

# Services for RENEWABLE ENERGY

The James Hutton Institute is a respected, globally recognised research organisation. Scientists at the James Hutton Institute follow the inspiration of James Hutton, whose observations on Scotland's rock, soils, agriculture and landscapes forever changed the way we think about the world.

Making an impact through science, James Hutton Limited draws on the scientific expertise, intellectual property, facilities and resources of the James Hutton Institute to offer a comprehensive range of analytical, research and development, crop science and scientific project services.



## ENVIRONMENTAL IMPACT

There is extensive expertise at the James Hutton Institute related to the impacts of renewable energy schemes on the environment, including statistical modelling of the impact on bird populations, both off-shore and on-shore wind turbines, water quality of wind farms and the impact of a range of renewable energy projects on soil quality. We can also model the impacts of growing biofuel crops on the natural environment.

## PROCESSING INDUSTRIES

Food and drink processing companies generate large amounts of waste, much of which has the potential to generate energy. Scientists at the James Hutton Institute have worked with companies in the potato processing, brewing and distilling sectors to analyse their waste streams and advise on potential uses.

## AGRICULTURE

The James Hutton Institute has world-leading expertise in crop genetics, especially in cereals and potatoes. The Institute is utilising this knowledge to develop crops more suitable for biofuel production, for example, through a better understanding of lignin biosynthesis and lignin structure.

James Hutton Limited can arrange trials for crops that are being proposed for biofuel production in new environments (eg rye and maize) and help select the most appropriate varieties for different geographical locations and soil types.

We can also advise on the use of compost and digestate from AD plants on agricultural land and their impact on soil biology, chemistry and physics. This extends to advice on crop nutrition and optimising the use of digestate on crop / soil type combinations.

Our analytical capability can be used to analyse digestate and look for the presence of heavy metals or other toxic compounds.

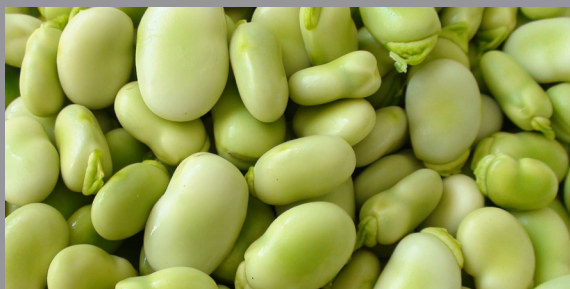
We can also model the financial viability of renewable energy developments and the impacts of growing biofuel crops on agricultural production systems and to investigate the optimum siting and size of AD plants from an organisational perspective.



## COMMUNITIES

As Owen Patterson (Defra Minister) said, “The relationship between renewable energy sources and the communities we expect to host them must be appropriate and sustainable and, above all, acceptable to local people”.

The Social, Economic and Geographical Sciences group at the James Hutton Institute is at the forefront of research to enhance community participation and engagement through facilitated workshops and meetings. The group also has particular expertise in re-energising Scottish communities through local energy generation schemes.



## KEY SPECIALTIES

Qualitative Social Research | Statistical Analysis  
Anaerobic Digestion | Biodiversity Impacts | Landscape  
Visualisation | Waste Stream Analysis | Land Use |  
Biofermentation | Biofuel Crop Genetics