



Commercial and Environmental Carbon Reduction Technology



Private and public sectors are under more pressure than ever to:

- increase income streams
- decarbonise business models
- demonstrate commitment to sustainability and the planet

Income Generation and Decarbonisation

The Energy & Bioproducts Research Institute (EBRI) at Aston University, in association with its industrial partners, has developed a range of innovative technology for commercial and environmental applications to help organisations navigate their path to sustainability and generate income.

Through the thermal conversion process known as pyrolysis, our technology enables organic material such as sawdust, fallen and diseased trees, dried chicken manure and agricultural straw to be transformed into a wide range of commercially valuable products helping organisations to reduce the financial and carbon cost of waste, increase income generation and carbon capture, as well as diversify into new low carbon market sectors.



Waste / Residues to Products and Energy

We can help you:

- Produce new high value materials from your organisation's waste and residues which can be commercialised.
- Create new opportunities in growing low carbon marketplaces such as biochar - a sustainable form of charcoal offering many valuable benefits and uses.
- Adopt new technologies to help you become more resource and energy efficient.
- Decarbonise your organisation's business model.
- Develop product innovation and differentiation.



Carbon Capture Technology

Innovative technology developed by EBRI in association with its industrial partners including FuturEnergy can help business leaders meet their commercial and environmental goals. This includes waste reduction and the generation of new low carbon corporate solutions to energy efficiency and innovative product development.

The pyrolysis processor converts organic waste and residues into valuable products such as heat, power, electricity, cooling, gas, biochar, organics and aqueous liquids which can be adopted in numerous industrial and environmental applications.



Demonstration plant
State-of-the art pyrolysis equipment developed in association with industrial partners located at a horticultural nursery on the outskirts of Birmingham.



CO2



ESG

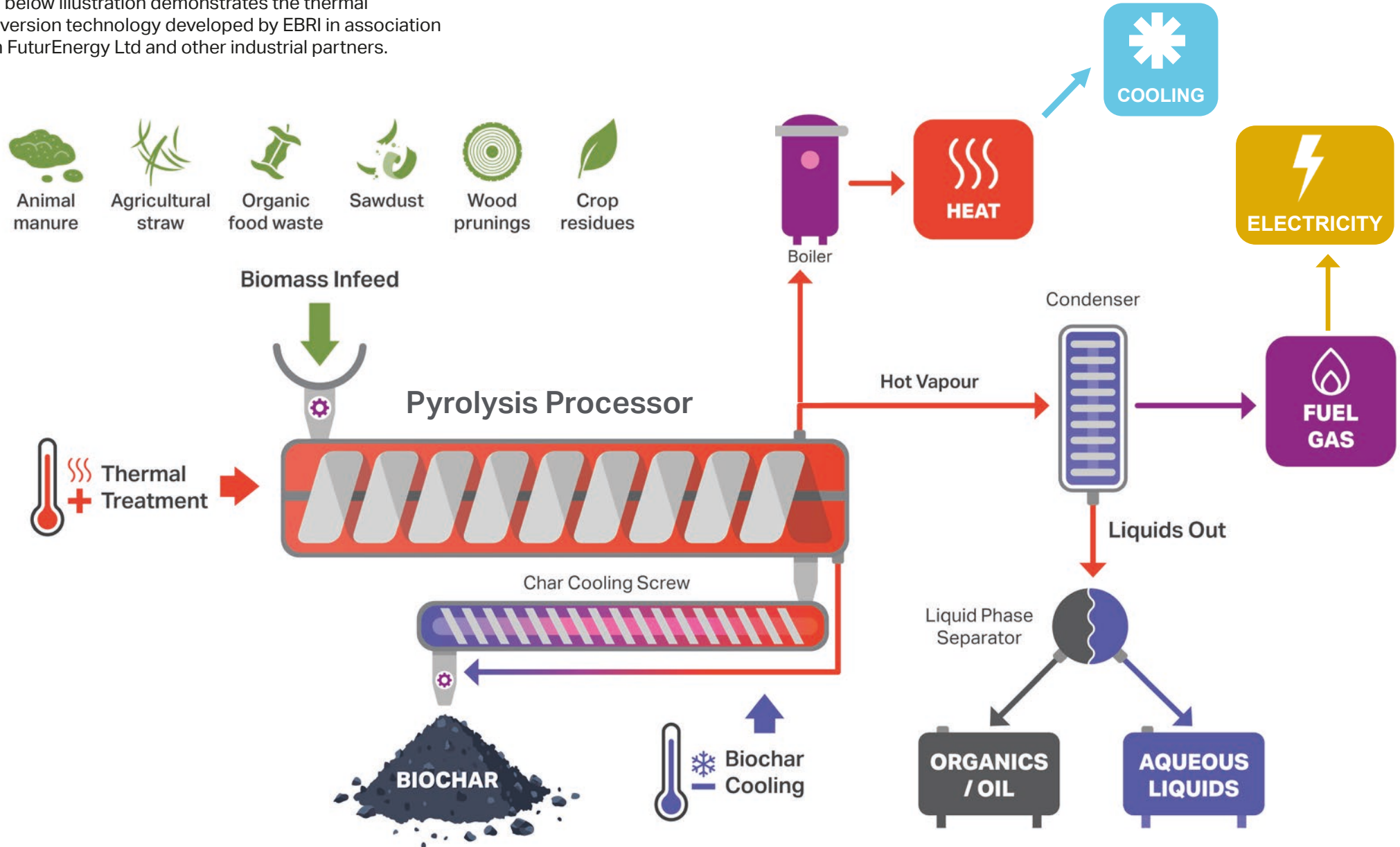


Carbon Capture Technology

Pyrolysis Processor

The below illustration demonstrates the thermal conversion technology developed by EBRI in association with FuturEnergy Ltd and other industrial partners.

The pyrolysis processor heats biomass material in an oxygen-free atmosphere producing a range of valuable byproducts: gas, liquids, heat, cooling, power, electricity and biochar.



Products and Energy from Waste / Residues

The byproducts generated by this state-of-the-art technology offer a number of commercial and environmental benefits which could be adopted by a host of different industries including food production, construction, ceramics, chemical and horticulture.

Biochar

Carbon-rich biochar, for instance, offers a wide variety of benefits and uses in both rural and urban environments. With its porous structure, it adsorbs and holds gases, odours, organic nutrients, and environmental contaminants. It offers many applications as shown below:



Odour control



Soil enhancer



Composites
e.g. construction



Composites
e.g. ceramics



Carbon credit



Water treatment

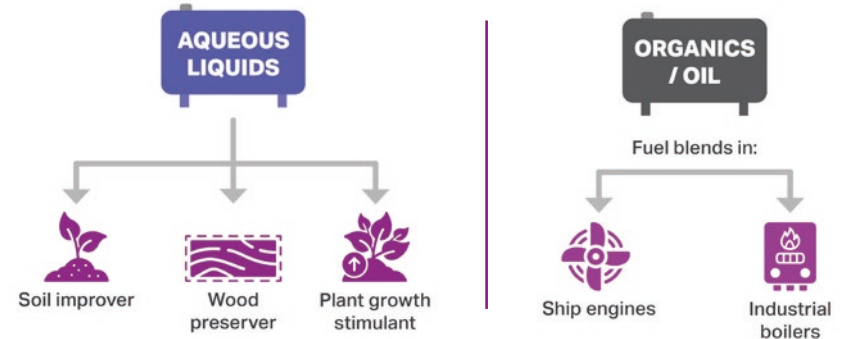


3D printing

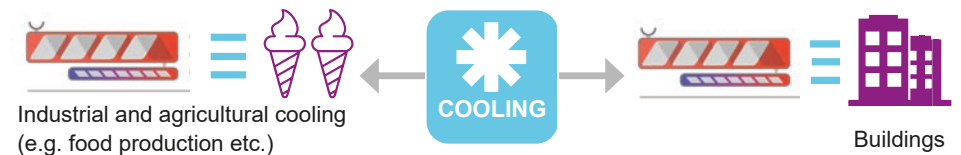
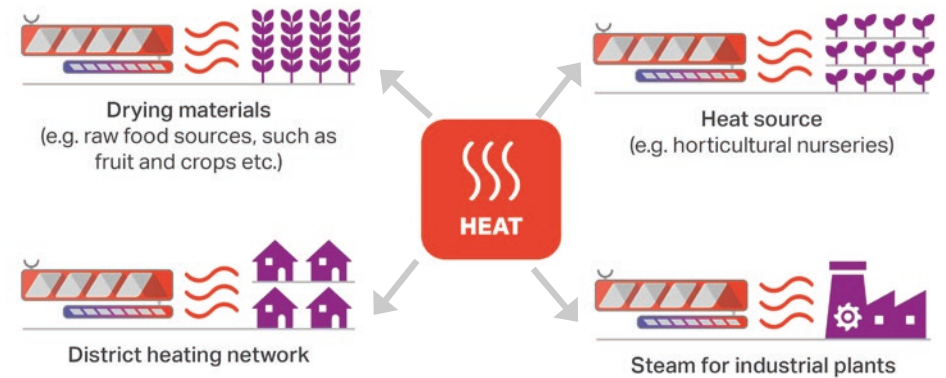
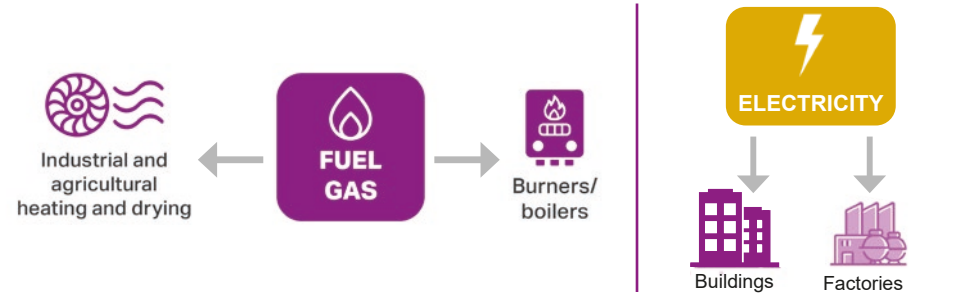


The global biochar market size was valued at United States Dollar (USD) 763.48 million in 2024. The market growth is projected to grow from USD 859.04 million in 2025 to USD 2,097.72 million by 2032, exhibiting a compound annual growth rate (CAGR) of 13.60% during the forecast period.¹

Liquid Products and their Uses



Energy from Waste / Residues



Product development collaborations with EBRI



EBRI is looking to work with innovative organisations on initiatives such as paints and coatings and low carbon gas for industrial heating. We also want to explore soil conditioners and products for improved plant, tree and animal health, and biochar for water treatment and odour control."

Tim Miller
 Director Biochar
 CleanTech Accelerator
 EBRI, Aston University

How to get involved

EBRI is working with companies to take research out of the lab into commercialisation at scale for domestic and export markets. Our range of bespoke solutions includes:

- **Consultancy which could include:**
 - Lifecycle Assessment (LCA) to estimate the energy and climate change impacts and the economics of pyrolysis technology systems.
 - Pyrolysis technology and use case consultations.
 - Bespoke feedstock and biochar testing.
 - New product appraisals.
- **'Waste / Residues to Energy' Insights** - discover how organic waste and residues can be thermally treated to generate industrial heat, cooling and electricity.
- **'Waste / Residues to Product' Insights** - we can help you decarbonise traditional markets.
- **Demonstration events**



EBRI Technology

We are offering exclusive consultations to organisations who are interested in adopting and deploying our pyrolysis technology.

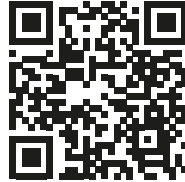


To discover more

Contact the EBRI Biochar
CleanTech Accelerator team.

Email biochar@aston.ac.uk or call
+44 121 204 3383

www.bioenergy-for-business.org



¹ [https://www.fortunebusinessinsights.com/
industry-reports/biochar-market-100750](https://www.fortunebusinessinsights.com/industry-reports/biochar-market-100750)

Aston University has been awarded funding for this Biochar CleanTech Accelerator project as part of the West Midlands Innovation Accelerator to bolster the region's innovation and R&D capability and capacity to spark commercial growth and investment.

Led by Innovate UK on behalf of UK Research and Innovation, the pilot Innovation Accelerators programme invested £100m in 26 transformative R&D projects to accelerate the growth of three high-potential innovation clusters – Glasgow City Region, Greater Manchester and West Midlands. This is a new model of R&D decision-making that empowers local leaders to harness innovation to drive regional economic growth, help attract private investment, and develop future technologies.

Locally-led Innovation Accelerators delivered in
partnership with DSIT, Innovate UK and City Regions

