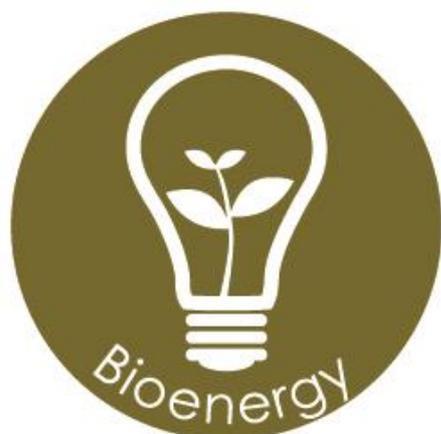


The Bioeconomy Consultants



News Review

Issue Sixty-Nine

December 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, subscribers, to 2017's final Bioenergy News Review.

It's fair to say that bioenergy has suffered some policy setbacks over recent years, following a cap on dedicated biomass under the Renewables Obligation and significant tariff depressions under the Renewable Heat Incentive. A consultation on proposed amendments to the Contracts for Differences scheme, published this month, could provide a further barrier to deployment of the technology. The changes would reduce Greenhouse Gas thresholds for solid and gaseous biomass to a level equivalent to more than a 90% GHG saving on the current carbon intensity of UK power – a level which the industry believes to be unreasonably high. This is unfortunate, as the advantages of bioenergy are clear and well-documented with the technology offering a sustainable and flexible means to decarbonise the UK energy sector. A new report by the International Energy Agency has said that if bioenergy is to become its most effective and sustainable, its deployment must be accelerated, but for this to occur, a change in attitude needs to take place in government.

This latter point may be helped by the praise heaped upon Anaerobic Digestion by former UK Environment Secretary Lord Deben, who also chairs the UK Committee on Climate Change. Speaking at the annual ADBA conference for the AD industry, he described AD as "an essential weapon in the war against climate change", but whether his fervour here will transfer to his influence in government remains to be seen. That said, recent outlooks for biogas have been positive, as it was recently announced that sales of UK Green Gas certificates passed the 1TWh level, which is a significant milestone, and shows how far biogas has come in recent years.

In other, more global news, there is set to be a continental first in the Ethiopian capital Addis-Ababa: Africa's first Energy from Waste plant is set for construction there. The plant will aim to incinerate 80% of the city's 400,000 tonne waste output, producing 185GWh per year for the city. This is a great step for Africa, where bioenergy is emerging as a sustainable option, particularly where energy needs are very localised.

Back home in the UK, EfW is also continuing to rise in prominence. The latest statistics show that the rate of waste recovery for energy is approaching the rate at which waste is recycled. Over the past five years, the EfW rate has doubled while recycling has remained mostly constant. Now, almost 40% of the UK's waste is used for energy recovery, compared to 45% recycled. Obviously, in an ideal world, waste itself is minimised, but in the meantime, the ability to recover energy from waste provides a far better option than sending the material to landfill.

Read on for the latest market news.

Policy

BEIS announces investment in low-carbon industry

BEIS announced that they expect to invest around £162 million in industrial research and innovation, including Carbon Capture, Use and Storage (CCUS).

As part of this commitment, within the BEIS Energy Innovation Programme, BEIS expects to invest around £100 million in low carbon industrial innovation to reduce the risks and costs of accelerating the roll out of low carbon technologies which will enable UK industry to remain competitive.

As part of the Government's Clean Growth Strategy BEIS will be allocating up to £20 million to design and construct carbon capture and utilisation (CCU) demonstration projects. This programme will encourage industrial sites to capture carbon dioxide which could then be used in industrial applications. This would help to enable a pathway for learning and development of capture technologies at an intermediate scale, reducing the costs and risks. The programme will be run in three phases:

Phase 1 will be an initial scoping study for an engineering supplier to work on BEIS' behalf with potential host sites, carbon dioxide users and technology suppliers to produce site-specific cost estimates for deploying CCU at UK industrial sites. The Phase 1 ITT is now open for interested suppliers.

Click [here](#) for more information.

Independent body to ensure green Brexit

Plans to consult on a new, independent body that would hold Government to account for upholding environmental standards in England after we leave the European Union have been set out by UK Environment Secretary Michael Gove.

To help deliver a Green Brexit, ministers will consult on a new independent, statutory body to advise and challenge government and potentially other public bodies on environmental legislation – stepping in when needed to hold these bodies to account and enforce standards.

A consultation on the specific powers and scope of the new body will be launched early next year.

Click [here](#) for more information.

UK Budget sees no new cash for renewables

The UK Chancellor's Autumn Budget on 22 November confirmed that, to keep consumer energy prices low, no new funds will be made available for the "Levy Control Framework," which funds new renewable electricity projects, until what is likely to be 2025. Existing CfD auctions confirmed until 2020 are still to go ahead, providing up to £557 million in support.

Supporting the government's ambition of increasing R&D investment in the economy to 2.4% of GDP by 2027, the Budget confirmed that the £4.7 billion National Productivity Investment Fund investment in science and innovation announced at Autumn Statement 2016 will grow by a further £2.3 billion of additional spending in 2021-22, taking total direct R&D spending to £12.5 billion per annum by 2021-22. The Industrial

Strategy White Paper will provide further detail on what this funding will support.

Responding to the Budget, the REA called for urgency in providing clarity around how the Government intends to bring new projects forward, including less developed technologies such as advanced waste-to-energy. The REA identified an urgent need; in 2016 the National Audit Office estimated that 64GW (around two thirds) of the UK's existing electrical generation capacity was set to be retired by 2035, largely nuclear and coal. This comes at a time when electricity demand is expected to increase due to the electrification of transport.

Additionally, no clarity has been offered around how the Government intends to support the decarbonisation of heat post 2020/21, which the sector urgently needs and had been flagged as one of the Government's top priorities.

Click [here](#) for more information.

System submitted to manage European biomethane market

Europe is 'one step closer' to a single biomethane market, following the submission to the European Commission of an application for an administrative system designed to facilitate cross-border transactions of renewable gases.

Members of the European Renewable Gas Registry announced on 15 December that they'd applied to the European Commission to recognise the ERGaR RED (European Renewable Gas Registry Renewable Energy Directive) scheme as a voluntary scheme under the Renewable Energy Directive.

Established under Belgian law in 2016, ERGaR is an international non-profit organisation between European biomethane registries that aims to enable the cross-border transfer of the renewable

gas among its members. At present, ten countries are included in the registry.

National renewable gas registries included in the scheme collaborated to establish an 'independent, transparent and trustworthy' documentation scheme for cross border transfer and mass balancing of renewable gas injected into the European natural gas network. According to a statement, ERGaR will support the establishment of such registries in every European country and strive to incorporate all national registries into the scheme.

The European Union's Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources. A key obligation of the Directive is for the EU to fulfil at least 20% of its total energy needs with renewables by 2020.

Click [here](#) for more information.



Max Pixel

Former UK Environment Secretary lauds AD



Geograph

Lord Deben, Chair of Committee on Climate Change has told ADBA's National Conference 2017 that anaerobic digestion central to policy goals.

Lord Deben, a renowned environmentalist who gained prominence among green groups by introducing the 1995 Environment Act and Landfill Tax when Secretary of State for the Environment in the 1990s, gave the keynote presentation at the conference, which brings together AD industry stakeholders with politicians, policymakers, and academics to discuss key issues affecting the AD industry.

AD recycles organic wastes and processes purpose-grown energy crops into renewable heat and power, clean transport fuel, and digestate biofertiliser, which can help to restore nutrients and organic matter to soils.

In a recent foreword for the ADBA's quarterly member magazine, Deben also described AD as 'an essential weapon in the war against climate change' and 'an increasingly efficient way of completing the system by taking what cannot be reused or directly recycled and giving it real value'.

Click [here](#) for more information.

Ireland to introduce new renewable support scheme

The Irish Minister for Communications, Climate Action and Environment is to introduce a national support scheme for renewable heat following Government approval of the scheme.

The purpose of the scheme is to provide financial support for the replacement of fossil fuel heating systems with renewable energy for non-domestic users.

The Government has allocated €7m in next year's budget to fund the initial phase of the scheme in 2018.

Commercial, industrial, agricultural, district heating, public sector and other non-domestic businesses and sectors will be covered under the scheme.

Under the 2009 Renewable Energy Directive, Ireland has a target of 12pc of energy consumed in the heat sector to come from renewable energy sources by 2020.

However, currently Ireland is just over half-way towards reaching that target, with just 6.8pc of energy consumed in the heat sector coming from renewables.

There will be two types of support under the scheme; on-going operational support for installations that currently use a fossil fuel heating system and convert to using biomass heating systems or anaerobic digestion heating systems. And a grant of up to 30pc to support investment in renewable heating systems that use heat pumps.

Click [here](#) for more information.

UK opens consultation on changes to CfD scheme



Pixabay

The government has published a consultation on proposed amendments to the contracts for differences scheme, which puts forward a set of updated sustainability criteria for new solid and gaseous biomass projects. The government proposes to set a greenhouse gas threshold of 40gCO_{2eq}/MWh, five times lower than the current threshold and representative of a 90% GHG saving on non-coal fossil generation in the UK over the last 3 years.

The consultation also sets out a proposed definition of remote islands wind, as a new technology that can compete in future auctions for 'less established' technologies (also known as 'Pot 2'). Views are sought on this definition and on how island communities can benefit from these projects.

Refinements in relation to Advanced Conversion Technologies (ACT) are also being proposed, to ensure that only more innovative and efficient plants are awarded subsidy, achieving best value for money and ensuring supported projects can continue to develop in this sector.

Changes to the overall efficiency requirements for Combined Heat and Power (CHP) are being put forward, to ensure that CfD supported CHP plants have a suitably high overall efficiency. The government also proposes that applicants must

confirm in their application that they intend to comply with those CHP requirements. A related amendment to the Contracts for Difference (Definition of Eligible Generator) Regulations 2014 regulations is also proposed.

Additionally, in order to facilitate more accurate forecasting of budget spend the government proposes to require generators to provide the Low Carbon Contracts Company with their best estimates of their expected generation output during the CfD contract term.

Views are also invited on various potential changes to the detailed terms of new CfD contracts in order to ensure the scheme continues to operate effectively, with further detail expected to be discussed in a subsequent consultation.

Click [here](#) for more information.

Markets

EU's renewables losing momentum

Although renewables accounted for the vast majority of new EU power capacity in 2016, there are signs that the transition away from fossil fuels has lost some momentum in the past two years.

The EEA report Renewable energy in Europe – 2017 update uses official statistics up to 2015 and preliminary estimates for 2016 to provide an overview of progress in renewable energy in Europe. It estimates that renewables accounted for 86% of the EU's new capacity for electricity generation installed in 2016.

Most EU member states, as well as the Union as a whole, remain on track to reach their renewable energy targets, the report states. However, it also notes that across the EU progress is starting to lose some pace. The share of renewables in the EU

energy supply grew from 16.1% in 2014 to 16.7% in 2015, and to a projected 16.9% in 2016. Over the period 2005–2014, the share of renewable energy sources in the EU's gross final energy consumption increased, on average, by 6.7 % annually. However, in 2015, this growth rate slightly decreased to 6.4 %, and in 2016 to 5.9 %, over the entire period.

Click [here](#) for more information.

OPEC predicts strong renewables growth, despite oil and gas dominance

Latest OPEC World Oil Outlook identified that renewables are growing at the fastest growth rate, but oil and gas are still expected to supply more than half of global energy needs by 2040.

Other renewables – consisting mainly of wind, photovoltaic, solar and geothermal energy - is projected to be by far the fastest growing energy type. It is estimated to have an average annual growth rate of 6.8% over the forecast period. Its share is expected to increase by 4 percentage points by 2040. However, given that its current base in the global energy demand mix is rather low, at about 1.4%, the share of other renewables is still anticipated to be below 5.5% by 2040, despite its impressive growth.

Oil and coal are projected to grow at much lower rates of 0.6% and 0.4% p.a., respectively. Despite these relatively low rates, fossil fuels will retain a dominant role in the global energy mix, although with a declining overall share.

Click [here](#) for more information.

Research & Development

Accelerated deployment needed for sustainable bioenergy

The IEA has published a report setting out a technology roadmap to deliver sustainable bioenergy. This highlights that accelerated deployment of bioenergy is urgently needed to ramp up its contribution across all sectors, notably in the transport sector where consumption is required to triple by 2030. Annex 3 sets out Bioenergy solutions suitable for immediate scale-up and this includes biomethane from waste and residue feedstocks for use as a transport fuel.

Click [here](#) for more information.

Commercial BioSNG plant progressing well

Project partners Cadent (formerly known as National Grid Gas Distribution), Advanced Plasma Power and Progressive Energy, joined by consortium partners Wales and West Utilities and CNG Services are currently building the first commercial BioSNG plant.

Two years after the initial design order was placed with Amec Foster Wheeler Italia (now [Wood Group](#)), the BioSNG methanation skids have now been delivered to site and installed.

This equipment converts synthesis gas, a mixture of carbon monoxide and hydrogen produced from waste, into green natural gas. The skids were driven down from the fabricator in Liverpool and then carefully lowered into place on-site in Swindon.

The plant will process 10,000 tonnes per annum of refuse derived fuel and waste wood to produce 22GWh per annum of grid quality natural gas, enough to heat 1,500 homes or fuel 75 heavy goods vehicles. The objective is to produce 1 million kilogrammes of gas during 2018. This project will provide a reference facility, operating under commercial conditions to enable financing of large scale commercial projects.

Click [here](#) for more information.



Wikimedia Commons

Biogas

Barrow top producer as UK green gas passes 1TWh

Barrow Green Gas (BGG) has been confirmed as the UK's biggest shipper and supplier of green gas, as the Green Gas Certification Scheme has revealed that sales of Green Gas Certificates have hit a total of 1 TWh of green gas. That's enough gas to power 83,000 UK homes for a year. Over half of this green gas has been supplied by Barrow Green Gas, via its producers throughout Great Britain.

Barrow Green Gas is the not only the biggest green gas shipper, but the only gas business in Great Britain that is focused solely on the

biomethane market. BGG supports biomethane producers, supplies biomethane to gas buyers and trades Green Gas Certificates from producers to buyers.

Using Green Gas Certificates, consumers and businesses can buy renewable energy from producers across Great Britain who are injecting biomethane into the gas grid. What's more, green gas is often made from food waste or sewage sludge, so is a growing part of the circular economy.

BGG puts more biomethane in the gas grid than any other shipper, supporting a record 33 biomethane producers throughout Great Britain. The green gas shipped by BGG is not only being used by UK companies such as Sainsburys and Good Energy, but BGG also, since April has been exporting green gas from the UK to Essent, the largest energy company in the Netherlands, via the interconnector pipeline. All the parties involved have been ISCC certified to demonstrate compliance with sustainability requirements, another first for the UK biomethane industry.

Click [here](#) for more information.



Geograph

ADBA launches AD certification system

UK trade body the Anaerobic Digestion & Bioresources Association (ADBA) has launched its pioneering AD Certification Scheme at the ADBA National Conference 2017 in London.

The voluntary, industry-led scheme is designed to support operators of AD plants to improve their operational, environmental, and health and safety performance, in particular in terms of energy generation and digestate quality.

ADBA has developed the scheme, working closely with industry stakeholders including operators, developers, consultants, suppliers, insurers, regulators and other trade bodies related to the sector, who have all voiced their support for such a certification process.

The scheme includes detailed assessment criteria that will allow third-party certification bodies to verify the achievement of good practice at AD plants, and is the most comprehensive of its type.

The scheme pilot was completed in September this year, with one on-farm plant, one food waste plant, and one on-site plant for a food manufacturer taking part.

Click [here](#) for more information.

Clearfleau builds AD plant at distillery

The logo for Clearfleau, featuring the company name in a blue, serif font with a trademark symbol (TM) to the upper right of the 'u'.

Clearfleau

Clearfleau, the UK's leading provider of on-site biogas plants for the food and beverage sector, has started work on its latest biogas plant on a distillery for Inver House at Balmenach in rural Speyside. The Balmenach distillery, which is almost 200 years old, has already installed a biomass boiler and when the biogas project is completed in Spring 2018 it will be one of the lowest carbon footprint distilleries in Scotland.

In an energy-intensive industry concerned about its environmental impact, anaerobic digestion (AD) is a cost-effective way to dispose of energy-rich residues, making use of the latent energy content from whisky co-products. Clearfleau has already installed two plants on distillery sites in Scotland, with others in design. The Balmenach project is the smallest digester the company has built to date, showing that the technology can be viable at different scales.

The Balmenach project will treat about 130m³ per day of whisky co-products (pot ale and spent lees). Over 2,000m³ per day of biogas will be fed to a combined heat and power (CHP) engine and will supply 200kW of power and 230kW of heat for use in the operation of the distillery site.

Click [here](#) for more information.

BioWatt acquires new AD plant

As part of its ongoing strategy of owning an operating biogas and biomethane production facilities in the UK, BioWatt has acquired 100% of the share capital in Katharos Organic Ltd – owner of the AD plant at Station Works, in Thaxted.

BioWatt has secured more than £25m of investment in the acquisition and construction of AD Facilities over the past 18 months and owns and operates 3 AD Facilities in the UK with plans to operate more than 10 plants by the end of 2018. As part of these plans, BioWatt has secured funding terms for a further £50m in order to commence construction on more than 1,100m³/hr of biomethane production capacity in quarter one of 2018.

Station Works AD was commissioned in 2013 as a crop fed electricity generation plant under the Feed-In-Tariff. The previous owner/ operator was the farmer/ landowner and as part of the deal, BioWatt has also acquired the Freehold for the site based on the long-term, robust counter-party covenant offered by the AD company. The Facility itself has operated on a sub-optimal basis during its previous ownership and the investment represents an opportunity to generate value for the new owners through increased efficiency, better maintenance, smarter operation and being part of a larger multi-site operator.

Click [here](#) for more information.

Energy from Waste

UK EfW rate catching up to recycling

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

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

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

Click [here](#) for more information.

New London Energy Park planned

Cory Riverside Energy, has revealed ambitious plans to build an integrated, low-carbon energy park at its site in Belvedere, South East London.

The energy park would complement Cory's existing Riverside Energy Recovery Facility (ERF), and comprise a range of technologies including waste energy recovery, anaerobic digestion, solar panels, and battery storage.

Riverside Energy Park would enable the company to convert even more of London's residual "black bin" waste into green electricity, particularly during times of peak usage, and produce cheap heat for export to nearby homes and businesses. In addition, it would continue to convert the residual ash that is left over at the end of the process into construction materials useful for building London's homes and roads.

Construction is targeted to begin in 2021, and the Energy Park is expected to be fully operational by 2024. Cory has selected Hitachi Zosen Inova as its Engineering, Procurement and Construction (EPC) contractor, following its excellent delivery of the existing Riverside ERF.

Click [here](#) for more information.

Ethiopia to build Africa's first EfW plant

A new waste-to-energy plant is set to start operations in Ethiopia aiming to revolutionise waste management practices in the country.

The Reppie thermal plant is being built in Ethiopia's capital, Addis Ababa, and when commissioned by the beginning of 2018, it will incinerate approximately 1,400 tonnes of waste. This represents 80 percent of the city's waste generation, accounting for 400,000 tonnes per year.

This means that with a capacity of 110 megawatt thermal (MWth) the power plant will provide electricity to 30 percent of its household electricity needs.

The Rebbie plant will generate approximately 185-gigawatt hours (GWh) per year through two 25-megawatt (MW) steam turbines.

Click [here](#) for more information.

Events

Energy Now Expo Telford, 7th - 8th February 2018

Changes in government policy, subsidy support and Brexit have led many to question whether investment in renewable energy is still a practical, viable option. Taking place on 7th & 8th February 2018, once again at the Telford International Centre, Shropshire; the Energy Now Expo 2018 will focus on the best options available to farmers and landowners, both in the immediate and longer-term future.

Being held with the support of the NNFCC, the 2018 event will see the return of the exhibition of over 150 suppliers, together with the one-to-one advice clinic and the multi-streamed conference in which the latest sector news and plans will be discussed and opportunities evaluated. Organisers are pleased to announce that the NNFCC's CEO Dr Jeremy Tomkinson will be taking part in the conference, chairing a session on energy crops and presenting on advanced biofuels and the new opportunities for bio based feedstocks in a biomass session, both on Thursday 8th February.

Click [here](#) for more information.

Eco-Bio Dublin, 4th-7th March 2018

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

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

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

Click [here](#) for more information.

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.

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.

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

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

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

Click [here](#) for more information.

EUBCE 2018 Copenhagen, 14th-18th May 2018

We look forward to the 26th EUBCE in 2018 in Denmark and to the many vibrant topics that will be included in the agenda. The core of the traditional EUBCE conference will be held over 4 days.

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.

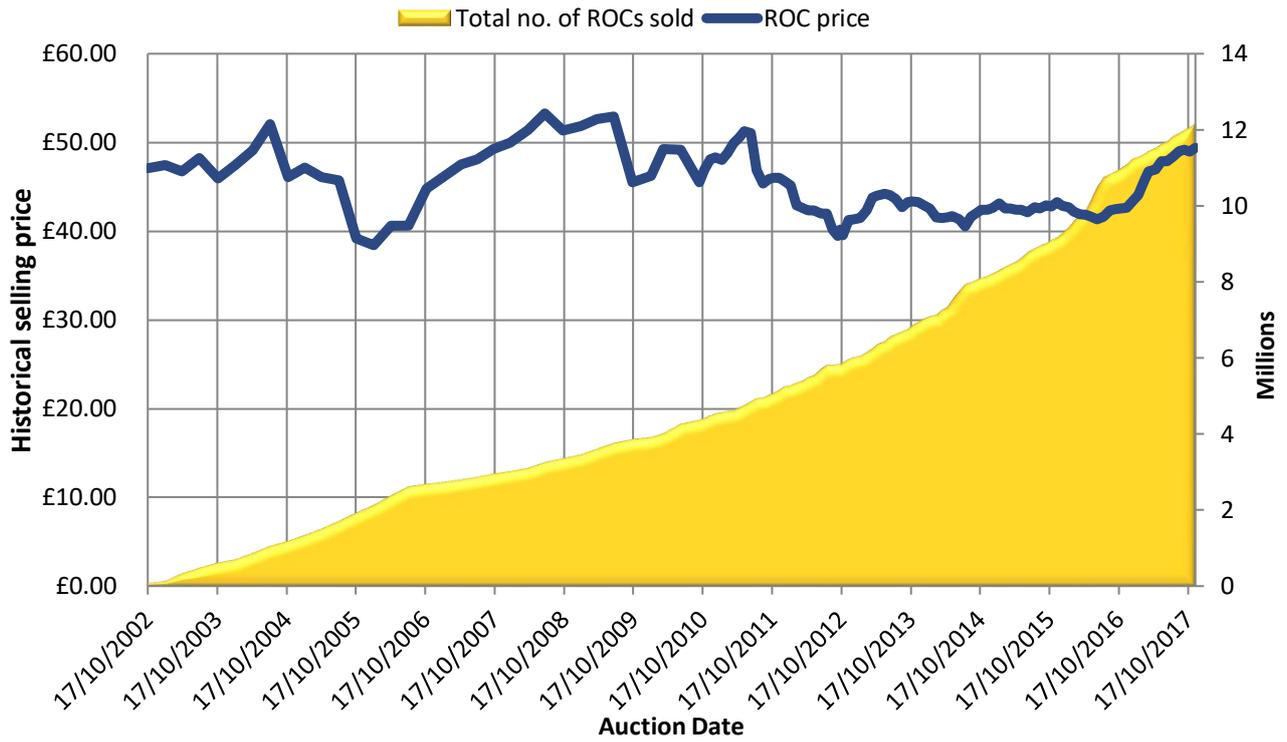
The conference will provide a forum for leading political, corporate, academic and financial people to discuss recent developments and set up collaborations.

The three-day international conference will consist of plenary lectures, oral presentations, poster sessions and an exhibition. Companies and research organizations are offered the opportunity to organize a satellite symposium.

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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