



Carbon-Negative Power Plant

Scientists at Aston have designed an algae-based power generation facility that provides low-cost heat and power, and also provides a by-product that cheaply, easily and usefully sequesters carbon. Aston's Business Partnership Unit is now actively seeking commercial partners to exploit this clean and potentially lucrative technology.

Highlights

- Generates low-cost heat and power
- Estimated to provide significant profits
- Retains and reuses all gaseous emissions and liquid by-products
- Provides carbon-rich, highly fertile biochar by-product for sequestration in soil

Background

With the recent dramatic increase in crude oil prices and the impending threat of human-induced climate change, clean energy technologies are attracting significant interest. The use of biomass as a raw fuel has been widely proposed as a replacement for crude oil, both in transportation fuels and combined heat and power systems. Concerns have been raised however at the impact of biomass usage on global food prices and deforestation. More recently, the use of algae has been proposed to overcome these difficulties. Carbon sequestration has also been widely proposed as a means of slowing or reducing the build-up of CO₂ in the atmosphere.

The Technology

Scientists at Aston have devised a novel design for a power generation facility that utilises algae to generate low-cost heat and power and provides a by-product that cheaply, easily and usefully sequesters carbon. It is estimated that significant profits might be generated through operation of the facility. The power plant consists of a biomass digester, an algae-growth cultivation vat, and a pyrolysis reactor. The plant optionally utilizes a gasifier, and/or an electricity generation turbine, and/or an incinerator.

All gaseous emissions and liquid by-products are retained and reused, while the carbon-rich biochar solid by-product is sequestered by spreading on farmland as a fertilizer—effectively rendering the plant carbon-negative.

Intellectual Property Protection

This technology is the subject of PCT patent application:

<i>Title</i>	<i>Patents Pending</i>	<i>Priority Claimed</i>	<i>Our Ref</i>
Biomass processing	PCT/GB2009/001205	May 14, 2008	PAT-2008-011

Further Information

Further information can be made available and commercial discussions commenced on entering into a non-disclosure agreement.

Contact Details

Business Partnership Unit
Aston University
Aston Triangle
Birmingham B4 7ET
United Kingdom

Tel: +44 (0)121 204 4242
Email: bpu@aston.ac.uk
www.astoninventions.com