

UK could be carbon neutral by 2050 says ambitious new report

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Greenhouse gas removal (GGR) could make the UK carbon neutral by 2050, but immediate action is required says a new [joint report](#) by the Royal Academy of Engineering and Royal Society.

This is the first time a range of GGR technologies have been assessed for their real-world potential in being used together to meet [climate goals](#)

in the UK over the next 30 years.

The report's authors, including Professor Adisa Azapagic from The University of Manchester's School of Chemical Engineering & Analytical Science, say GGR technologies have a role to play in counteracting emissions from aviation and agriculture, where the scope to completely reduce emissions is limited.

However, the authors also state that the UK's first priority must be to maintain efforts to rapidly cut greenhouse gas emissions. Bringing the UK to net-zero emissions in 2050 will require annual removal of an estimated 130 megatonnes of CO₂, even with stringent reductions in emissions.

The report also considers the global picture and outlines a scenario in which a portfolio of GGR technologies can be implemented together to achieve [carbon](#) removal across the world by 2100 to meet the goals of the Paris Agreement. Biological solutions like planting trees will become saturated by the end of the century and other GGR technologies will need to be developed and used in the longer term.

The technologies discussed in the report range from well-known and ready to deploy methods, such as forestation, to more speculative technologies like direct air capture, which aims to use chemical processes to remove CO₂ from the atmosphere.

Each technology is assessed on its readiness for deployment in the time scale required, potential for scalability, costs, environmental and social impacts and how much of a 'dent' it can make in removing excess carbon to meet the targets.

Professor Adisa Azapagic, Professor of Sustainable Chemical Engineering, says: "This report presents an extremely ambitious plan, but

if we act now it offers a very real opportunity for the UK to be carbon neutral by 2050.

"However, we must first ensure that there are no unintended consequences from the deployment of these new technologies as their impacts on the environment are not fully known yet.

"Therefore, the priority must be to continue to cut [greenhouse gas emissions](#) at a rapid rate, as well as employ other techniques and methods if we are to achieve international climate goals, and save the planet for future generations."

Provided by University of Manchester

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