

# BioPUSH: Integrated Strategies for Identifying Optimal Bio-Energy Production and Utilisation Systems

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**Involved organisations:**  
Universiteit Utrecht  
Wageningen Universiteit en Research Centrum

**Program term:**  
2002-2006

## **Summary of problem definition:**

Biomass is expected to make a major contribution to an EC strategy aiming at increasing the share of renewable Energy resources (RES) in the EU energy supply from 6% at present, to 12% in 2010. However, to reach this ambitious goals, huge land areas (an estimate of additional 6 million hectares for energy crops) are needed. But the resources of good quality land in Europe are limited and the production of biofuels will compete with food production and demands from the forest industry as well as from carbon sequestration and environmental protection and conservation considerations. Furthermore, an extension of biofuel production and use will only occur when their prices can compete with those of fossil fuels. Lower cost biofuel options are therefore needed in future. In an integrated approach BioPUSH will elaborate important information that can help to develop strategies for a cost effective large scale production of biomass. The outcomes to be expected from BioPUSH approach are:

- The identification of cost effective and optimal biomass production and utilisation systems.
- The quantification of environmental and economic benefits of large scale implementation of bio-energy production and utilisation systems.
- Recommendations for the implementation of bio-energy production and utilisation systems.

While the information of the first item are most relevant for the producer and user of biomass the information from the 2nd and 3rd item can be of high relevance to policy questions. It is expected that, on the basis of the project results, recommendations can be developed for policy strategies to enhance the implementation of bio-energy systems.

## **Subprojects:**

- Modelling of multi-product and cascading bio-energy systems, costs, energy yield and CO<sub>2</sub> emissions, V. Dornburg
- Economic analysis of multi-product bio-energy systems for land use in North Western and Eastern Europe, competition with conventional agricultural production, land use changes, A. Ignaciuk
- Generating potentially successful network and process strategies for innovation and implementation in multi-product systems via interactive policy-analytical methods, S. Negro
- Multifunctional land use and integration of technical, economic and institutional aspects, I. Lewandowski

## **Results:**

- Dornburg, V. (2004), Multi-functional biomass systems. PhD thesis. Department of Science, Technology and Society / Copernicus Institute, Utrecht University.
- Ignaciuk, A. (2006), Economics of multifunctional biomass systems. PhD thesis. SENSE / Wageningen University.
- Negro, S. (2007), Dynamics of Technological Innovation Systems – The case of biomass energy. PhD thesis. Copernicus Institute, Utrecht University.
- See the NWO-website for a full list of publications, [www.nwo.nl/energieonderzoek](http://www.nwo.nl/energieonderzoek)