

The Bioeconomy Consultants

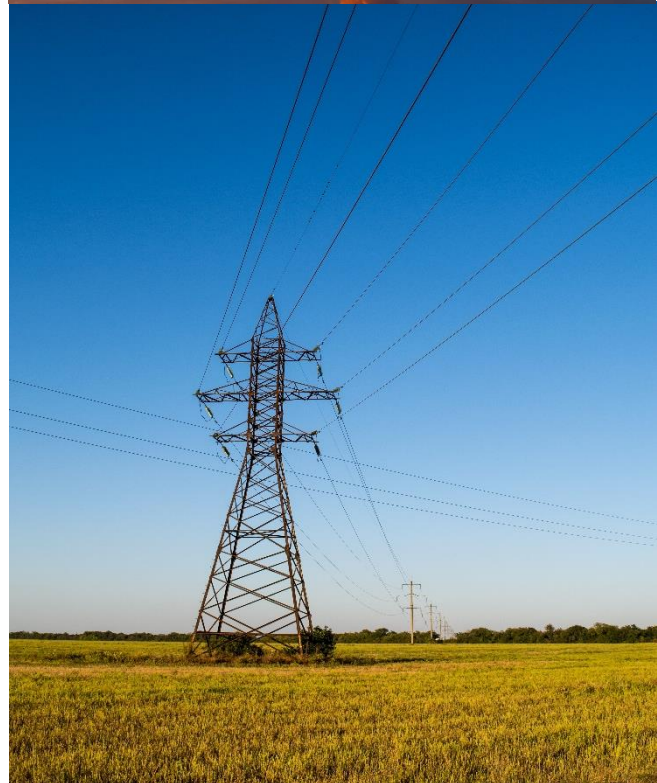
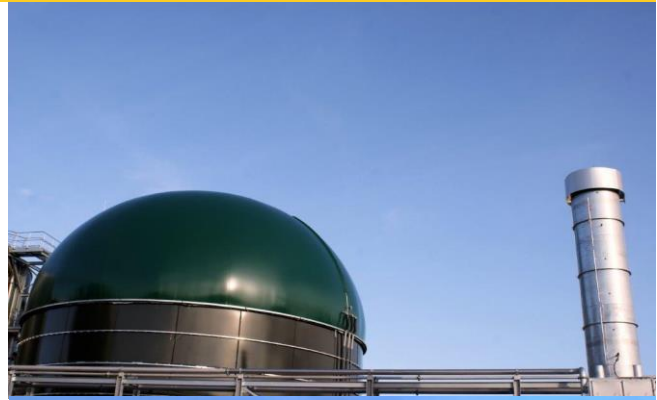


News Review

Issue Sixty-Six

September 2017

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



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Foreword

Welcome to September's edition of our Bioenergy News Review.

It is commonplace to compare the UK's performance in respect to energy, particularly renewable energy, to that of our neighbours on the continent in the EU. The EU is vehement in its pursuit of renewable energy, encouraging all of its members to switch to it. Likewise, the UK likes to paint itself as being at the forefront of R&D, and while energy is not an oft-touted priority, the UK would still expect to be pushing its development. Unfortunately, a report published this month shows the UK to be lagging behind the rest of the EU in terms of renewables deployment, with the UK's share of renewable energy just over half of the European average of 16%, with 7.29% in 2014 (the time of the most recent World Bank survey). The UK's output has risen since then to 8.9% but this is still well below average. The issue at hand is possibly not a matter of development per se, but of targets. The UK's 2020 renewable target sits at 15%, below the EU average of 20%, and so it is unsurprising that UK deployment is not at the level of our neighbours. However, only 3 EU member states, as of 2015, are further from reaching their 2020 targets than the UK, so the deployment issue doesn't go away. We have previously reported on the capability of bioenergy to provide the solid foundation upon which a renewable energy framework can be built, and so it is encouraging to see that the government has opened a second consultation into the Renewable Heat Incentive framework, which has benefitted bioenergy projects in the past, and is more needed than ever with the closure of the Renewable Obligation scheme earlier this year. Obviously, actual reforms are better than consultations, but it is good to see the government is sounding out the industry's thoughts before hopefully making positive actions.

In other news, we have been reporting this month on Macquarie completing their acquisition of the UK's Green Investment Bank (now known as the Green Investment Group), and it appears they have wasted no time in supporting bioenergy projects, as the first project to receive GIG funding has been for Wheelabrator's planned Energy from Waste facility in West Yorkshire. The GIG has provided £38m worth of funding for this project, which will generate approximately 70MW worth of electricity for the grid.

Read on for the latest market news.

Policy

UK Government announces second RHI Consultation

The Department for Business, Energy & Industrial Strategy has launched a new consultation on the range of proposed changes to the non-domestic Renewable Heat Incentive (RHI) scheme.

Following on from the previous consultation from February, and which closed only recently, the latest consultation covers proposals relating to eligible heat uses, very large plant, multiple installations, rules relating to biomethane plant and a range of other cross cutting scheme issues.

Click [here](#) for more information.

Markets

UK lags behind Europe in Renewables



Pixabay

The UK consumes a smaller proportion of renewable energy than most of its European neighbours, new data shows.

Government figures recently released show 8.9 percent of total energy consumption came from renewable sources in 2016. The share of renewable energy consumed in the UK has risen sharply since 2010 and, according to the government report, the UK has gone beyond its 7.5 percent provisional target during 2015/2016 by growing its use of renewable sources to 8.5 percent.

But when looking at the data in light of other European countries' renewable share, a different picture starts to emerge that shows the UK lagging behind.

The latest global data compiled by the World Bank shows that in 2014, the European Union had an average share of renewable energy consumption of 16 percent.

At the time, only 7.29 percent of the UK's total energy consumption came from renewable

sources — less than most of its neighbours, including Ireland which had a share of 8.47 percent, France and Germany with 13 percent, and Italy and Spain with respectively above 17 percent.

Only a handful of countries performed less well than the UK, with Luxembourg, Belarus, the Netherlands, Malta, Ukraine and Russia being under the 10 percent mark.

Leading the way, Iceland, Lichtenstein, Norway and Sweden had at least half of their total energy consumption coming from renewable energy.

Click [here](#) for more information.

India aims for 25% renewables

India could meet a quarter of its energy needs through renewable energy sources by 2030, with biofuels and solar playing key roles, according to a new report by the International Renewable Energy Agency.

The report predicted that biofuels could account for 62% of India's renewable energy mix, followed by solar at 16%, wind at 14% and hydro at 7%.

India is currently heavily reliant on coal for its energy needs. If a "business-as-usual" approach continues, the report warned the proportion of generation from renewables could slip from about 17% currently to 12% by 2030.

India, however, has set a target to install 175GW of renewable energy capacity by 2022, though the path beyond that date remains unclear.

Rapid growth in electricity demand will require massive investment in power-generation capacity and related infrastructure, giving policymakers an opportunity to deploy more renewable energy.

Click [here](#) for more information.

European consumers go green



Wikimedia Commons

Consumer demand for green power in Europe has soared 39% compared to this time last year.

That's according to new statistics from the Association of Issuing Bodies (AIB), which show an increasing number of people are deciding to buy renewable electricity documented with Guarantees of Origin, rather than accepting a "grey default" power offer.

Guarantees of Origin certify that energy is produced from 100% renewable sources and are a useful tool for businesses in making sure their sustainable credentials are accurate.

Both wind and biomass power more than doubled over the year, with wind reaching almost 90TWh and biomass 45TWh.

This year, Germans have already purchased 77TWh of renewable power documented with Guarantees of Origin.

Spain's entrance to the Guarantees of Origin market last year saw available solar power soar from 1.9TWh in 2015 to 21.4TWh in 2016.

Click [here](#) for more information.

Macquarie completes Green Investment Bank acquisition

New owner Macquarie has committed to the GIB's target of leading £3 billion of investment in green energy projects over next 3 years.

The Climate Change and Industry Minister, Claire Perry, confirmed on 18th August 2017 that the sale of the Green Investment Bank (GIB) to Macquarie Group Limited had been completed.

The £2.3 billion deal ensures that all the taxpayer funding invested in GIB since its creation, including set-up costs, has been returned with a gain of approximately £186 million.

As well as fully meeting the government's objectives, the deal secures the future of the GIB with an ambitious new owner committed to growing the business. The Edinburgh office will be home to a new revenue-generating business as well as providing services to the green energy portfolios of both Macquarie and GIB in the UK.

The government decided that moving it into the private sector now would free it from the constraints of public sector ownership allowing it to increase investment in our green infrastructure as we transition to a green economy. GIB's independent Board supported the government's decision to sell the business to Macquarie.

In order to build on the company's success within the private sector, Macquarie and GIB have announced today that the company will now be known as the Green Investment Group (GIG) so that it will be able to make overseas investments.

Click [here](#) for more information.

Research & Development

Dwindling prospects for European CCS



Pexels

Gerard Wynn, in his energy and carbon blog, highlights the decline in confidence in CCS projects getting off the ground.

European utilities Uniper and Engie last month announced they were walking away from a Dutch CCS project known as ROAD (Rotterdam Opslag en Afvang Demonstratieproject or Rotterdam Capture and Storage Demonstration Project). ROAD is the last proposal standing for a large-scale coal or gas power CCS project in Europe. Its demise followed cancellation of CCS funding in Britain, ending prospects for a European commercial-scale demonstration power plant.

The bigger outlook for CCS in power generation is bleak, especially after the collapse of the clean coal Kemper County plant in the U.S., although to be sure that had as much to do with the use of Integrated Gasification Combined Cycle (IGCC) technology as CCS.

It will take time for CCS proponents to digest and acknowledge what is either a colossal failure or a gargantuan disappointment—depending on one's perspective across electric utilities and the community of experts and policymakers that have

supported CCS in power generation for more than a decade.

The core problem with CCS is that it is so hugely expensive up front. Even the prospect of hundreds of millions of euros of subsidy couldn't make it work for coal-fired power in the Netherlands. The European Commission had committed €180 million to the ROAD project, and the Dutch government up to €150 million.

Another barrier to Europe CCS is the huge cloud of uncertainty hanging over coal-fired power plants in general, headwinds that include tougher air pollution rules and stringent phase-out targets.

Click [here](#) for more information.

Biomass Heat & Power

Two Biomass plants among CfD awards

Results of the CfD auction were released by BEIS in mid-September. Eleven new energy projects worth up to £176m per year have been successful in the latest competitive auction for renewable technologies. The projects, which are set to generate over 3GW of electricity, enough to power 3.6 million homes.

3.2GW of offshore wind capacity was awarded contracts with 2,340 MW at £57.50MWh and 860MW at £74.25MWh (to reflect earlier delivery year). The offshore wind clearing prices are half the levels awarded two years ago in the CfD round 1 and significantly below the £92.50MWh levels awarded to nuclear. This reflects increasing size of turbines and reducing costs of construction.

149.95MW was awarded to Dedicated Biomass and Advanced Conversion Technologies (gasification), of which Grangemouth Renewable Energy Ltd accounted for 85MW at £74.75MWh. Dependant on the biomass content of the fuel and assuming 50%, ACT sites will receive £37.37MWh.

These compare to current annual baseload market price of £46.50MWh. The CfD approach to auctioning has delivered auction costs that are up to £528m per year less than they would have been in the absence of competition (compared to target strike price offered).

Click [here](#) for more information.

Saxlund building pioneering Gasification plant



Saxlund

A pioneering green gas generation plant, under construction at Marston Gate in Swindon by Advanced Plasma Power and Cadent, is to use a fully automated fuel reception and the delivery solution developed by biomass and material handling specialist Saxlund International.

The £25 million facility which is due to commence operations in early 2018 will be the first commercial plant to convert household waste into bio-substitute natural gas (BioSNG) and has received £11m of funding from the Department for Transport's Advanced Biofuels Demonstration Competition.

Once operational, the plant will process 10,000 tonnes of household waste per annum producing 22 GWh of BioSNG, enough to heat 1,500 homes or fuel 75 heavy goods vehicles each year. Waste

will be delivered once per day in a moving floor trailer and up to 150m³ will be stored to provide a buffer for weekend operation.

A robust, high-availability fuel handling solution to ensure uninterrupted plant operation with minimal manual intervention was a key requirement. Saxlund was chosen to provide a complete automated solution incorporating fuel reception, storage and discharge of RDF to feed the downstream fluid bed gasifier which in turn is closely coupled to a plasma converter.

The selected solution incorporates Saxlund Truck Docking Stations designed to allow walking floor trailers arriving at the plant to be quickly unloaded, together with a Push Floor storage bunker with 100m³ capacity and chain conveyors to transport fuel on to the gasifier.

The Saxlund Truck Docking Station is designed to allow spillage free delivery of RDF to the plant and incorporates screw conveyors to provide a metered flow of material as it is transferred from the trailer into the Push Floor storage bunker. An active dust filtration system and inflating seals between the Docking Station and delivery trailers minimises dust emissions.

Importantly a walking floor trailer can be left docked to the docking station over weekends and discharged on demand via a Saxlund hydraulic power pack. This increases the storage capacity for the plant to ensure continuing operation over long weekends and public holidays, in a very small foot print.

Click [here](#) for more information.

Sleaford Renewable Energy Plant receives £150m investment



Geograph

A renewable energy plant in Lincolnshire is the subject of the biggest ever institutional-only financing in the UK biomass sector so far.

The Sleaford Renewable Energy Plant (REP) has been re-gearred for £150m by clean energy infrastructure fund managers, Glennmont Partners through its dedicated Glennmont Clean Energy Fund Europe I by a "large European institutional investor".

Glennmont raises long-term capital to invest in alternative power generation projects including wind farms, biomass power stations, solar parks and small-scale hydro power plants.

Sleaford REP is a 40MWe straw-fired biomass plant. It has been in operation since 2014 and is being operated by Burmeister & Wain Scandinavian Contractor (BWSC).

The plant benefits from 2 ROCs under the UK renewable energy regime as "good quality CHP plant", providing free heat to the local community under long term offtake contracts.

Click [here](#) for more information.

RWE planning Cofiring

Within its quarterly presentation, RWE said its executive board decided earlier this year to retrofit its two Dutch hard coal-fired power plants Amer 9 and Eemshaven to cofire biomass. According to the company, the Dutch state approved subsidies of up to €2.6 billion (\$3.5 billion) for the two plants. Along with the retrofitting, the company said subsidies will also finance the additional expenses for procuring fuel. RWE said the funds will be received over an eight-year period.

According to RWE, the subsidies are allocated so that Amer 9 can achieve a biomass ratio of 80 percent, rather than the previous 35 percent, with Eemshaven able to achieve a ratio of approximately 15 percent.

The 643 MW Amer 9 power station has been in operation since 1993. The twin unit at Eemshaven has a capacity of 1,554 MW and has been generating power since 2014.

In its report, RWE said it plans to use a total of 2.5 million metric tons annually at the two facilities, which will lower carbon dioxide emissions by approximately 4 million metric tons. Biomass will be sourced from Europe and North America and will satisfy the requirements of Dutch sustainability protocol.

Click [here](#) for more information.

UK air quality report calls for further study of biomass combustion



Wikimedia Commons

The Department for Environment, Food and Rural Affairs; Scottish Government; Welsh Government; and Department of the Environment in Northern Ireland have published a report titled "The Potential Air Quality Impacts from Biomass Combustion".

The report was commissioned in part as a result of measurements and inventories suggesting that particulate matter (PM) from biomass burning is on the increase.

National Atmospheric Emission Inventory (NAEI) show an increasing trend in the combustion of wood. The 2012 version of the NAEI estimates that the contribution of biomass burning to UK PM10 (particulate matter with a diameter less than 10 µm) emissions rose from less than 5% in 1990 to over 17% in 2012, with the largest increases occurring in the domestic sector. The same dataset suggests a far lower contribution of biomass burning to UK total NOx emissions (~1%), although the increasing use of solid biomass boilers for primary heat or combined heat and power applications may influence NOx concentrations at a local scale.

The expert group concludes that atmospheric measurement datasets for wood smoke are currently of insufficient duration to allow the

establishment of long term trends in airborne concentrations. However, available ambient measurements from recent research campaigns show considerable (6-25%) contributions of wood burning to PM in urban areas during winter. The majority of the PM (>90%) is likely to be within the PM2.5 (particulate matter with a diameter less than 2.5 µm) fraction. Much of the potential impact on air quality comes from small-scale domestic burning which is the most uncertain source sector in terms of emissions estimates.

Click [here](#) for more information.

Commissioning delays slow down Stobart

Stobart Group Ltd. has released interim results for the first half of 2017, reporting that its energy division has been impacted by commissioning delays at third-party biomass power plants.

Regarding its energy business, Stobart said it has successfully put in place a renewable energy fuel supply chain to supply 2 million metric tons of biomass to power stations across the U.K. According to the company, six of those facilities are new power stations in either the commissioning phase or due to be commissioned soon. Delays at these facilities, however, have impacted short-term volumes for Stobart.

During the first half of this year, Stobart said variance in actual volume compared to notified volumes from these new power stations was approximately 190,000 metric tons, with only about 40,000 metric tons supplied. Stobart said that during the second half of year, it expects to deliver approximately 330,000 metric tons under those contracts, based on the latest notifications from those power plants.

While Stobart said some of the delays are longer than it could have anticipated, long-term total volume is not affected because contracted volume starts post commissioning at the start of

commercial operations. The company also noted its EBITDA per metric ton is currently ahead of its stated objectives, and its strategic targets remain unaltered.

Moving forward, Stobart said it aims to supply 2 million metric tons of biomass annually by 2018. The company said it believes it can meet that target, but is dependent on the successful commissioning of third-party power stations.

Click [here](#) for more information.

Biogas

New renewable energy company formed to save jobs

The future of 44 jobs have been saved after funding was secured to set up a new renewable energy company.

Greener for Life Energy Ltd, based at Cleave Farm, Templeton, Tiverton, which had been trading for three and a half years, went into liquidation on August 29.

However, a number of the directors have secured funding for a new company - Ixora Energy Ltd - to buy the assets and contracts of Greener for Life Energy Ltd - and protect the employment of its employees who are based across the South West.

Ixora Energy Ltd intends to contract with the owners of renewable energy generating plants in order to provide them with operational and maintenance services. Initially it will focus on businesses that were previously customers of Greener for Life Energy Ltd but it intends to use the experienced team in order to provide services to other owners.

Click [here](#) for more information.

Italy's first AD plant to run solely on Organic Waste

Italy-based Tecno Project Industriale has completed a new anaerobic digestion waste treatment plant for the production of biomethane and carbon dioxide.

Milan, Italy based Tecno Project Industriale has completed a new anaerobic digestion waste treatment plant for the production of biomethane and carbon dioxide.

According to the company, the biogas plant is the first in Italy capable of producing biomethane and carbon dioxide exclusively from the treatment of the organic fraction of municipal solid wastes (OFMSW).

The company, a part of the SIAD Group, said that the biogas upgrading technology breaks down the biogas into its two main components: carbon dioxide (about 40%) and methane (about 60%).

The former will be used for industrial purposes, while the latter will be injected into the national gas network for the most part.

Tecno Project Industriale said that the project has been an opportunity for it to use its technologies in the field of biogas upgrading. In particular, the company has developed and industrialised a solution based on the use of highly selective polymer membranes (SEPURAN® Green), allowing 99%-pure methane and total recovery efficiency.

Click [here](#) for more information.

Mexican startup to produce biogas from cactus residue



Pixabay

Bioenergy Insight reports that Scientists in Mexico have developed a method to convert the prickly pear cactus into biogas. The distinctive, bright green cactus is farmed on a massive scale in Mexico, for use in drinks, medicines and shampoo.

In May 2017, a pilot project was launched at Milpa Alta's cactus market, which produces up to 200,000 tons a year of prickly pear cactus. Up to 10 tons of this cactus ends up as waste on the market floor each day.

Mexican green energy startup Suema decided to develop a biogas generator to turn the waste into energy. According to the AFP report, the generator will ultimately be able to produce three to five tons of waste a day, in turn producing 170m³ (45,000 gallons) of biogas and more than a tonne of compost.

This will be enough to produce 175 kilowatt hours of electricity, enough to power 9,600 low-energy light bulbs.

The \$840,000 project has been funded by the Mexican government. In 2015, Mexico vowed to reduce its emissions by 2050. In 2016, green energy made up 15.4% of the country's energy mix, although only 0.1% of this came from biogas.

Click [here](#) for more information.

Severn Trent's 2nd AD plant comes online

Power is being generated at Severn Trent's latest food waste digestion plant at Roundhill near Stourbridge, UK.

The new facility uses anaerobic digestion to turn food waste from local businesses and other customers that is unfit for human use into 'clean power'.

Each year, the new Stourbridge biogas plant will be able to process over 50,000 tonnes of food waste into renewable gas which will be injected into the gas network for use in homes and businesses.

It is the second food waste AD plant from Severn Water, the UK's second largest water utility. The existing plant at Coleshill has been in operation since 2015.

Click [here](#) for more information.

Vulcan Renewables acquired by JLEN



Vulcan Renewables

John Laing Environmental Assets has acquired Vulcan Renewables for £15.3m.

The firm's principle asset is a 5MWth anaerobic digestion plant in Hatfield Woodhouse, near Doncaster. It was commissioned in 2013, produces mainly biomethane and was one of the first commercial biogas-to-grid projects in the UK. It also has a 0.5MWe CHP engine with RHI and has both Renewable Heat Incentive and Feed-in Tariff revenue streams.

The acquisition, from Venture Capital Trusts, is in conjunction with operator Future Biogas and

brings the total capacity of the renewable energy assets in the JLEN portfolio to 230.2 MW.

The deal is the infrastructure fund's first AD investment and comes at a time when several larger energy companies are launching or stepping up marketing of green gas products to business customers.

Click [here](#) for more information.

Energy from Waste

Bioenergy Infrastructure Group acquires EfW plants from Green Investment Group

The first transaction of the Green Investment Group under new owner Macquarie has been to sell 20 facilities to the Bioenergy Infrastructure Group (BIG).

The group, previously called the Green Investment Bank, was formally acquired by Macquarie on 18 August. The assets it has sold are four biomass and incinerator facilities, 15 anaerobic digestion plants and a MRF.

The energy sites have a combined generating capacity of more than 70MW and are based in Northern Ireland (twelve), England (seven) and Scotland (one). The largest is the Mersey Bioenergy facility in Widnes, a 20MW waste wood plant.

Click [here](#) for more information.

Yorkshire EfW plant first project funded by new Green Investment Group

Green Investment Group Limited (GIG) has announced the arranging of a £38 million financing for Wheelabrator Technologies, to be used for the construction of Ferrybridge Multifuel 2 (FM2) – a new, large-scale merchant energy-from-waste facility near Knottingley in West Yorkshire, United Kingdom.

The £38 million commitment is the first investment to be completed following the acquisition of the Green Investment Bank by a Macquarie-led consortium last month.

The investment is part of a £207 million senior debt facility from a syndicate of lenders including MUFG, Crédit Agricole Corporate & Investment Bank, Investec Bank plc and Banco de Sabadell S.A. that will fund Wheelabrator Technologies' stake in FM2.

Once operational, the ~70 MW facility will generate electricity for UK homes and businesses. It is also expected to reduce greenhouse emissions and prevent waste going to landfill.

Click [here](#) for more information.

Waterbeach currently hosts a range of waste processes and technologies, including a MRF, composting, landfill and mechanical biological treatment (MBT).

Its proposed facility would complement these and would be used to create energy from household and commercial waste – either in the form of electricity, heat or both.

The proposal is to develop the EfW plant on land next to the existing MBT hall. The land is already allocated as a suitable location for such development in Cambridgeshire County Council's adopted Minerals and Waste Plan.

Ahead of submitting a planning application, Amey is holding public information sessions for local residents in September.

The company has waste facilities in Milton Keynes and North Yorkshire in commissioning and a further facility on the Isle of Wight under construction.

Click [here](#) for more information.

Amey plans Cambridgeshire EfW plant



Amey is proposing to develop a £200m energy-from-waste (EfW) facility at its 400-acre Waterbeach site in Cambridgeshire.

Events

European Biomass to Power Aarhus, 8th-9th November 2017

Already on its 7th edition, this event will give latest updates on the European biomass market and its new developments, as well as focus on sustainability challenges. Over the two days, ACI's conference will give you in-depth look into case studies giving practical examples of planning, finance and technology strategies utilised for biomass co-generation projects.

Four Exclusive Site Visits: during the afternoon of 7th November a limited number of conference delegates will receive a unique opportunity to visit Dong Energy's Skaerbaek & Studstrup Power Stations and on 8th of November a delegation will be invited to visit Biomass fired CHP plant in Lisbjerg and Verdo's CHP Plant (KVR) in Randers. There is no extra charge to attend, but spaces are strictly limited and allocated to conference delegates on a first-come, first-served basis, so it is highly recommended to book early to guarantee availability.

Click [here](#) for more information.

Future of Biogas Europe London, 15th-16th November 2017

ACI's Future of Biogas Europe 2017 Summit will be taking place in London, UK, on 15th — 16th November 2017. 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 degradation of organic matter and renewable energy production in the form of biogas.

Already on its 3rd edition, this two-day conference will bring together power producers, technology providers, agricultural sector, food and beverage industry, waste industry and leading technology and solution providers to join our forum discussions and excellent networking, including key industry figures from leading companies in this field from across the globe.

Join us in London to exchange on your point of view and experience with your peers, and engage in excellent networking opportunities.

Click [here](#) for more information.

European Biosolids & Organic Resources Conference Leeds, 20th-21st November 2017

Now in its third decade this event provides practitioners with an annual update on legislative changes; new technologies; best practice and site-experiences with existing technologies and an insight into relevant research in the science and engineering of biosolids and organic resources. The conference is attended by recognised experts from around the world both, as speakers and delegates.

The programme covers the latest innovations and updates of existing technologies. Presentations from respected industry experts and newcomers follow the development of technologies and legislation from inception to full-scale installations.

Click [here](#) for more information.

Energy from Waste 2017 **London, 6th-7th December 2017**

A move towards greener energy makes Energy from Waste (EfW) a fundamental cog in energy provision. Supported by the Environmental Services Association (ESA) and European Suppliers of Waste to Energy Technology (ESWET), SMI's 10th annual conference on Energy from Waste will draw critical updates from those shaping the industry.

It will strengthen knowledge in key topics such as EfW feedstock, advanced waste gasification and new financing initiatives, whilst looking at the practicalities of community engagement schemes and keeping attendees at the forefront of technological breakthroughs to adapt to the growing need for sustainable energy.

Understanding current UK policy, potential changes after BREXIT and EU initiatives surrounding the circular economy will be a major focus, as will hearing a selection of case studies from international markets and local authorities currently implementing waste projects including the City of Westminster and the North London Waste Authority CHP Plant.

Click [here](#) for more information.

Bioeconomy Investment Summit **Helsinki, 14th-15th December 2017**

Join us on 14-15 December 2017 in Helsinki, Finland for the 2017 Bioeconomy Investment Summit.

Over 30 speakers from across the globe will share their views on how we can bring together the economy and the environment.

New advances in technology mean that everything that can be made out of oil can be made from renewable, biological resources. There are huge

environmental and business opportunities for a wide range of industries: construction, chemicals, textiles, energy, plastics.

The bioeconomy gives us a unique opportunity for building a sustainable future. Our speakers will focus on what investment steps we need to take to make it happen.

Click [here](#) for more information.

MBRE 2018 **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 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.

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.

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.

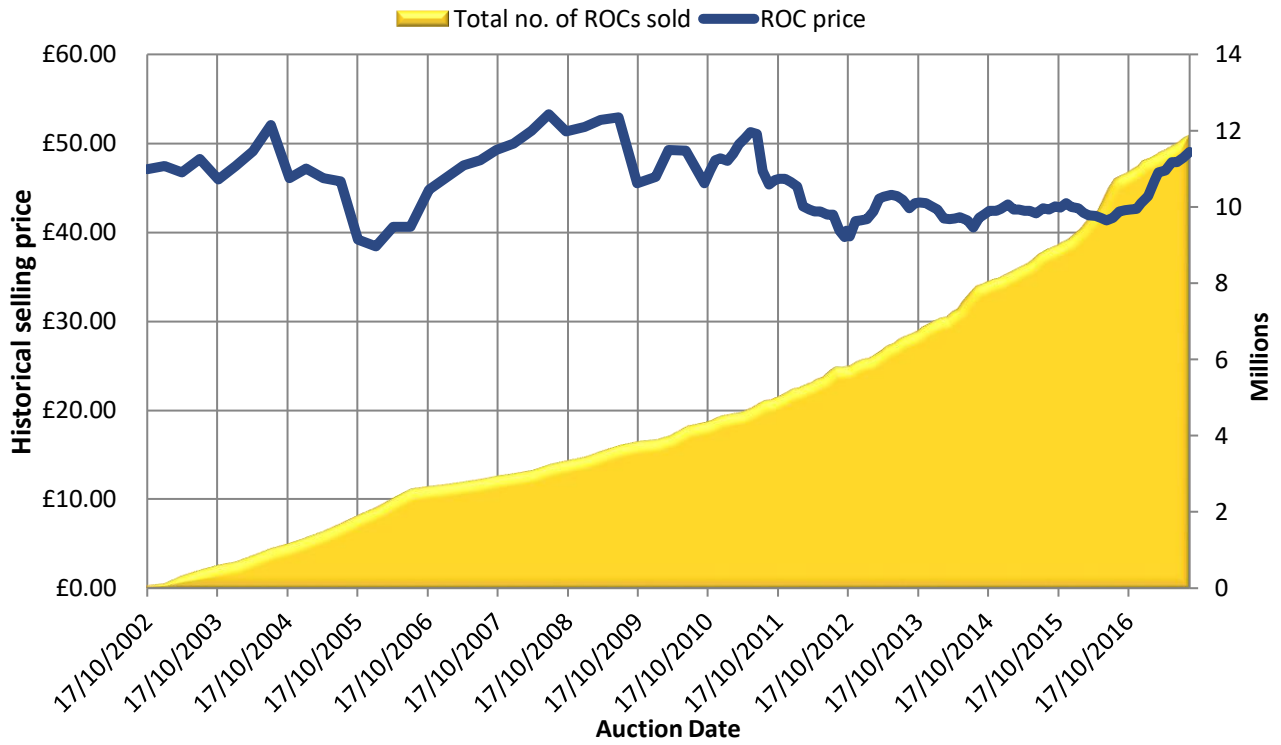
Delegates from university, industry, governmental and non-governmental organizations and venture capital providers will present their views on industrial biotechnology, sustainable (green) chemistry and agricultural policy related to the use of renewable raw materials for non-food applications and energy 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 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.

Prices

Historical auctioned prices of ROCs in sterling pounds, and total amounts of ROCs historically sold.



Click [here](#) for more information

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