NNFCC News Review

Bioenergy

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

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Foreword

Welcome all subscribers, to our April Bioenergy News Review.

On the 17th March, the government released its industrial decarbonisation strategy, which it believes will lead the UK to becoming the 'world's first low-carbon industrial sector'. The strategy establishes the framework under which the country's industry is to transition towards renewable energy, while promoting job opportunities and ensuring that this new decarbonised market will remain competitive and profitable for national businesses.

Bioenergy with carbon capture and storage (BECCS) is one of the main technologies identified by the government and industrial stakeholders to take the country closer to its 2050 net zero target. Through this process, CO_2 being emitted by industrial processes (such as biomass fired energy production for example), is re-captured and trapped underground, therefore preventing atmospheric emissions and greenhouse gas build-up. This "negative CO_2 emissions" technology could therefore balance out industrial processes which inevitably produce emissions and reduce atmospheric CO_2 overall.

UK Research and Innovation (UKRI) has already provided £33 million to HyNet North West, an integrated project aimed at decarbonising the important industrial district in the North-West of England. The site intends to capture, transport and store carbon dioxide (CO_2) emissions from existing industries and from future production sites for blue hydrogen, as an alternative fuel for heating, electricity generation and transport. The site will be the first of its kind in the UK and is expected to become operational in 2025. In addition, Drax is planning on building two BECCS units which will capture millions of tonnes of CO_2 a year, which Drax estimates will deliver 40% of the negative emissions. The UK Climate Change Committee indicates BECCS will be needed in 2050 for the UK to reach net zero, so these actions are paving the way for the ambition to be realised.

Multiple other countries are also beginning to invest in BECCS technology, or at least, are seriously considering it as a decarbonisation strategy. Ørsted, a Danish energy provider, is looking into the possibility of coupling BECCS technology to their biomass-fired heat and power plants. If this project were to proceed, it would lead to a drastic reduction in CO_2 emissions in the country, as Ørsted currently provides close to 25% of Denmark's district heating. Similarly in the US, Chevron Corporation, Microsoft, CleanEnergy Systems and Schlumberger New Energy are set to collaborate for the development of a BECCS project in California, which is expected to remove around 300,000 tonnes of CO_2 annually, equivalent to the electricity use of more than 65,000 homes.

Read on for the latest news.

Policy

UK Industrial decarbonisation Strategy launched

A new blueprint to deliver the 'world's first low-carbon industrial sector' and provide over £1 billion to cut emissions from industry, schools and hospitals has been announced by the UK Government on the 17th March.

The Strategy sets out the government's vision for building a competitive, greener future for the manufacturing and construction sector. Part of the government's path to net zero by 2050, today's measures will create and support 80,000 UK jobs over the next 30 years whilst cutting emissions by two-thirds in just 15 years, government says.

The new strategy will be underpinned by supporting existing industry to decarbonise and encouraging the growth of new, low carbon industries in the UK to protect and create skilled jobs and businesses in the UK, as well as giving businesses 'long-term certainty' to invest in home-grown decarbonisation technology. The blueprint also includes measures to build on the UK's efforts in moving towards greener energy sources, with an expectation of 20 TWh of the UK industry's energy supply switching from fossil fuel sources to low carbon alternatives by 2030.

Click here for more information.

US looks to become climate leader under Biden

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On March 31st President Biden released a $2 trillion infrastructure and jobs plan, officially titled the American Jobs Plan. Biofuel/bioproducts and carbon capture and storage (CSS) are each briefly addressed in the plan.

One provision of the American Jobs Plan calls for the U.S. to become a leader in climate science, innovation and research and development. Biden is asking Congress to invest $35 billion "in the full range of solutions needed to achieve technology breakthroughs that address the climate crisis and position America as the global leader in clean energy technology and clean energy jobs."

Part of that effort calls for the launch of ARPA-C to develop new methods for reducing emissions. In addition to a $5 billion increase in funding for other climate focused research, Biden's plan would also "invest $15 billion in demonstration projects for climate R&D priorities, including utility-scale energy storage, carbon capture and storage, hydrogen, advanced nuclear, rare earth element

separations, floating offshore wind, biofuel/bioproducts, quantum computing, and electric vehicles, as well as strengthening U.S. technological leadership in these areas in global markets."

Click here for more information.

New roadmap sets out how to reduce CO_2 emissions using Industrial Biotechnology

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BSI, in its role as the UK National Standards Body, has published the Industrial Biotechnology Report: Strategic Roadmap for Standards and Regulations, sponsored by Innovate UK and the Industrial Biotechnology Leadership Forum (IBLF).

Industrial Biotechnology has the potential to significantly reduce CO_2 emissions. By embedding biotechnology at the heart of industrial processes and products, it can help to support the government target of doubling the bioeconomy to £440 billion by 20302 and contribute to the UK plan to achieve net zero greenhouse emissions by 20503.

The new report identifies five industry sectors, with short to medium term potential for carbon reduction using industrial biotechnology: agritech; biofuels; fine and speciality chemicals; plastics; and textiles. It provides a roadmap to unlock this potential with recommendations grouped into four pathways: circular resources; communication tools; informed science-led approach; and a supportive level-playing field. The report suggests a combination of government support, agreement on good practice and private sector investment is needed to realise the potential of industrial biotechnology.

Click here for more information.

BEIS launch dedicated portal for fourth CFD allocation round

BEIS has launched a dedicated portal for the fourth Contracts for Difference (CfD) Allocation Round (AR 4), which is intended to be the central online platform for the next allocation round. In addition, the Low Carbon Contracts Company (LCCC) will be running a CfD Masterclass on the 21st April for those interested in the CfD and AR4.

AR 4 is due to take place at the end of the year, with the following pots expected to be funded and open for auction bids:

Pot 1 - Established Technologies: solar photovoltaic (PV) (>5MW), energy from waste with combined heat and power (CHP), hydro (>5MW and <50MW), landfill gas, and sewage gas.

Pot 2 - Less Established Technologies: Advanced Conversion Technologies (ACT), anaerobic digestion (>5MW), dedicated biomass with CHP,

floating offshore wind (see following section), geothermal, remote island wind (>5MW), tidal stream, wave.

Pot 3 - Offshore wind.

Click here for more information.

Markets

Andigestion awarded eight-year food waste recycling contract

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UK food waste recycler Andigestion has been awarded an eight-year contract by Gloucestershire County Council to process around 24,000 tonnes per year of household food waste.

The waste will be taken via kerbside collection to Andigestion's Bishops Cleeve site, where it will help generate 31,000,000 kWh of renewable energy annually – enough to power 2,500 homes.

Click here for more information.

Clydesdale support biomass investment

Clydesdale Bank has announced a £6 million investment to support North Yorkshire's poultry sector using renewable energy.

The funding, a collaborative effort between the bank's renewable and agricultural divisions, has allowed biomass boiler company, Biomass Group, to acquire Richard Maxwell Ltd and provide renewable heating to poultry sheds.

Owning and operating 12 MW of biomass boilers, Biomass Group delivers sustainable heat at a level of 24 GWh per year, saving more than 6,000 tonnes of CO_2. Biomass boilers are key to 'greening' farming operations, as they offer an opportunity to replace fossil fuel heating systems with a sustainable alternative, such as wood chips or wood pellets.

Click here for more information.

Research & Development

Orsted and partners to look at BECCS in Denmark

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Ørsted, Aker Carbon Capture, and Microsoft have signed a memorandum of understanding (MoU) to explore ways to support the development of carbon capture and storage at biomass-fired heat and power plants in Denmark.

Carbon capture and storage is widely accepted as an important instrument to meet both the Danish climate targets of 70% carbon reduction by 2030 and to meet the Paris Agreement's goal to limit global temperature increases to 1.5 degrees Celsius.

By capturing the carbon emitted by biomass-fired heat and power plants and storing it underground, it is possible to not only reduce, but also remove carbon from the atmosphere, as carbon from sustainable biomass is part of a natural biogenic carbon cycle.

Ørsted has six biomass-fired units and provides around one quarter of Denmark's district heating. Even though Ørsted foresees that technologies based on renewable power will replace a substantial part of bioenergy in the district heating towards 2040, it expects carbon capture at a number of biomass-fired units to play an important role in the energy transition.

Click here for more information.

US BECCS project

Chevron Corporation, Microsoft, CleanEnergy Systems and Schlumberger New Energy will collaborate to develop a 'ground-breaking' bioenergy with carbon capture and storage (BECCS) project to produce carbon-negative power in California.

The BECCS plant in Mendota will convert agricultural waste biomass, such as almond trees, into a renewable synthesis gas that will be mixed with oxygen in a combustor to generate electricity.

More than 99% of the carbon from the BECCS process is expected to be captured for permanent storage by injecting CO_2 underground into nearby deep geologic formations. By using biomass fuel that consumes CO_2 over its lifetime, and then safely and permanently storing the produced CO_2, the process is designed to result in net-negative carbon emissions, effectively removing greenhouse gas (GHG) from the atmosphere.

When completed, the plant is expected to remove around 300,000 tonnes of CO_2 annually, equivalent to the electricity use of more than 65,000 US homes.

The completed facility will help improve air quality in the Central Valley by using approximately 200,000 tonnes of agricultural waste annually, in line with the recent California Air Resources Board plan to begin phasing out almost all agricultural burning in the Valley by 2025.

Click here for more information.

Achieving UK climate goals is £4.5bn cheaper with BECCS at Drax

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Deploying bioenergy with carbon capture and storage (BECCS) at Drax will save the UK more than £4.5bn over the coming decade rising to £5bn by 2050 in meeting its climate goals.

Drax plans to capture millions of tonnes of CO_2 a year by developing two BECCS units by 2030, delivering 40% of the negative emissions from BECCS the UK Climate Change Committee indicates will be needed in 2050 for the UK to reach net zero.

Click here for more information.

A major step forward for the development of the HyNet North West project in UK

Eni has announced that the HyNet North West integrated project, which is aimed at decarbonising the important industrial district in the North-West of England, has received £33 million in funding from UK Research and Innovation (UKRI), the UK Government's body that supports research and innovation in the country, through its Industrial Decarbonisation Challenge (IDC) fund. The funding covers around 50% of the investment necessary to finalise ongoing planning studies with the aim of the site becoming operational by 2025.

Alongside Eni, the HyNet North West project is being led by a consortium of regionally- located industrial companies. The site intends to capture, transport and store carbon dioxide (CO_2) emissions from existing industries and from future production sites for blue hydrogen, as an alternative fuel for heating, electricity generation and transport.

The project will be the first carbon capture and storage (CCS) infrastructure in the UK.

Click here for more information.

Drax releases 2020 sustainability report and statement

Drax has announced that its 2020 Annual Report has been published on its website, outlining operations over the last year including in depth information about sustainable business at Drax.

To assure its carbon negative target aligns with climate science, Drax is now committed to the Science Based Targets initiative and to the management and disclosure of its climate change risks and opportunities, in line with the recommendations of the Task Force on Climate-related Financial Disclosures. Drax also wants to highlight that in December 2020, the internationally recognised disclosure system CDP awarded Drax an A- rating for our CDP climate response (C in 2019).

Click here for more information.

Biomass Heat & Power

International Biomass Conference highlights role of sustainable biomass

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The 2021 International Biomass Conference & Expo kicked off on the 16th March with a keynote address focused on biomass sustainability and a panel discussion with association leaders that addressed policy, markets and the COVID-19 pandemic.

Jennifer Jenkins, vice president and chief sustainability officer at Enviva, discussed the role of biomass in meeting net-zero carbon goals during her keynote. Emissions reductions will not be enough to meet the goals of the Paris Agreement, she said, stressing that technologies that can achieve negative carbon emissions will be required to help offset residual fossil emissions that are probably going to be very hard to get out of the supply chain.

Bioenergy with carbon capture and storage (BECSS) is one of the most important carbon negative technologies available to help meet net-zero emissions, Jenkins stressed.

Jenkins addressed the misconception that woody biomass can't sustainability be sourced from forest lands. In the southeastern U.S., where Enviva currently operates nine wood pellet plants across six states, forest lands are predominantly privately owned working forests. That means that when demand for forest materials increases, landowners actively produce more of that material. The relationship between supply and demand is very similar to traditional farming—when there is sufficient demand for a particular crop, farmers are likely to plant it. There is a positive relationship between harvest, growth, acreage and inventory, Jenkins explains.

Click here for more information.

Terravesta supports Moldova biomass initiative

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On the 23rd February, the first biomass thermal power plant using UK agri-tech was officially opened in Moldova's capital. The launch of the newly-installed 150 kW biomass thermal power plant – a project pilot - in Chisinau marked the start of the transition of the energy supply system from imported fossil gas to renewable energy.

The project aims to switch the Centralised Thermal Energy Supply system to renewable technology, expanding rapidly with another 19 heat-only boiler plants in the pipeline.

The initiative is joint-funded by the National Agency for Research and Development and Termoelectrica, run in collaboration with UK-based Miscanthus specialist, Terravesta, and IBERS Aberystwyth University, and implemented by the Moldovan Institute of Genetics, Physiology, and Plant Protection.

Click here for more information.

IEA Bioenergy seeks to counter ill-founded criticism of biomass use

There are concurrent media campaigns and publications questioning the use of woody biomass for renewable energy production. Several of them misrepresent on-the-ground forestry practise and bioenergy systems, and associate the use of woody biomass for energy with overexploitation of forests, even permanent deforestation, and "the burning of trees".

In reality, forest bioenergy is an integral part of the forest sector which responds to bioenergy demand by devising forest management approaches and industrial processes to produce fuels, heat and electricity along with sawlogs, paper and a multitude of other biobased products. The media campaigns also often ignore the many steps that have already been taken

towards sustainable forest management, particularly in Europe and North America.

While it is certainly important to identify what is needed to ensure that biomass is produced and used in a responsible way, the misrepresentations within recent soundbites run the risk of discrediting biomass as a sustainable material and energy source altogether – a feat that could have dire consequences for global carbon neutrality ambitions.

Click here for more information.

Biogas

CMA CGM offers customers biogas-fuelled transport

French shipping group CMA CGM will start offering its customers biomethane-fuelled transport in May to help them reduce their carbon footprint.

The company plans to buy 12,000 metric tons of guarantee-of-origin biomethane, which is enough to power two 1,400-teu LNG-powered ships for an entire year on the Northern European Balt3 line between St Petersburg and Rotterdam. Biomethane use can help reduce well-to-wake greenhouse gas emissions by at least 67% and tank-to-wake emissions by 88%, according to CMA CGM.

CMA CGM managed to reduce its own CO_2 emissions by 4% in 2020, following a 6% cut in the previous year. It has managed a 49% reduction in CO_2 emissions per container-km by 49% over the past five years. The company ordered nine large-sized LNG containerships in 2017 from China State Shipbuilding Corp, with the first joining its fleet in last September. The vessel, CMA CGM Jacques Saade, was bunkered in November with a mix of LNG and bio-LNG by France's Total.

Click here for more information.

Scotland's first biomethane refuelling station

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CNG Fuels has started building Scotland's first public access renewable biomethane HGV refuelling station, which will allow fleet operators to run their vehicles on low-carbon fuel, support net zero plans and save money.

The station near Glasgow will refuel up to 450 lorries a day when it opens in November, enabling HGVs to make low-carbon deliveries across most of Scotland. Most of England and Wales is already within a 300-mile round trip of a biomethane refuelling station and the new facility will put Inverness and Aberdeen within this range.

Warburtons, the UK's largest bakery brand, is the latest major name to announce it is adopting

biomethane, following companies such as Hermes, John Lewis, Waitrose and Asda. Renewable biomethane, is the lowest carbon, most cost-effective alternative to diesel for HGVs — it is 35%-40% cheaper and cuts vehicle greenhouse gas emissions by up to 85%. From next year CNG Fuels will dispense fully carbon neutral fuel by sourcing biomethane from manure.

Click here for more information.

Energy from Waste

Natural Resources Wales updates 36 waste treatment permits

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After a waste treatment permit review, Natural Resources Wales (NRW) has said that some have been upgraded to ensure performance meets "the highest environmental standards".

The review by the regulator has led to the update of large treatment facility permits. The facilities use a variety of technologies to treat waste, such as heat treatments to sterilise hazardous clinical wastes, biological anaerobic digestion processes and the recovery of end-of-life fridges, according to the regulator.

In the review, NRW identified improvements intended to enhance environmental performance and reduce emissions. New conditions for anaerobic digestion sites include improvements to secondary containment measures and additional requirements for monitoring and controlling of

key waste and process parameters. This will help to ensure stability in the digester and reduce the potential of odour nuisance, as well as provide an early warning of any system failure, reducing the risk of explosions and loss of containment.

Click here for more information.

Revised plans submitted for new Ford Energy Recovery Facility

Grundon Waste Management and Viridor have submitted a revised planning application to West Sussex County Council detailing its updated proposal for a new state-of-the-art Energy Recovery Facility and Waste Sorting and Transfer Facility at Ford Circular Technology Park in West Sussex.

An initial planning application was submitted in June 2020 with two extensive public consultations being conducted on the proposals. After listening to the feedback received Grundon Waste Management and Viridor were able to make a number of significant updates to the plans. Among the changes that have been made is a significant reduction in the proposed height of the main Energy Recovery Facility building by 12.7 metres (lowering it from 51.7 metres to 38.5 metres). The facility has also undergone a major architectural redesign which has enabled improvements to the site layout and created space for a considerable amount of new green areas and landscaping, which will help screen the facilities.

Click here for more information.

Events

International Biogas and Biomass Congress & Expo
Brussels, 15th-16th June 2021

Brought to you by Bioenergy Insight, the leading international biomass magazine, this year's conference will be held in Brussels, Belgium and co-located with the International Biogas Congress & Expo as well as the renowned Biofuels International Conference and Expo, making this series of bio events our largest gathering yet of bio related companies, giving participants unrivalled coverage.

Click here for more information.

UK Green Gas Day 2021
Birmingham, 9th September 2021

Come to Green Gas Day to meet project developers and operators, financiers, feedstock providers, waste hauliers, technology providers and government officials. Visit exhibition stands from all of the major suppliers to the biomethane industry. If you interested in Green Gas, this is the one industry event you cannot afford to miss.

Click here for more information.

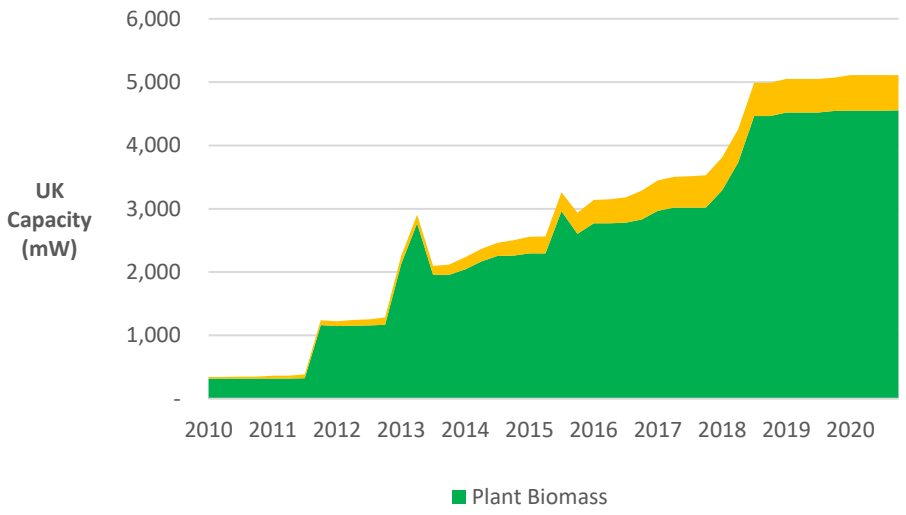
Future of Biogas Europe 2021
Berlin, 27th-28th October 2021

The two day event will bring together senior executives and experts from the full value chain to provide a forum for all parties active in the field of anaerobic digestion of organic matter and renewable energy production in the form of biogas.

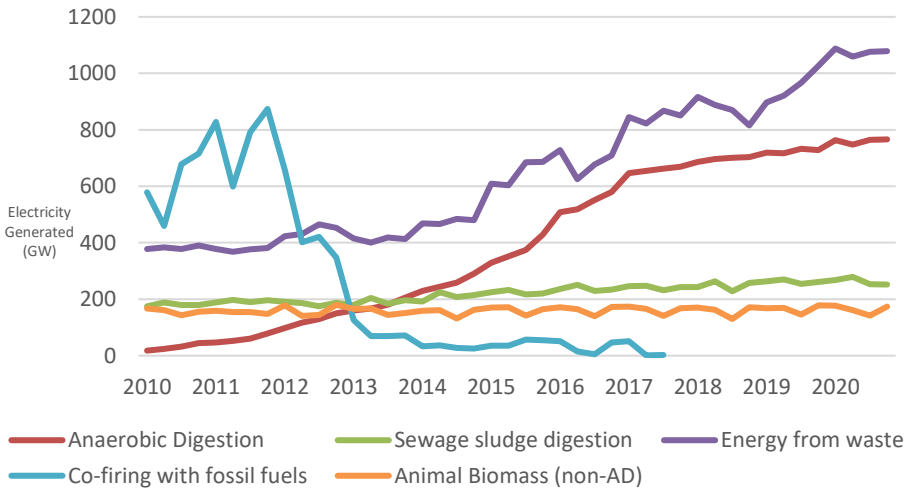
Click here for more information.

Deployed biopower capacity

Quarterly information on UK renewable electricity capacity



Quarterly information on UK renewable electricity generated, by the Office of National Statistics



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The Bioeconomy Consultants

NNFCC

NNFCC
Biocentre, York Science Park
Innovation Way
Heslington, York
YO10 5DG

Phone: +44 (0)1904 435182
Fax: +44 (0)1904 435345
Email: enquiries@nnfcc.co.uk
Web: www.nnfcc.co.uk
Twitter: @NNFCC