomass per year

Biomass magazine reports that Stobart Group released preliminary 2017 financial results and provided an update on the operations of its energy division, which supplies biomass fuel to European power plants.

According to Stobart, its energy division has successfully put in place a renewable energy fuel supply chain to supply 1 million metric tons of fuel to power stations in the U.K. While some of those power stations have experienced commissioning delays, Stobart said more plants are now coming on line. The company delivered biomass fuel at a run rate of 1.3 million metric tons per year in January and February and has contracts in place for an additional 800,000 metric tons per year of fuel once additional power plants become operational.

Click [here](#) for more information.

Particle board facility converts to pellet production



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There are commonly concerns expressed over the competition for biomass between biomass and particle board markets, but biomass can help to secure jobs when board demand declines or becomes uneconomic.

In Canada, Pinnacle Renewable Holdings Inc. has announced approval to commence the redevelopment by Smithers Pellet Limited Partnership (SPLP) of an existing particle board facility in Smithers, British Columbia, to a wood pellet production facility. SPLP is a limited partnership in which West Fraser Timber Co. Ltd. has a 30 percent and Pinnacle has 70 percent interest.

The facility, which is connected via direct rail link to Pinnacle's Westview Port Terminal, will have an annual production capacity of 125,000 metric tons. Initial wood pellet production at the Facility is expected to commence in the third quarter of 2018. Wood fibre supply for the facility and customer off-take agreements for the facility's annual production have been secured under long-term contracts.

Click [here](#) for more information.

UPM receives Brassica sustainability certificate

UPM Biofuels has received a sustainability certificate for the cultivation of the Brassica carinata crop – a new feedstock for biofuel production – in Uruguay. The RSB (The Roundtable on Sustainable Biomaterials) certification in biofuel feedstock production complements UPM Biofuels' existing sustainability certifications like ISCC (International Sustainability and Carbon Certification) and RSB certifications for its UPM BioVerno biofuel production.

RSB is one of the European Commission's approved voluntary schemes, which can be used to show compliance with the EU Renewable Energy Directive's sustainability criteria. In addition to EU RED criteria, the sustainability of biofuels is evaluated against 12 principles which have been approved by a wide variety of stakeholders, including NGOs and UN agencies. In addition to greenhouse gas savings compared to fossil fuels, RSB principles cover biodiversity, human rights and environmental and social responsibility throughout the value chain.

Brassica carinata is an oilseed crop specially designed for sustainable production of biofuels. UPM Biofuels has been developing and testing a new type of biofuel feedstock concept by growing Brassica carinata as a secondary crop in South America. The crop works well in the climatic and agricultural conditions of Uruguay and is tested by local farmers. It adds value to their use of existing agricultural land as it will also be used productively in winter.

Click [here](#) for more information.

Other Feedstocks

Plastic pyrolysis developing in Scotland



Max Pixel

Recycling Technologies has already struck deals with Scottish local authorities, which will see them collect plastic separately to be used for its first formal commercial waste plastics pyrolysis machine to be constructed in Perth later this year with funding support from Zero Waste Scotland.

Recycling Technologies say the patented technology for its modular machine, called RT7000, can “chemically recycle” all plastics including black food trays, crisp packets and coffee cups, which are renowned for being difficult, impossible or not financially viable to recycle.

The system involves shredding material, which is injected into a fluidised bed where polymers are broken down by pyrolysis [high temperature decomposition] to form a gas. The gas is then filtered, cooled and condensed to form what the company has called ‘Plaxx’. This, it explained, can be used to make new plastic products or as shipping fuel which, says Recycling Technologies, has a value of more than £300 a tonne.

The company has also said the machine is able to deal with the traditional problems industry has faced with these types of plastic, including food waste and other contamination.

The proposed Scottish facility at the Binn Group site will begin by turning 7,000 tons of plastic waste annually into 5,000 tons of Plaxx, before increasing output. This will initially cost £5 million and a further £0.7 million annually to keep operational and that the company will continue to raise funds to aid its development.

Click [here](#) for more information.

Events

All-Energy Glasgow, 2nd-3rd May 2018

All-Energy, the UK’s largest renewable energy event, will take place in Glasgow on 2nd & 3rd May 2018. Join us to hear from 400+ experts from across all sectors of the renewable industry in 50+ FREE conference sessions. Network with 7,500+ renewable energy professionals at one of the many networking events happening over the two days.

Click [here](#) for more information.

International Conference on Bio-based Materials

Köln, 15th-16th May 2018

The 11th International Conference on Bio-based Materials is aimed at providing international major players from the bio-based building blocks, polymers and industrial biotechnology industries with an opportunity to present and discuss their latest developments and strategies.

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. The core of the traditional EUBCE conference will be held over 4 days.

There will however be an extension to the core conference and exhibition in order to showcase the many achievements in the field of full scale biomass utilisation in Denmark that are an integral and major part of the country becoming fossil-free by 2050. 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.

World Waste to Energy and Resources Summit

London, 23rd-24th May 2018

The World Waste to Energy and Resources Summit brings together its best ever faculty of international waste management CEOs, developers, bankers, private equity financiers, technology providers and industrial end users for two days of intensive networking.

With a firm focus on advanced conversion technologies, the summit addresses the need for innovation – not just in technology, but in policy, finance and partnership models – in order to accelerate the growth of the industry worldwide.

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.

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.

**International Conference of the
European Industrial Hemp Association
Köln, 12th-13th June 2018**

Specialists from all over the world will meet in order to exchange information regarding the latest developments in hemp applications for fibres, shivs, seeds and oil as well as cannabinoids. Applications are biocomposites in automotive and construction, textiles, food, food supplements and pharmaceuticals. We are expecting again more than 300 international participants from more than 40 countries – we are looking forward to the biggest event on industrial hemp ever!

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 | 287-332 (↓-↓) | 85-150 (↑-↑) | 75-130 (↑-↑) |

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) |
|--------|---------------------------------|-----------------------|--------------------------|-----------------------|-----------------------|--------------------------|
| May-18 | 145.7 (↑) | 164.7 (↑) | 343.7 (↓) | 477.0 (↓) | 382.7 (↓) | 1035.7 (↓) |
| Jul-18 | 149.5 (↑) | | | 491.0 (↓) | 391.7 (↓) | 1047.0 (↓) |
| Aug-18 | | | 344.5 (↓) | | | 1048.7 (↓) |
| Sep-18 | | 168.2 (↓) | | 509.0 (↓) | 399.2 (↓) | 1043.5 (↓) |
| Nov-18 | 147.0 (↑) | | 349.2 (↓) | | | 1040.7 (↓) |
| Dec-18 | | 171.7 (↓) | | 532.5 (↓) | 408.5 (↓) | |
| Jan-19 | 149.4 (↑) | | | | | 1045.5 |
| Feb-19 | | | 353.2 (↓) | | | |
| Mar-19 | 151.5 (↑) | 175.5 (↓) | | 551.2 (↓) | 416.0 (↓) | |
| May-19 | 153.2 (↑) | 177.2 (↓) | 352.7 (↓) | 561.5 | 420.2 | |
| Jul-19 | 151.2 (↑) | | | | | |
| Aug-19 | | | 343.0 (↓) | | | |
| Sep-19 | | 174.5 (↓) | | | | |
| Nov-19 | 147.5 (↑) | | | | | |
| Dec-19 | | 177.2 (↓) | | | | |
| Jan-20 | 149.2 (↑) | | | | | |
| Mar-20 | 149.4 | 178.2 | | | | |

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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