

PRESS RELEASE

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Ricardo demonstrates a combined heat and power plant that can remove 4000 tonnes of carbon dioxide from the atmosphere annually

The innovative plant showcases climate repairing technology and is demonstrating the effectiveness of community-scale clean energy using green waste

With consortium partners Bluebox Energy and Woodtek Engineering, Ricardo has designed, installed and is now operating the combined heat and power demonstrator plant which is fed by sustainable wood waste to securely and continuously supply clean energy, heat, food-grade carbon dioxide and biochar. The plant showcases a realistic carbon negative technology that can significantly contribute to net zero targets due to its applicability to several energy-intensive industry sectors as an on-site generator of heat and power. The consortium is funded by the UK Government through the Net Zero Innovation Portfolio (NZIP) under the Department for Energy Security and Net Zero.

Full media pack with images: <https://www.ricardo.com/en/news-and-insights/campaigns/ricardo-bioccus>

The innovation of the plant lies in the fact that it can capture up to 90% of the carbon in the feedstock, while still producing valuable heat and power outputs. Annual performance figures for a commercial, single-module based on 8,000 hours of operation are: the processing of 2,600 tonnes of waste woodchip; the generation of 540 tonnes of biochar, 2,300 tonnes of food-grade carbon dioxide, 330 MWh of electricity, 1,200 MWh of heat; showing the potential to capture up to 4,100 tonnes of carbon dioxide equivalent (CO₂e).

Josh Dalby, Head of Engineering Technology at Ricardo, who is the Chief Engineer for the demonstrator plant project said: *“Our test results indicate that with this technology, Ricardo is at the forefront of removing carbon dioxide from the atmosphere, providing local industry or businesses with renewable heat and electricity, and delivering national energy security. With our partners Bluebox Energy and Woodtek Engineering we are very encouraged by the results so far from development testing. We know that these results will be of interest to potential clients from food and drink manufacturing, agriculture and construction who are seeking innovative technology solutions to help them decarbonise their operations and cut emissions but also provide the reassurance of security of supply of heat, power and food-grade carbon dioxide created from biowaste.”*

To deliver the project, Ricardo technical experts have drawn on their collective credentials in policy around net zero targets, expertise in carbon capture systems and cogeneration technologies, and application of engineering and digital engineering capabilities and tools developed from the automotive sector. Ricardo’s expertise in negative emissions cogeneration technology is based upon the company’s two decades of experience in bioenergy and CO₂ capture and utilisation technologies, advising governments worldwide as well as technology and project developers and operators on carbon capture and storage.

The technology showcased at the demonstrator plant is now commercially available, and the Ricardo team is inviting potential customers from the food and drink manufacturing, agriculture and construction sectors to visit and see the technology in action.

A guided tour for stakeholders and the media was hosted by Ricardo's energy transition team on September 20th 2024:

Councillor Joy Dennis, West Sussex County Council Cabinet Member for Highways and Transport:

“We’re proud to be working with Ricardo to explore the potential for using grass cuttings from highway verges to produce biochar that can be used as a material to repair. We have also supplied wood chippings from our ash die back felling works to understand how these could also be used in the process.

“It is wonderful to see how a Shoreham-based company, with a world-leading combined heat and power plant in the heart of West Sussex, is leading the way in using the latest technology to use green waste to create community-scale clean energy.”

Councillor Bella Sankey, Leader of Brighton & Hove City Council and Chair of the Greater Brighton Economic Board

"Tucked away in the green fields of Sussex, Ricardo are developing trailblazing solutions to our climate crisis. Their development and testing of carbon negative technology to produce power and heat has the potential to make a huge contribution to making British and Global industries sustainable – from food production to construction and housing."

“This summer, Sussex councils and businesses launched Sussex Energy with an ambition to produce locally generated, zero carbon forms of energy for our region by 2040. We’re proud that Ricardo is a partner in this, helping us power the way to a sustainable county, country and world.”

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About Ricardo

Ricardo plc is a global strategic, environmental, and engineering consulting company, listed on the London Stock Exchange. With over 100 years of engineering excellence and employing close to 3,000 employees in more than 20 countries, we provide exceptional levels of expertise in delivering leading-edge and innovative cross-sector sustainable products and solutions. Visit www.ricardo.com/en

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