

UK failing to harness bioenergy potential

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The UK could generate almost half its energy needs from biomass sources, including household waste, agricultural residues and home-grown biofuels by 2050, new research suggests.

Scientists from the Tyndall Centre for Climate Change Research at The University of Manchester found that the UK could produce up to 44% of its [energy](#) by these means without the need to import.

The study, published in *Energy Policy Journal* , highlights the country's potential abundance of [biomass resources](#) that are currently underutilised and totally overlooked by the bioenergy sector. Instead, say the authors, much of the UK bioenergy sector is heading towards increased reliance on [biomass](#) resources that will have to be imported from abroad.

Study author Andrew Welfle said: "The UK has legally binding renewable energy and greenhouse gas reduction targets, and energy from biomass is anticipated to make major contributions to these. The widely discussed barriers for energy from biomass include the competition for land that may otherwise be used to grow food and the narrative that biomass will have to be imported to the UK if we want to use increased levels of bioenergy. But our research has found that the UK could produce large levels of energy from biomass without importing resources or negatively impacting the UK's ability to feed itself."

The research involved analysing the UK's biomass supply chains and investigating how different pathways that the UK could take may influence the potential bioenergy that the country could generate from its

own resources up to 2050.

The pathways the team analysed included a future with economic focus, investigating how the future UK bioenergy sector may look if economic growth was the prime focus; a conservation focus pathway, where the conservation of resources is the key future aim; an energy focus pathway, where the UK pushes towards achieving the maximum practical levels of bioenergy generated from its resources; and a food focus pathway, where the potential future of the country's bioenergy sector is analysed in reflection of the UK working to increase its food security.

"Biomass residue resources from ongoing UK activities, such as agriculture, forestry and industrial processes, were found to represent a continuous and robust resource option for the UK bioenergy sector, potentially contributing up to 6.5% of primary energy demand by 2050," said Mr Welfle. "The potential bioenergy generated from agricultural residues, particularly from straws and slurry resources, being the highlight opportunities for the bioenergy sector due to their high abundance and current underutilisation.

"UK waste resources were also found to represent a potential major opportunity for the bioenergy sector. The research highlights that both household and food/plant waste streams represent particular potential for the sector. Although the design and influence of future strategies and policies on UK waste generation and management are fundamental in determining the extent of opportunities that wastes represents to the UK bioenergy sector.

He added: "Biomass is a flexible energy option, in that it can be used to produce heat, electricity or even be converted to transport fuels, although different types of biomass resource tend to be utilised in specific ways in order to produce the most energy or biomass-based

products with increased value. Our research confirms that the best option for the UK to make the most of its biomass resources would be for selected resources to be used by bio-refineries to produce high value bio-products, with all remaining suitable resources being dedicated for heat generation."

More information: Andrew Welfle, Paul Gilbert, Patricia Thornley, "Securing a bioenergy future without imports," *Energy Policy*, Available online 31 January 2014, ISSN 0301-4215, [dx.doi.org/10.1016/j.enpol.2013.11.079](https://doi.org/10.1016/j.enpol.2013.11.079).

Provided by University of Manchester

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