

## Ensuring a Sustainable Tissue Mill

In January 2012 the Confederation of European Paper Industries (CEPI) published the 2050 Forest Fibre Industry (FFI) Roadmap to a low-carbon bio-economy.

### Pirkko Petäjä - Pöyry Management Consulting

Forest Fibre Industry (FFI) consists of 200,000 pulp, paper, board and wood products companies with altogether 1.9 million employees, contributing EUR 75 billion revenue to the EU economy. FFI also includes the European tissue industry.

What is the CEPI 2050 Roadmap? CEPI 2050 Roadmap is a map towards a competitive low-carbon economy in 2050. The Roadmap targets are set against 1990 levels and it aims at reducing total EU industrial CO<sub>2</sub> (Carbon dioxide) emissions of 80% by 2050. CEPI believes 60% is achievable based on investment patterns and available emerging technologies, but for FFI to achieve a reduction of 80%, breakthrough technologies will need to be introduced and implemented by 2030. The industry needs to move from the BAT (Best Available Technologies) to emerging technologies. This means finding currently unexplored technologies and techniques from outside the EU.

CEPI's vision is 'If we can develop a system based on biological resources, supplied and renewed by nature, the planet can sustain our society'. To reach this, CEPI aims to transform the sector with technological advancements – those required to make up the 20% shortfall.

In the tissue industry, technology to drive the Roadmap targets translates into a reduction of energy demand in production, i.e., focusing on drying and reduction of paper/package weights and new packaging materials. In regards to recovered fibre, it means better sorting of materials, reduction of co-mingled collection where possible and also keeping the recovered fibre in Europe. In energy supply it means focusing on CHP boilers using biomass.

The carbon footprint is 'A measure of the total greenhouse gas 'GHG' emissions caused directly and indirectly by a person, organization, event or product'. Carbon Footprint considers all six of the Kyoto Protocol GHGs, CO<sub>2</sub> being the most important of them. At present it is difficult to benchmark manufacturers against each other regarding product level Carbon Footprint. Some tools exist but no global standards are available.

For measuring the carbon footprint of a product the whole production chain should be covered:

- Forest product manufacturing facilities;
- Fibre production;
- Producing other raw materials, packaging materials and fuels;
- Purchased electricity, steam & heat;
- Input and output transport-related GHG emissions.

### GREEN MILL INDEX™ – A TOOL FOR MEASURING SUSTAINABILITY, INCLUDING CARBON FOOTPRINT.

Carbon footprint is, however, only part of the sustainability and green image of a mill. The need for addressing overall sustainability has created a demand for measuring mill performance on a wider scale. Looking at mill performance only from a single aspect - like water or energy consumption or the carbon footprint - is not sufficient. Pöyry has been working on a way to comprehensively measure the sustainability of a mill site - starting from raw material transports, covering the production process and going all the way to transport of the final product. The result is the Green Mill Index™, which can be used for measuring the sustainability of mills in a comprehensive manner. This naturally includes also tissue mills.

Pöyry's assessment is based on 8 main indicators consisting of more than 50 sub-indicators. The indicators studied include: emissions to water, air and earth as well as raw material demand and effect of location, energy efficiency

and effluent output. The outcome is an index for the product's total lifecycle. In the index, the carbon footprint is assessed for the whole production chain regarding both the direct and indirect impacts.

Although the Pöyry Green Mill Index™ may not introduce the new breakthrough technologies needed to fully reach the 2050 Roadmap targets, it ensures that the products follow the Roadmap principles.

As an example, the index can also be used for:

- Environmental due diligence.
- As a management tool for the benchmarking of operations.
- Improving mill's sustainability performance.
- Assessment of new investments.
- External communication purposes.

Pöyry's Green Mill Index™ reflects both the tissue industry's overall sustainability in comparison to other paper and board grades and also benchmarks the mill with other tissue mills. With the help of the index, the status of a mill can be analysed and the performance gaps identified.

The data from a mill is entered into the tool and compared to the reference data from an integrated database. The value of zero equals the lowest score and ten is the highest for the index and all its 8 indicators.

Tissue is typically a sustainable product by design with low water usage and effluent loads. Transport distances are typically short compared to many other paper grades, and packaging material reductions are a typical trend. As far as CO<sub>2</sub> emissions are concerned, efforts are made to reduce energy consumption.

In energy generation, gas-based CHP has been popular, but to reach future challenging targets new technologies to replace fossil fuels, especially natural gas, are called for. •