Centre for science
Low-carbon technology

Energy research gets the green light

Biofuels could play an important role in creating a low-carbon economy, but the technology is still very much in development. However, scientists in the West Midlands are leading the way, says Christopher Mowbray.

Biofuels and Sustainable Power

"We have both depth and breadth of expertise in low-carbon technologies in the West Midlands universities and businesses. I am confident that the application of our research will have a major, positive impact on the reduction of carbon emissions and the growth of the regional and national economy."

Kate Biddlecombe, Departmental Committee on Climate Change and UK Trade and Investment's low-carbon business ambassador, adds: "At Aston, our work promises to provide an important breakthrough in the quest to produce really sustainable, clean and reliable power from new sources - a critical area driven by our own carbon emissions.

Aston University, whose vice-chancellor, Julia King, advises Birmingham city council on how to reduce its carbon emissions by 65% by 2020, is a leading bioenergy research centre. The University of Birmingham and Aston University are currently undertaking significant projects at a number of universities. The University of Warwick and Birmingham in a strategic research partnership, the VEF will give Warwick and Birmingham in a strategic research partnership, the VEF will give

Giant tanks at Aston University are used to grow algae, which can then be harnessed to produce power. What is the purpose of using algae for power generation?

"There is also real potential for biofuels to be used in transport, homes and industry. Low-carbon technology to be found anywhere in the world, has been warmly welcomed by leading car manufacturers including Jaguar Land Rover.

At the end of the 12-week trial, households in Birmingham are being shown how to reduce their energy use through a pioneering home-monitoring system, developed by the city council and local housing association as part of a wider EZP project.

"Some people became quite competitive about getting their energy use down to zero," says Schuster James, "Some of the eco-warriors tried to get their energy use down to zero, but most were engaged enough with the project to make small, easy changes, and keep on saving money."

Emily Jupp

Centre of excellence
At Staffordshire University, a new £28m science and technology centre will house the university's renewable energy work, including the VEF project to promote Staffordshire as a European centre of excellence for biofuels. Led by Professor Tarik Al-Shemmeri, the project aims to accelerate the use of biomass fuels in north-west Europe. Staffordshire University and the university also has a new demonstration facility which companies can use.

Al-Shemmeri explains: “North-west England is strongly dependent on imported energy. Our regions are facing common challenges about how to reduce waste going to landfill and meet energy demands through biomass. Our project will identify where co-operation can help.”

One of Staffordshire University's research partners is Shropshire-based Harper Adams University College, a leading farming and agriculture centre for learning. The college is installing a VEF and the project is expected to provide a blueprint for cities all over the world to build plants converting organic waste into heat, power, fertiliser and fuel for vehicles.

Meanwhile, Birmingham City University is working with the UK's largest importer of Asian foods and spices, East End Foods, on an urban farm which combines integrated biotechnologies and the production of energy with the cultivation of crops and used food waste.

"Algae can consume atmospheric CO2 around 10 times faster than terrestrial vegetation," she says. "This project could have enormous benefits for society and the environment."