

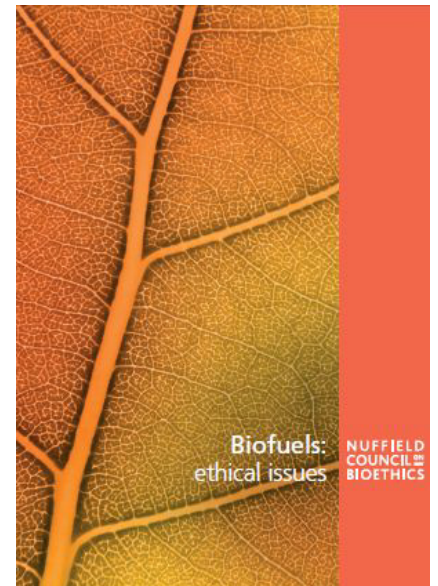
Biofuels: ethical issues



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Background to the report

- 12 person working party
- 10 meetings over 18 months
- 3-month public consultation
- Various kinds of evidence gathering sessions
- Peer review



The problem

- Fossil fuels increasingly unsustainable
- Efforts to reduce consumption are essential, but short and mid term need for liquid transport fuel will remain
- Biofuels are one of the few alternatives for energy for transport





Biofuels

- Currently only a small proportion of world energy use

Drivers

- **Energy security**
- **Economic development**
- **Mitigation of climate change**



Current policies

Many targets and policies encourage uptake of biofuels for transport.

- The European Commission *Renewable Energy Directive* (2009)
- The European *Fuel Quality Directive* (2009)
- The UK *Renewable Transport Fuel Obligation (Amendment) Order* (2009)

Current biofuels

Two main types currently in production:

- **Bioethanol** (to blend with petrol)
- **Biodiesel** (to blend with diesel)

Case studies – examples of ethical concerns:

- Deforestation
- Risks to food security
- Human rights breaches



New technologies for biofuels



Current biofuels

Biofuels used in UK: only 31% met environmental standards in 2009/2010





New technologies

1. Advanced plant breeding
2. Genetic modification
3. Improvement in biotechnology of processing

Advanced plant breeding approaches

- Identification of genetic markers for developing high biomass yield in willow



Genetic modification

- E.g. genetically modified poplar trees





Improving the biotechnology of processing

1. Using the waste parts of food crops
2. Lignocellulosic crops
3. Algal biofuels

New approaches

Lignocellulosic biofuels

- E.g. willow, miscanthus and switchgrass
- Uses all of the plant biomass

Algal biofuels

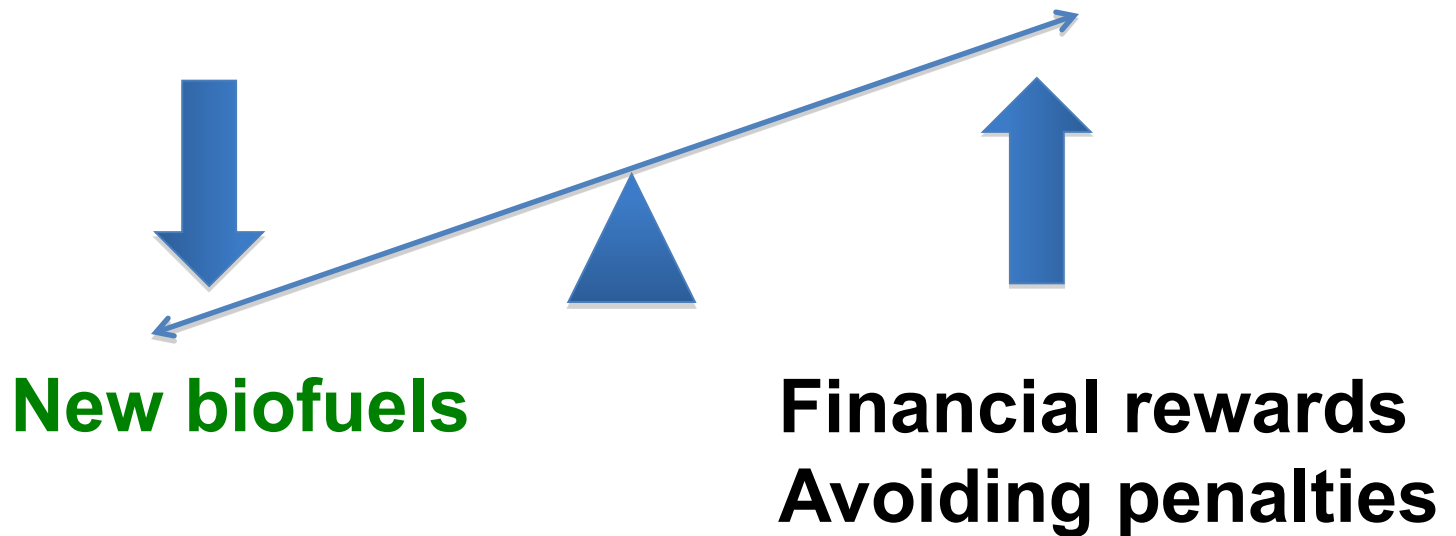


- Mostly at the experimental stage
- Will not compete for agricultural land

The problem with current targets

Lack of incentives

Established biofuels





More incentives needed

- Policy makers should incentivise research and development of new biofuels technologies that:
 - avoid environmental harms
 - avoid social harms
 - need less land and other resources
 - reduce greenhouse gas emissions



The story so far...

Production of current biofuels is largely unsustainable. We need to:

- Improve current production methods
- Continue to develop alternatives for the future

This report offers an ethical framework for policy making to enable more ethical production of biofuels.



Moral values

- Rights and global justice
- Solidarity and the common good
- Stewardship
- Sustainability
- Intergenerational equity



Ethical Principles

1. Biofuels development should not be at the expense of people's essential rights
2. Biofuels should be environmentally sustainable
3. Biofuels should contribute to a net reduction of total greenhouse gas emissions
4. Biofuels should adhere to fair trade principles.
5. Costs and benefits of biofuels should be distributed in an equitable way
6. If the first five principles are respected, depending on certain key considerations, there is a duty to develop such biofuels

1. Human rights

Key recommendations

- Biofuels targets should set out to avoid incentivising human rights abuses.
- The European Commission should set up effective monitoring systems for human rights.
- Compulsory certification of human rights standards for EU



2. Environmental sustainability

Key recommendation

- An international environmental sustainability standard for biofuels production should be developed, for example by the United Nations Environment Programme.



3. Climate change

Key recommendations

- A single international standard for assessing greenhouse gas emissions across the life cycle of biofuels.
- Policies on land use change should be set within a global, co-ordinated response to climate change.



4. Just reward

Key recommendations

- Biofuels targets set by the EU and the UK Government should promote fair trade principles.
- The UK Intellectual Property Office should develop a licence scheme for biofuels.



5. Equitable distribution

Key recommendation

- Biofuels policy and future sustainability initiatives should not discourage local, small-scale biofuel production, particularly in developing countries that are fuel poor.





6: A duty?

If the first five principles are respected, depending on certain key considerations, there is a duty to develop such biofuels.

Key considerations:

- Absolute cost
- Alternative energy technologies
- Other possible uses of biomass
- Areas of uncertainty
- Irreversibility



Applying ethical principles

- Compare broad energy portfolios rather than individual technology options
- Ethical principles are a basis for evaluation
- Policy makers should incentivise research and development of new biofuels technologies that
 - need less land and other resources
 - avoid social and environmental harms
 - reduce greenhouse gas emissions



Bringing it all together

- **Sophisticated target-based strategy**
- **Comprehensive ethical standard**
- **Enforced through a certification scheme**
- **Investment in new biotechnologies**

The standard should include:

- protection of human rights
- protection of the and the environment
- full assessment of greenhouse gas emissions
- fair trade principles
- access and benefit-sharing schemes