

Feasibility of bioenergy production under a climate change scenario

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Second-generation biofuels such as those based on cellulose based on biomass do not presently appear to be a viable alternative to agriculture: they are low-value products which cost little to produce but much to transport. However, this may change if two expected trends materialize: the rise in sea level, which can endanger conventional agriculture in low-lying areas; and a long-term increase in energy prices, which can make bioenergy commercially attractive.

The production of biomass under wet conditions is capable of producing further benefits which increase its attractiveness: the land can simultaneously be used for water buffering (either to prevent flooding or to store excess winter precipitation for use in dry summers); if grown as perennial crop it can have value as a natural area; and if reed is grown it can help to purify the water stored.

The feasibility of such a system is examined in a spatial dimension, identifying suitable areas in the Netherlands with the help of the Land Use Scanner model. At the time of writing this abstract, results for the country as a whole are not yet known. For one province, there are areas where such production appears feasible under a fairly extreme climate change-cum-energy price scenario. An alternative scenario is also being applied.

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