

Press release

nova-Institut GmbH (www.nova-institute.eu)
Hürth, 10 March 2014



Material use - a better option?

A research project analyses the potential environmental and economic effects of increased material use of biomass.

What is the best use of biomass outside of the food and animal feed sectors? Bioenergy and biofuels are often a controversial subject, so is the industrial material use of biomass for detergents, bioplastics or construction materials a better option? For the very first time, a research project has made a comprehensive study of the environmental and economic potential of the industrial material use of biomass. The positive findings have moved the authors to demand a level playing field for material and energy use and, first and foremost, to advocate that cascading use (“first materials, then energy”) become the centrepiece of a long-term strategy for efficient and sustainable biomass use.

The research project “Environmental Innovation Policy – Greater resource efficiency and climate protection through the sustainable material use of biomass” was carried out on behalf of the German Federal Environment Agency (UBA) with funding from the Federal Ministry for the Environment (BMU). The project was coordinated by nova-Institut GmbH (Hürth) in cooperation with the Institute for Energy and Environmental Research (IFEU), FiFO Institute for Public Economics at the University of Cologne (FiFO) and the Öko-Institute e.V. and was carried out from 2010 to 2013.

What would be the environmental and economic effects of increased material use of biomass?

The project findings give a comprehensive overview of the state of industrial material use of biomass in Germany, Europe and worldwide. Bio-based products often have both environmental advantages and disadvantages, and as such show many similarities to the use of biomass for energy. Assessments of selected lines of biomass use for materials come to the conclusion that the environmental advantage of these uses over conventional fossil fuel-based materials are at least equal to the benefits of switching from fossil fuels to biomass for energy, but the employment gains and value added creation from material uses are five to ten times higher than for bioenergy for the same amount of biomass. This is largely due to the long and complex value chains.

Cascading uses whereby biomass is initially used for material purposes and then for energy production at the end of its life offer much higher environmental benefits than any once-only use.

Yet there are many barriers to the development of the industrial material use of biomass, including legal regulations, tax policy and competitiveness. The competition with the use of biomass for energy is seriously exacerbated by a substantial and one-sided support system that favours bioenergy.

The research project developed and recommends a number of practical instruments to overcome the barriers to material use of biomass, which were discussed and prioritized by a broad group of actors from industry, associations, organizations and the world of politics. The authors' main suggestion is to reform the EU's Renewable Energy Directive (RED) in order to reduce market distortions for biomass and open up the Directive to industrial material use.

The concluding scenarios show that greater material use of renewable resources in Germany would have considerable environmental and economic potential. The scenarios are based purely on land used for energy so far being replaced by a variety of material uses. These scenarios foresee the continuing use of existing infrastructure, for instance by increasingly using rape oil in oleochemistry when the production of biodiesel decreases.

A level playing field for material and energy uses of biomass and the expansion of cascading use would represent significant steps towards a sustainable bioeconomy.

It is clear from the findings that the broad portfolio of suggested measures for developing the material use of biomass is not addressed to the Ministry for the Environment alone, but requires urgent cooperation and agreement with other government departments. The range of suggested instruments would have to be examined and prioritized regarding their suitability and practical feasibility from an overall environmental policy perspective.

The complete final version of the research report, along with all the additional texts and annexes (including a poster about material use) are available for download at www.bio-based.eu/policy

The research report can also be borrowed from the Federal Environment Agency library with the project number FKZ 371093 109 and can be downloaded at <http://www.umweltbundesamt.de/publikationen/oekologische-innovationspolitik-mehr-0>

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