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Research area: General aims

Environmental technology / waste and residues

Key words:

Paper value chain, rejects, biorefineries, business model, BioEconomy

TITLE:

Leuna Business – Business models for recovered paper-based coupled production by reference to the BioEconomy top-level cluster

Background/Problem area

The paper industry yet again clearly committed itself to sustainable development in formulating the Roadmap 2050. The strikingly obvious target is to reduce CO₂ emissions by 80%. The prerequisite for this goal is a significant increase in added value. According to expectations, the production facilities of the future will have a much higher degree of integration, even in other industrial sectors. One of three pillars of industry will be recovered paper-based biorefinery complexes that produce not only the paper that is being produced nowadays but additional high-quality (by-)products such as biofuels, chemicals or insulating materials from residual materials.

Recovered paper manufacturing plants and their residual materials are the focus only a limited number of research projects. This contrasts, however, with a considerable potential of 4.6mn t/a residues (184 kg/t of produced paper) alone in German pulp and paper production in the year 2010. Most of these residues are thermally used. An alternative approach for utilising residues is embodied in a concept developed within the scope of a project for alternative recovered paper utilisation. This concept involves the coupled production of recovered paper-based packaging paper and a platform chemical with high value-added potential.

The "Spitzencluster Bioeconomy" connects the industrial and scientific sectors that are relevant for the bio-economy in the area of Central Germany. Key competence of the cluster is the development, scaling and application of innovative technical processes, especially the sustainable use of bio-based, renewable non-food raw materials, such as wood.

Objectives/Research results

The objective of the project is to identify and evaluate the opportunities of material integration into a future, biobased resources industry using the "Spitzencluster BioEconomy" in Leuna as an example. The project is to identify and evaluate potentials for the paper industry arising from current and planned development work of the "Cluster BioEconomy". Possible business models for different product paths based on recovered paper are to be derived in the project. Papermaking is to be qualitatively enhanced by utilising the most suitable economic fractions while at the same time recovering all fractions. By this means, the added value from the raw material recovered paper is to be maximized.

At the conclusion of the project, recommendations will be made for integrating the paper industry into the BioEconomy Cluster within the scope of projects and corporate partnerships. Furthermore, other players from the paper value chain who appear suitable for such integration will be named.

Application/Economic benefits

The project has strategic character and is directed to the acquisition of new themes and potential project partners. A R&D strategy will be developed for biorefinery projects between the paper industry and cluster members. The activities of the cluster members will be analysed in extensive interviews. By their own admission, the "BioEconomy Cluster" links the industrial sectors relevant to the BioEconomy such as the chemical industry, the pulp and paper industry, land and agriculture, energy management as well as mechanical engineering and plant manufacturing in Central Germany, thus establishing for the first time a comprehensive inter-sector innovation and value added chain. The lead vision is a global, practical realisation of the BioEconomy on the regional scale of Central Germany. Technologies and regional concepts relevant to the future utilisation of the paper industry will be developed within the cluster.

Period of time: 01.01.2013 – 30.09.2013

Remarks

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