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FRAUNHOFER INSTITUTE FOR MATERIAL FLOW AND LOGISTICS IML

BIOMASS LOGISTICS

ECOEFFICIENT SUPPLY CHAINS

Against the background of the climate protection targets of the Federal Republic of Germany the energetic utilization of biomass today is an important corner pillar for the generation of renewable energies. A first-rate importance among the renewable energies has biomass, since being capable to serve for base load and the material products can be used to supply mobile energy consumers.
The main challenge of the use of biomass is the high logistic effort for the collection and distri-bution of the raw material. Biomass is occurring at many different places in often only low quantities. The plants for energetic recycling are also widely spread. Here the efficient planning and organization of the logistic structures and systems are the base for a future competitiveness of new or adapted systems.

The challenge: Provision of biomass

When the utilization of biomass – especially that from the cultivation of energy plants – should increasingly contribute to energy supply in the future, then the processes for the supply have to meet industrial standards, too. This is the only way – despite the demanding logistics – to compete with other sources of energy.

On the way to an ecological and economic biomass logistics the following important courses have to be set:

- Besides the economic provision of biomass or biofuels the sustainability of the logistic processes and logistic networks has to be ensured.
- The interest of all protagonists along the supply chain have to be in accord with each other, i.e. from the producer (e.g. farmer, road management enterprises) over various service providers (e.g. conditioning, logistics) up to the recycling plant (heating plant or heat-and-power station).
- Market barriers have to be overcome, e.g. between many small farmers or private forest owners on the one side, and a big recycler on the other side, or between the seasonal and often small quantities and the need of big quantities over a long period of time.

Fraunhofer IML as neutral partner supports the establishment of the required networks of protagonists and helps all being involved to making biomass available and recycling it optimized according to ecological and economic criteria.

Our services

The investigations made by Fraunhofer IML are covering most different bioenergy systems:

- from classic, domestic heat generation (minimum customers) up to big customers for the generation of heat, power and fuels
- from solid up to fluid types of biomass from farming and forestry, conservation and care of the countryside and recycling management
- from regional supply concepts up to international goods flows

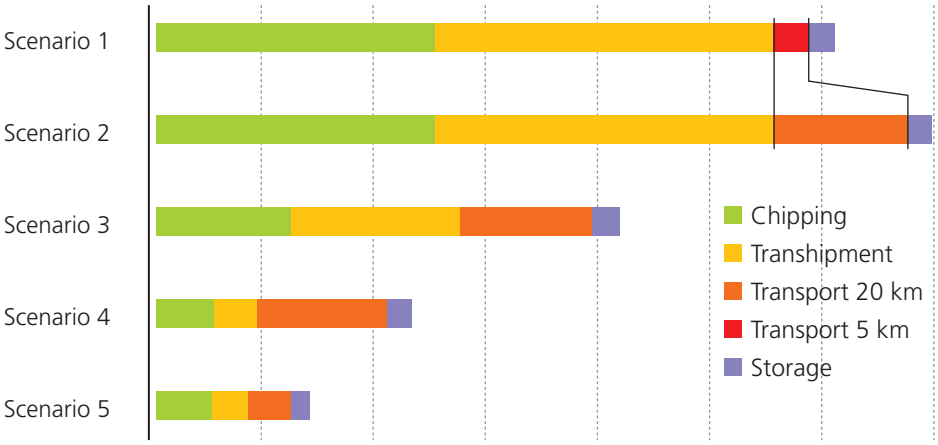
You receive assistance in the analysis of existing logistic structures, individual logistic scenario planning and their assessment from the economic and ecological point of view (e.g. by means of a carbon footprint analysis or a life cycle assessment). Furthermore, Fraunhofer IML assists you in the following detailed and implementation planning.

With its competence in logistics and methods Fraunhofer IML is the ideal partner for the solution of these tasks:

- Location planning of new energy and processing plants as well as of storage and transhipment locations
- Assignment planning of places of origin and recycling of the fuels
- Designing efficient installation and process organization
- Design of logistic processes for the material and information flows
- Ecological assessment and economic studies

Your benefit

- Efficient control of the complex logistic processes for biomass (collection and distribution)
- Economic collection and provision
- Combination of different kinds of biomass and sources in one provision plant
- Creation of logistic structures allowing a supply according to industrial standards
- Balancing of the different interests of a supply chain (e.g. minimum producers vs. big customers)
- Scientific evidence of the efficiency and sustainability of a biomass provision system



Process chain analysis for biomass logistics:
Both the organizational and the technical design of providing biomass have a considerable influence on its costs and sustainability.

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