

Biomass as a sustainable energy source: environmental load, cost-effectiveness and public acceptance

Coordinator:

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Involved organisations:

Technische Universiteit Eindhoven

Program term:

2001-2007

Summary of problem definition:

Biomass forms a heterogeneous category of fuels. Various types of biomass such as green organic waste (in Dutch: GFT), manure, wood and energy crops differ in many aspects, such as availability, cost, suitability for gasification and acceptance in society. This research program has focused mainly on the last two aspects.

Questions to be answered are:

- How efficiently can biomass be converted into electricity, and what are the differences between various types of biofuels?
- How does this relate to the use of fossil fuels such as coal?
- How do electricity consumers and people living in the vicinity of power stations perceive the use of biomass for generating electricity?
- What are their preferences for specific forms of biomass?
- What are their attitudes and preferences based upon?
- To which extent are judgements and preferences dependent on the context?

Subprojects:

- Design of a biomass gasifier in view of technical, environmental and psychological parameters, M.J. Prins.
- Public acceptance of biomass as a sustainable energy source: consequences for development and implementation, W. van den Hoogen.

Results:

- Hoogen, van den W. M. (2007). From “bio-what?” to “bio-watt!”: Contextual influences on the formation of attitudes towards novel energy technologies. PhD thesis. Technische Universiteit Eindhoven.
- Prins, M. J. (2005). Thermodynamic analysis of biomass gasification and torrefaction. PhD thesis. Technische Universiteit Eindhoven.
- Hübner, G., Meijnders, A.L., Prins, M.J., Midden, C.J.H. & Pohl, J. (in preparation). Public perception of biomass input types – biomass in the eyes of consumers and neighbours. Biomass and Bioenergy.
- See the NWO-website for a full list of publications, www.nwo.nl/energieonderzoek