

Project Title: 'Optimising the location of bioenergy sources: where should we grow bioenergy crops?'

Principle Investigator: Prof D Robson (University of Cumbria)

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In order for the UK to meet its ambitious targets for energy production from renewable sources (10% of electricity by 2010, 15% by 2020) it needs to expand its capacity to generate all forms of renewable energy and marine energy is a big part of this. These internationally agreed targets are born out of the need to reduce CO₂ emissions, to minimize the impacts of climate change, and to come up with a renewable alternative to dwindling fossil fuel supplies. Generating energy from biomass, which is biological material derived from living or recently living organisms, is a solution which meets both these objectives. The term biomass can apply to both animal and vegetable derived materials but this project is focused on the growth of high yield crops. These crops can then be converted into energy using one of the numerous forms of either thermal or chemical conversion technologies. Biomass is low carbon, the crops take carbon out of the air as they grow, and can be re-grown relatively quickly.

Biomass is a sustainable fuel that can deliver a significant reduction in net carbon emissions when compared with fossil fuels, despite this very little research has been done into its production on a large scale in the UK. In particular there is a need to identify suitable locations to grow bioenergy crops taking into account the visual, ecological and ethical consequences of replacing traditionally grown crops with these. This report focuses on these issues in Cumbria but its findings can be applied across the region.

This project has two main objectives: to gauge the willingness of land-owners to plant bioenergy / biomass crops and to develop a GIS (Geographical Information System) enabled 'land use potential and stakeholder analysis' for bioenergy in Cumbria. GIS is a computer system for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to geographic position. The GIS enabled 'land use potential and stakeholder analysis' will take the form of a pilot study for this project and extended later on. The willingness of land owners to grow bioenergy / biomass crops will be gauged by conducting semi-structured interviews or group meetings with stakeholders and experts, looking at existing research and developing a best practice for biomass crop management in partnership with land owners.

This project will directly benefit the land-owners / users participating in the scheme by enabling them to make an informed decision on whether to take up growing bioenergy crops. In the long term it could help the region capitalize on the expected increased demand for bio-energy crops bringing benefits in terms of increased GVA and additional jobs.