

Second Generation Biofuels - A Greenergy perspective



Summary

Greenergy is a significant producer and supplier of petroleum and biofuels into the UK transport fuels market, supplying over 15% of the UK's overall petrol and diesel market and approximately one third of the biofuels market. The company has extensive worldwide sourcing experience, with manufacturing operations in the UK and a blending facility in Rotterdam from which we supply customers across Europe.

Greenergy is not a developer of second generation biofuel technology but intends to supply second generation biofuels once these become commercially available and assuming they offer genuine environmental and carbon benefit.

In this Perspective, Greenergy presents the following:

- First generation biofuels are generally derived from crop based feedstocks, while second generation biofuels can be derived from a broader range of feedstocks, such as grasses, wood, landfill waste and potentially algae.
- The new technologies for second generation biofuel are being developed, but very few are yet viable in commercial scale production.
- Comparing the benefits of first and second generation biofuels is complex and the advantages and disadvantages of second generation biofuels are not yet fully understood.
- The energy density of feedstocks is important to the practicality of second generation biofuels. Some second generation biofuels which are derived from feedstocks with a low energy density may face logistical issues and land use efficiency questions and these may present as big a barrier to their uptake as the development of the core technology.
- To help determine which second generation feedstocks are most attractive Greenergy uses a 'Product Process Value' formula which considers economic, environmental, carbon and productivity factors.

The arguments for and against first and second generation biofuels can be split into cost, carbon benefit, land use yield and logistics. In general:

Issue	First Generation	Second Generation
Capital cost	Low per tonne	High per tonne
Feedstock cost	High per tonne	Low per tonne
Operating cost	Low per tonne	High per tonne
Carbon benefit per tonne	Variable (poor to excellent)	Variable (poor to excellent)
Carbon benefit per hectare	Variable (poor to excellent)	Good to best
Energy yield	High	Low
Logistics	Low cost and practical	Generally high cost, impractical
Land resources	Possible to implement within existing long term arrangements	Difficult to see how most can be developed without significant land use change