


**Q&A: A CONSERVATIVE
PLAN FOR UK SCIENCE**

Adam Afriyie on research under a potential centre-right government.

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Terrabon, which uses technology developed at Texas A&M University in College Station, plans to build a bigger plant in Port Arthur, Texas, that can process 55 tonnes of biomass a day, producing 4.9 million litres of fuel a year. It has applied for a \$25-million grant from the US Department of Energy to build this plant, but if it doesn't get the grant it will invest even more itself and make the plant even larger — to process up to 220 tonnes of biomass each day. If paying for the whole plant, says chief financial officer Malcolm McNeill, “you might as well go to the real size”.

Meanwhile, the processing company UOP, based in Des Plaines, Illinois, has developed a pyrolysis technique that heats biomass to release oil. More work is needed to develop that oil into a fuel, but the technology is already being licensed by UOP's joint venture with Canadian company Ensyn Technologies in Ottawa, Ontario. “What this technology has lacked is the economic drivers to make it happen,” says Graham Ellis, UOP's business manager for renewable energy and chemicals. UOP wants to help existing refineries to license its upgrading technology to use in existing infrastructure.



At Virent, researchers are engineering microbes to increase biofuel yield.

In Germany, the car-maker Volkswagen, based in Wolfsburg, is leading a €13.6-million (US\$20-million) project intended to eventually produce 200,000 tonnes per year of liquid fuels from biomass. The processing will be done by Choren Industries in Freiberg. Choren has separately amassed investments of €140 million, mainly from individual investors, although minority shareholders include Shell Deutschland Oil, Daimler and Volkswagen. It

is now commissioning a new plant in Freiberg that will have a nominal capacity of 18 million litres of synthetic biofuel per year, all of which will be sold to Shell.

Some producers think they can eventually become competitive by offering a lower-cost product than many other first-generation biofuels. Raw-material costs for synthetic biofuels, says Choren spokeswoman Ines Bilas, can be around 40% of total costs, compared with nearly 90% for biodiesel made from rapeseed oil.

The fuel's adaptability may also help it to catch up with other, more established biofuel alternatives. “You really can make [petrol] from sorghum or municipal waste,” says McNeill.

But for now, its future rests with process engineers and how well they can streamline the path from woody waste to liquid fuel. ■

Katharine Sanderson

Correction

The News story ‘Climate burden of refrigerants rockets’ (see *Nature* **459**, 1040–1041; 2009) cited an incorrect year for when hydrofluorocarbon emissions were predicted to reach between 5.5 billion and 8.8 billion tonnes of carbon dioxide equivalent annually. The year is 2050, not 2010.