

Case Study

Research Theme: Environment

Influencing Bioenergy, Land Use and Net Zero Policy

RESEARCHERS

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THE OVERVIEW

Research undertaken by the Institute of Biological, Environmental & Rural Sciences (IBERS) at Aberystwyth University (AU) has influenced UK Government policy on biomass cropping and land use for achieving net zero targets. AU researchers have contributed, through publications and advisory input, to the UK's Climate Change Committee (CCC) reports on Biomass in a Low Carbon Economy (2018) and Land use: Policies for a Net Zero UK (2020). Both these reports informed the CCC's 6th Carbon Budget (2020).

AU researchers have also continued to contribute to land use policy through their advice to the UK Government and the National Farmers Union (NFU) on biomass availability, and on meeting net zero targets.



THE CHALLENGE

In 2019, the UK Government and the devolved administrations committed to the Net Zero target as recommended by the Climate Change Committee (CCC). Reaching Net Zero requires extensive change across the economy, and expert advice and guidance to lead the way to a reduced exposure to climate risk. A specific goal is to develop sustainable sources of non-food biomass from land and sea.

THE SOLUTION

AU researchers have provided evidence on biomass crops and land use to help the UK Government develop a net zero policy. Examples include crop models, research papers and reviews, with 84 peer reviewed manuscripts on biomass crops in the reference period.

Our researchers were members of two Climate Change Committee (CCC) advisory groups and helped inform UK policy on the role of biomass crops in a low carbon economy, on the practical implementation of net zero involving land use, and its communication.

Our studies have been particularly valuable in providing measurements during the period of crop transition, for providing long term datasets in mature crops, and in the impact of changing biomass crops back to grassland agriculture. This has supported UK policymakers by significantly improving relevant information available on perennial biomass crops.

THE IMPACT

AU researchers have influenced UK Government policymaking on biomass crops, climate change and land use to achieve net zero targets, through:

IMPACT ON UK GOVERNMENT POLICY MAKING AND LEGISLATION

- Expert advisory group for the report on Biomass in a Low Carbon Economy (2018), which recommended the use of greenhouse gas removals and bioenergy with carbon capture and storage (BECCS) to achieve net zero.
- Part of a stakeholder group at a workshop on Steps to Scaling Up UK Sustainable Bioenergy Supply, which informed the CCC Biomass report.
- Publishing three research papers on the implications of land use transitions to perennial biomass crops, cited in the CCC Biomass report.
- Expert advisory group for the CCC report on Land use: Policies for a Net Zero UK (2020), which evaluates the opportunities for farmers and landowners to enable the UK to achieve its net zero target.

- Engaged with UK Government departments on future biomass availability. Contributing to the SuperGen Scoping Report that assessed the current state of knowledge around UK biomass resource availability for the bioenergy sector and Biomass Availability Modelling for the Department of Transport.

IMPACT ON INDUSTRY TAKE UP AND ITS ENGAGEMENT

AU research is also helping to de-risk investment by industry. The Energy Technologies Institute (ETI) have estimated that the costs of the UK energy system would be up to £44 billion higher per year by 2050 without bioenergy. In other words, without negative emission technologies, the cost to energy consumers in the UK is likely to make industry uncompetitive and increase fuel poverty. Our engagement with industry through the NFU, and with other biomass supply chain actors, is helping to create an environment in which agriculture can become net zero by 2040. Farmers and landowners are already reporting progress and making pledges of changes to practice via the NFU website. The net zero commitments of the UK and NFU are in turn referenced within the Agriculture Bill 2019-2021.

AU researchers also support public engagement; for example by joining Radio Wales on the day of the publication of the CCC Net Zero Report to discuss and describe what Net Zero means for farmers and consumers. Another example was publishing an article for *The Conversation* on the challenge and opportunity of Net Zero targets for farming in Wales.

In June 2018, Prof. Donnison was invited by the Department of Business, Energy & Industrial Strategy (BEIS) and the Energy Systems Catapult as a technology expert, to participate in a workshop to discuss the interactive elements of The MacKay Carbon Calculator. This webtool provides a method to create pathways to Net Zero by 2050 and beyond, and raises awareness about what impact issues such as land use, biofuels and greenhouse gas have on climate change.

