



The research leading to these results has received funding from the European Community's Seventh Framework Programme under grant agreement n° 604187.

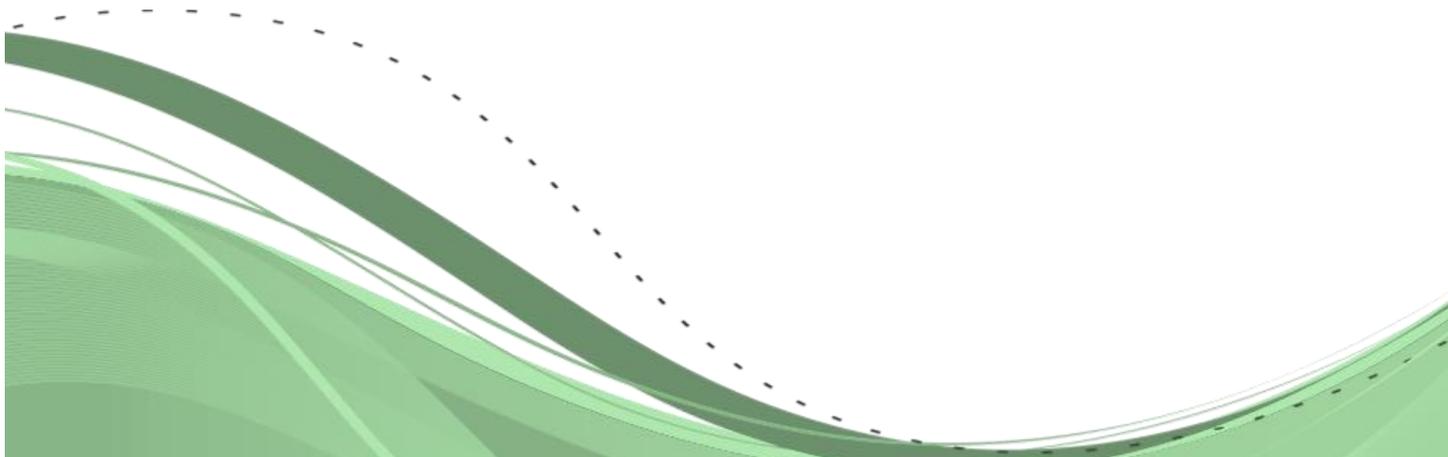
REFFIBRE: Maximising the value from paper for recycling

REFFIBRE meeting at Utzenstorf, Switzerland

Within the REFFIBRE project work is being carried out by the partners for the development of tools and knowledge that are necessary for the ecodesign of resource-efficient paper and board production. The starting points for this effort are the utilisation of paper for recycling as the raw material of choice, complemented by current waste fractions from the production process, as well as the redevelopment of the paper mill into the source of a greater number of novel biobased products next to the traditional paper and board (multiple output mill concept). The newly developed tools will be validated in practice by means of real-life demonstrations of the proposed new processes in cooperation with the REFFIBRE industrial partners.



Figure 1. Illustration of the paper mill redevelopment as envisaged by the REFFIBRE project



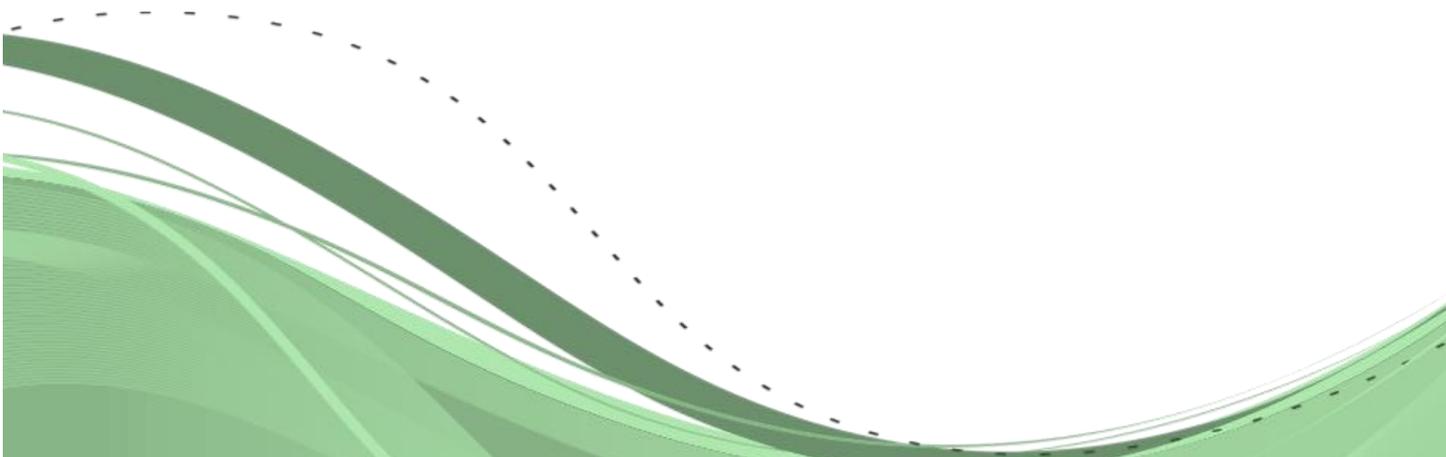
On April 15 and 16, 2015 the project partners convened once again to discuss the progress made so far and to make decisions regarding the next steps. The meeting was hosted by the industrial partner Utzenstorf Papier in Switzerland and offered all participants the opportunity to gain a first-hand impression of the operations at the paper mill, which combines in one site the the sorting and deinking of paper for recycling, the processing of wood, the production of 200,000 tonnes per year of newsprint and paper for advertising material, as well as energy generation with the utilisation of process sidestreams.



Figure 2. Snapshot from the mill tour at Utzenstorf Papier; Dennis Voss is guiding the group through the production process of the company

Modelling

One of the main challenges that need to be addressed during the project is the identification of indicators that are suitable for determining resource efficiency in the paper industry, while also taking into account



the recycling loop and the questions it poses (e.g. allocation of burdens between different life cycles etc.). To this end, potential resource efficiency indicators have already been initially defined, together with the unit processes that fall within the scope of the calculations and the environmental and economic parameters that will support impact calculations. The further development of resource efficiency, environmental impact and economic indicators that will be applicable in strategic, tactical and operational levels is still ongoing and is currently approaching its completion.

Modelling is also steadily progressing with regard to the determination of the future development of mean fibre age in paper for recycling and the future development of the minerals content in this raw material. Data provided by CEPI have been combined to this end with information regarding trends in the demand for various paper products, the use of fillers in paper and board and the composition of different paper and board grades.

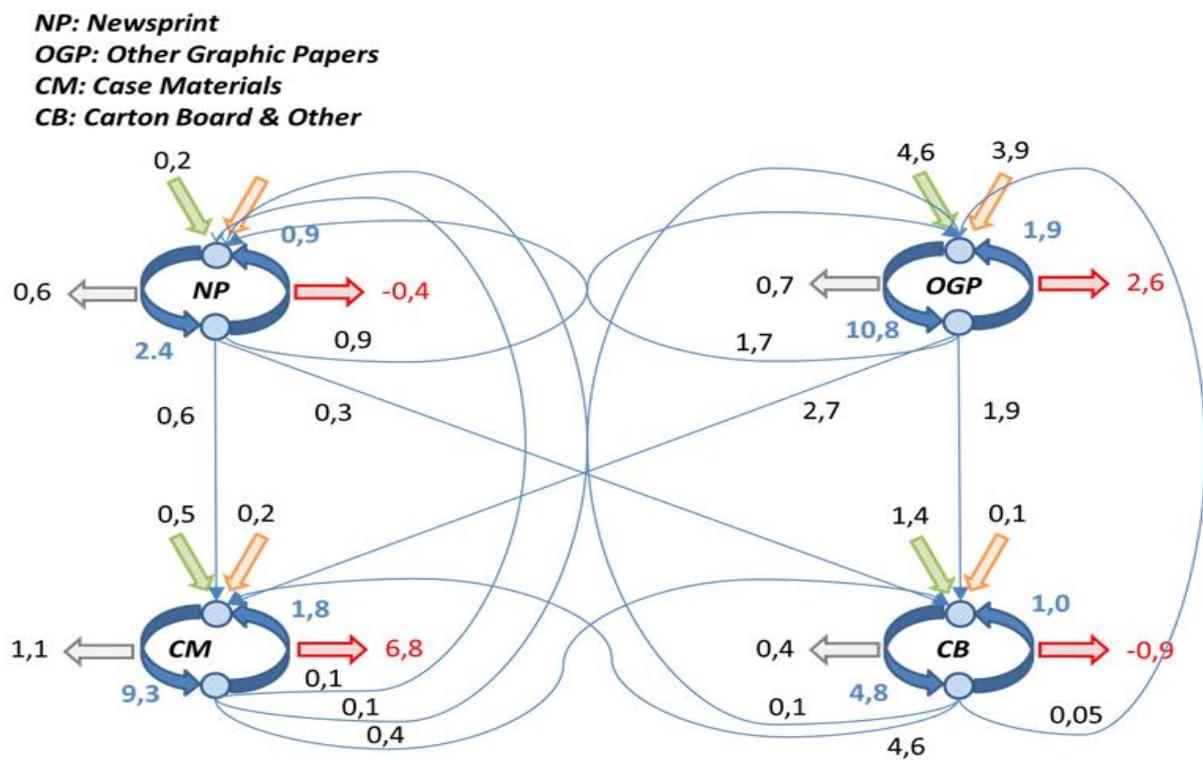
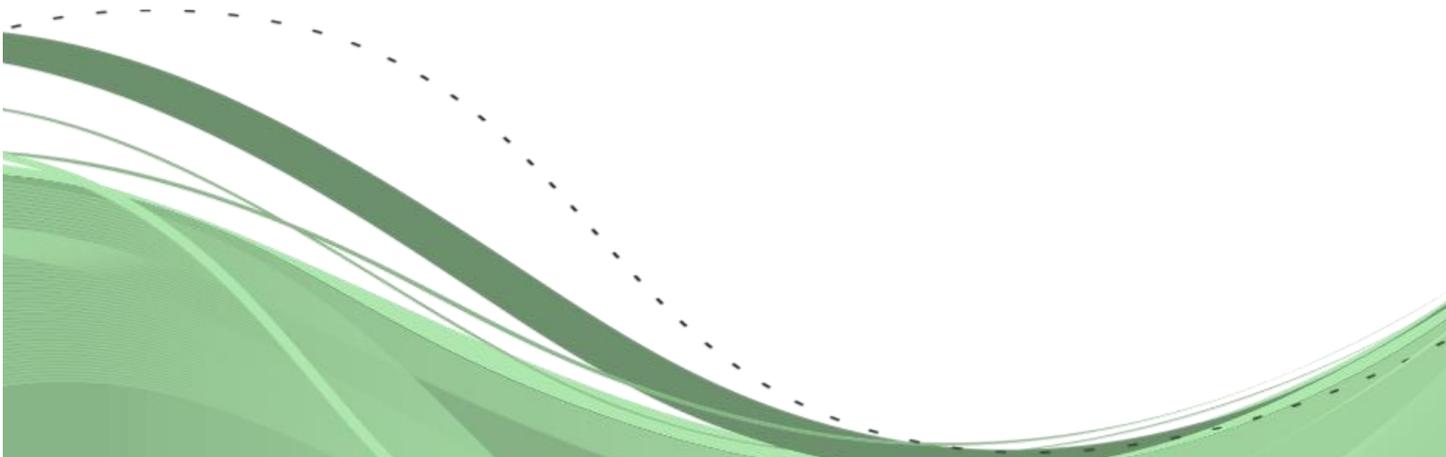


Figure 3. Example of the model's output used for fibre age development estimation in 5 different regions throughout Europe



Progress is, finally, also being made on the field of process modelling. A combination of on-site sampling, laboratory testing and calculations is being utilised for the analysis of the current state, as well as for model development with regard to processes such as fine screening, flotation and dispersion at participating industrial partners.

Demonstrations

Demonstrations on a pilot scale with the participation of the REFFIBRE industrial partners will need to be carried out in order to test and validate the models that are currently under development. The effort to identify novel biobased products that could be produced out of current sidestreams of the paper and board production process has reached the shortlist phase, where out of a larger number of potential routes those that combine proximity to realisation and promised economic potential have been placed under closer scrutiny. This step will lead to the determination of the combinations of specific sidestreams with specific products that will be demonstrated during the second half of the project. Furthermore, early laboratory-scale tests with pyrolysis technology and the production of Wood Plastic Composites have been already producing valuable results to be taken into account for the determination of the most promising demonstration cases per industrial partner.

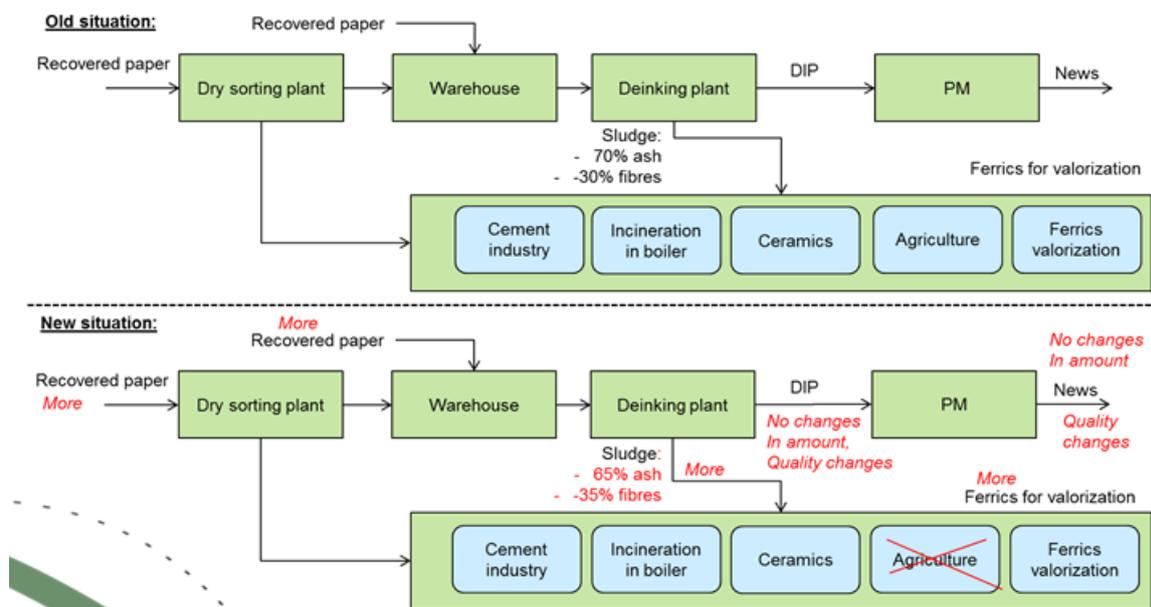


Figure 4. Example of a potential test case and accompanying changes to production

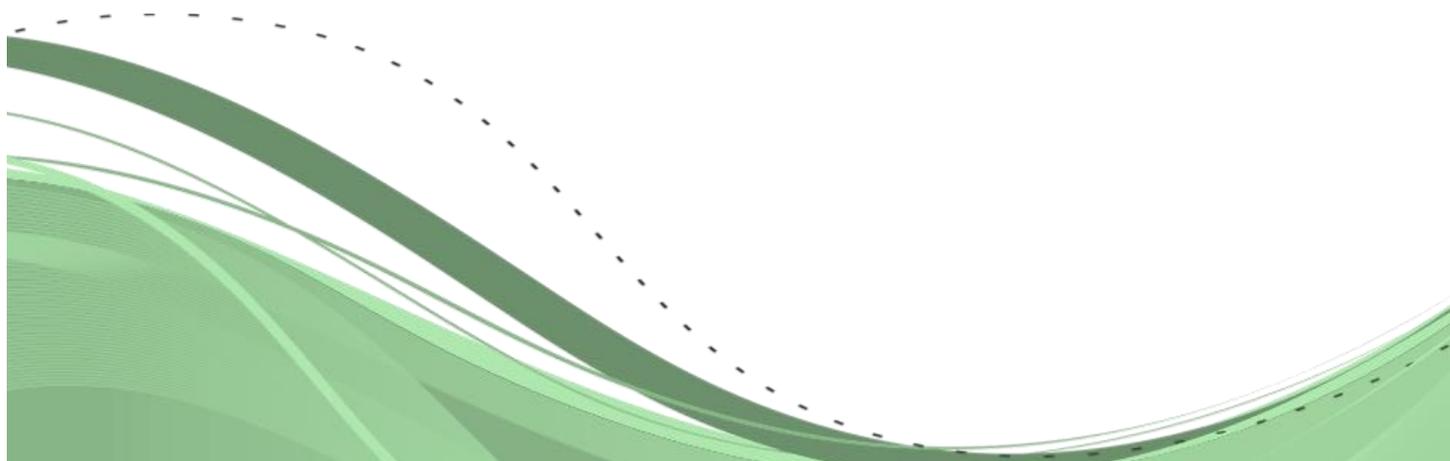




Figure 5. The REFFIBRE group before dinner at the Emmentaler showdairy (Emmentaler Schaukäserei)

Follow the developments in REFFIBRE

The results of both the modelling work and the pilot tests will be published later on on the REFFIBRE webpage (www.reffibre.eu).

Do not miss the opportunity to attend the 1st REFFIBRE workshop

On October 6, 2015 the first REFFIBRE public workshop will take place in Valencia, Spain with Itene being our host. The workshop aims to demonstrate the progress made with a focus on the development of resource efficiency, environmental impact and economic indicators, but at the same time also other interesting findings of the project will be presented. Stay up-to-date regarding the agenda by checking the REFFIBRE webpage.

