The European Paper Industry’s Views and Action Plan on Climate Change
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1. The European paper industry, a key economic actor

The European paper industry contributes to Europe’s wealth by being part of a significant economic cluster. It provides society with essential goods for health, culture, communication etc. which have a high added value and provide employment to thousands of people. The industry has grown at a remarkable rate of some 3% p.a. over the last decades and its production is expected to continue to grow at some 2% p.a.
2. The European paper industry’s climate change profile

The European paper industry, unlike most other industries, has a special profile thanks to its unique assets:

- Paper is based on a renewable raw material: wood;
- Paper is recyclable: on average some 50% of paper is made from recovered fibres;
- Paper contains carbon: 1 tonne of paper contains the equivalent of 1.4 tonne of carbon dioxide;
- Paper is produced with on average more than 50% of renewable energies;
- Paper is part of an integrated cycle: once consumed and collected separately, most paper products start a new life either as recovered fibres, or as biofuel if collected with waste.

The European paper industry is energy-efficient

- The industry’s specific primary energy consumption decreased by 10% between 1990 and 2002;
- Specific carbon dioxide emissions from fossil fuels decreased by 25% (1990/2002), mainly thanks to increased energy efficiency (e.g. CHP) and increased use of biofuels;
- The industry is the largest user and producer of renewable energy sources: on average over 50% of the industry’s energy comes from renewable fuels, which are carbon dioxide neutral;
- The industry has invested heavily in combined heat and power (CHP), a technology that allows some 30-35% energy saving compared to conventional technology. Some 90% of electricity produced on pulp and paper mill sites is produced through CHP technology.

The main source of greenhouse gas emissions related to pulp and paper production is the combustion of fossil fuels. These emissions are however partly offset through recycling (e.g. avoidance of emissions from landfilling and energy savings when substituting mechanical pulp production), incineration of residues and by-products with heat recovery (substitution of fossil fuels and avoidance of landfilling) and the storage of carbon in paper products.

As a whole – that is including emissions from the combustion of fossil fuels on site, from purchased electricity (indirect emissions) and landfilling and offsetting impact of recycling, incineration operations and the sequestration of carbon in products – the industry emitted around 52.5 million tonnes of CO2 in 2001.

The impact of transport operations of finished goods is a complex issue that is being studied.

Direct and indirect emissions from pulp and paper manufacturing

Direct emissions
Incl. Recycling, landfilling, incineration and storage in products

Indirect emissions

Index of specific primary energy consumption, electricity consumption and direct carbon dioxide emissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Total production (kt)</th>
<th>Specific primary energy consumption (TJ/kt)</th>
<th>Specific electricity consumption (GWh/kt)</th>
<th>Specific CO2 emissions (t CO2/kt)</th>
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<td>71,362</td>
<td>12.93</td>
<td>0.92</td>
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<td>2002</td>
<td>101,843</td>
<td>11.83</td>
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</table>

The graph shows the index of specific primary energy consumption, electricity consumption and direct carbon dioxide emissions from 1990 to 2002.
Competitiveness

Some characteristics of the European paper industry’s competitiveness situation:
• In a context of rapid globalisation and opening of markets, the industry is subject to harsh international competition;
• Compared to its competitors, the European paper industry has to face higher wood costs, higher energy costs, higher labour costs and higher taxes.
• Paper is a commodity the price of which is set in the global market place so that increases in production costs can generally not be passed on to customers, depending on market conditions (contrary to energy suppliers).

Several measures/facts will affect the competitiveness of EU mills compared to mills situated in "non-Kyoto" areas:
• The EU industry is likely to be required to meet a higher level of commitment than some of its key competitors as their government is adopting more flexible measures;
• EU and national energy and climate-related measures, particularly the emissions trading directive, will especially hit energy-intensive industries. On the one hand they will face increased production costs to reduce their emissions and/or buy allowances on the market and/or pay taxes. On the other hand they will will be confronted with higher energy prices as emissions trading will lead to an increase in the marginal cost of producing energy. This indirect impact is in fact likely to be very substantial and be significantly detrimental to the industry’s competitiveness.

The increase in energy prices has already materialised on the markets and will come on top of already developing increases in the cost of energy, and this amongst others due to the artificial direct and indirect support to renewable energy sources (because wood and recovered paper are increasingly used as fuels).

A study researched by J. Pöyry (2002) shows that in the future, EU-based mills will have a competitive disadvantage compared to mills in the so-called "non-Kyoto countries", with the likely following trends and implications:
• Changes in the exports/imports flows;
• Stand-still of European investments for enlarging and renovating the existing capacity, even for new capacity;
• Progressive impact on the production level and therefore on the EU’s wealth, growth and employment;
• Loss of competitive advantage compared to non-renewable products.

Renewable Energy Sources: an opportunity and a threat

The European paper industry is the single largest user and producer of renewable energy sources (RES) (17% of European RES). In this respect, it is in a position to significantly contribute to the EU’s target on RES, especially as it already has the needed infrastructure.

However, both of the industry’s raw materials – virgin and recovered fibres used in a balanced way on the basis of technical, economic and environmental considerations – are under pressure due to EU and national policies to promote renewable energy sources. As a matter of fact, wood and recovered paper are easily accessible RES sources, which is likely to lead to a significant increase in the demand for them as raw materials and will create unfair competition on these markets due to artificial subsidies granted to promote RES.

When considering options for the use of raw materials and their by-products, a broad context needs to be considered, taking account of the following:
• The production of goods with virgin or recovered material is a dynamic process through which a single fibre can be used and recycled a number of times (however it cannot be recycled indefinitely – hence the true complementarity between virgin and recovered fibres).
• Paper products are used instead of fossil or non-renewable-based products;
• Residues and used paper products can be incinerated with heat recovery, thereby avoiding landfilling (in the case of recovered paper) and substituting fossil fuels, but this is a static and definite process: once burned, the material is lost;
• Paper contains carbon. It is preferable to use wood and recovered paper to produce paper and then burn (with energy recovery) the used paper that can no longer be recycled, rather than burn wood and recovered paper directly (see graphs). The (renewable) energy generated is equivalent, but in addition, carbon is stored out of the atmosphere for a longer period and at the same time, products (based on renewable raw materials) meet essential societal needs.
Value added

Bioenergy

Forestry & procurement of by-products → Energy production

Pulp and Paper Industry, an example in printing and publishing

Forestry → Pulping → Papermaking → Printing & publishing → Retail/mailing → Consumption

Recycling → Energy production

Composting → Landfill

Burning one tonne of dry wood creates €118 value added. Using one tonne of dry wood as a raw material for printing and writing papers creates €1,670 value added.

Employment

Bioenergy

Forestry & procurement of by-products → Energy production

Pulp and Paper Industry, an example in printing and publishing

Forestry → Pulping → Papermaking → Printing & publishing → Retail/mailing → Consumption

Recycling → Energy production

Composting → Landfill

Burning one tonne of dry wood creates two man-hours of work. Using one tonne of dry wood as a raw material for printing and writing papers creates 201 man-hours of work.
Forest sinks and forest product sinks

Forest Product Sinks

The production of pulp and paper is part of a carbon cycle (see figure below): paper products are made from virgin fibres coming from sustainably managed forests or recovered fibres. It is therefore part of a product value chain.

A portion of the carbon that trees remove from the atmosphere remains fixed in wood and paper products throughout their useful lives. Wood and paper products are part of a sustainable production and consumption cycle.

The harvesting and manufacturing of forest products essentially transfers carbon from one carbon pool – the forests – to another carbon pool – the product pool. A significant amount of this carbon remains sequestered in products for at least 100 years, in effect permanently removing carbon from the atmosphere.

Product sequestration is an important component of the industry’s carbon balance. Depending on the product involved, the fraction of carbon sequestered in wood and paper products can be as high as 25% of the carbon in the original material.

The recognition of wood-based products as carbon sinks should be integrated at an early stage when defining technical measures to meet the EU’s commitment. In doing so, the EU would recognise the product value chain and would encourage the use of wood-based products to reduce global warming, in place of products made of non-renewable raw material. This would in turn be an encouragement to the sustainable management of European forests.

Forest Sinks

CEPI recognises the role of forests in the conditions set by the Kyoto Protocol in contributing to the global efforts to reduce the effects of global warming. The European paper industry welcomes encouragement of sustainable afforestation and reforestation (Article 3.3. of the Kyoto Protocol). These should be favoured as, in addition to the sinks effect and considering the carbon-cycle approach, they might increase the availability of raw material for the production of carbon-sequestering products as well as the amount of biomass available for the production of renewable energy.

Technical measures enhancing carbon sequestration through forest management activities (Article 3.4. of the Kyoto Protocol), especially if supported by market-distorting instruments (subsidies, fiscal measures, etc.), could lead to an inverse effect and should therefore be considered cautiously. While probably resulting in a short-term positive effect in carbon fixation, it would threaten the availability of wood for products and energy. This would have an adverse effect on the industry’s ability to produce climate-neutral wood-based products to keep up with global market demand.
Policy measures

The European paper industry is continuously working to improve its energy efficiency and reduce its specific carbon dioxide emissions. However, the industry is concerned by the impact of some of the policy measures adopted and urges authorities to ensure a fair balance of policies and measures both at national and EU level, and to take account of the following:

- **The emissions trading directive** has the potential to foster emissions reduction in a cost-effective way. However, the direct and indirect cost impact for energy-intensive industries has been neglected with very undesirable effects on the competitiveness of these industries. This should be taken into account at national and EU levels when allocating allowances, linking with other policies and measures, and the future review of the directive.

- **Energy taxation** is not a cost-effective means to reduce emissions and has a detrimental impact on the competitiveness of energy-intensive industries. Companies covered by the emissions trading scheme should automatically be exempt of the energy taxation scheme.

- **Combined heat and power (CHP)**: The European paper industry has invested heavily in combined heat and power technologies, as it is one of the few industries that uses both the heat and the electricity produced. CEPI believes that the value of CHP investments for the whole Community calls for a strong support of CHP installations. The carbon value of CHP should therefore be recognised in national allocation plans (under emissions trading) and in the CHP directive.

- **The support to renewable energy sources** should not distort competition on the wood and recovered paper markets, thereby jeopardising the competitiveness of sectors based on renewable resources, which would favour those based on non-renewable resources.

- **Increase in the available forest biomass** in order to secure wood availability while fulfilling commitments in the field of renewable energy sources and the Kyoto Protocol through CO₂ sequestration.

- **Economic growth**: The EU’s commitment under the Lisbon process to make the EU the most competitive area in the world based on a balanced approach to the three pillars of sustainable development, should be respected. In the climate change context, this means that the potential growth of industry in Europe should not be jeopardised as it may imply a change in export/import flows without leading to any improvement of the global climate change impact.
4. Action plan:
European approaches to the climate change challenge

The European paper industry is committed to contribute further to the reduction of greenhouse gas emissions. Many of the 913 companies in the industry, as one or as a sector, have adopted and continue to adopt measures to improve their impact on the environment and reduce their greenhouse gas emissions.

However, as the European paper industry has already achieved significant reductions in greenhouse gas emissions per tonne of product, further greenhouse gas emissions reductions are likely to be more expensive, as some measures can only be taken once (switch to low carbon fuels), are not economical under the present conditions (combined heat and power) or technologically costly.

The European paper industry promotes a continuous improvement of its climate change impact. One of the first steps in this respect is to collect and report on greenhouse gas emissions from the production process. This will ensure transparency and consistency in the collection of emissions and a better management of reduction efforts. The industry also wishes to commit and significantly contribute to the EU’s target on renewable energy sources.

For various reasons, some industrial sectors will decrease their production in the coming years, whilst others will be fortunate to continue to grow. Europe’s future requires a fair balance between production decreases, environmental protection and growth. The paper industry is willing to take its responsibility and strive to reduce its carbon dioxide impact but urges authorities not to penalise growing industries taking into account the necessary balance between the three pillars of sustainability. Several measures have already been taken, which among others have a positive impact on the industry’s carbon balance. In 2000, the European paper industry took a commitment to increase its recycling rate to 56% by 2005, which in volume terms represents a significant increase (compared to some 50% in 2000). The industry has also studied – under the EU SAVE programme – the potential for further development of the use of CHP, which it actively promotes as one of the main means of improving energy-efficiency. The industry is also progressively managing its residues so as to reduce their landfilling and increase their use for energy recovery.
In addition, the European paper industry is taking the following voluntary steps:

The European paper industry aims to promote and monitor the consistent, accurate and transparent collection of greenhouse gas emissions data worldwide. The International Council of Forest and Paper Associations (ICFPA) developed an international methodology for estimating greenhouse gas emissions from pulp and paper mills. The calculation tools address the industry’s specific attributes and ensure that assumptions and calculations used are transparent, accurate, comparable worldwide and easily understood. They are based on existing protocols developed by the World Resource Institute (WRI) and the Intergovernmental Panel on Climate Change (IPCC). They have been endorsed by WRI and are available on the WBCSD’s dedicated website to their GHG protocol www.ghgprotocol.org and on CEPI’s website www.cepi.org.

The European paper industry aims to report regularly in a transparent and accurate way on CO2 (carbon dioxide) emissions from pulp and paper mills in CEPI countries as from 2005. As from 2004, CEPI will collect CO2 emissions data from European pulp and paper mills through its national associations to ensure a sound reporting of emissions and provide additional knowledge on CO2 emissions in Europe. The inventory addresses core pulp and papermaking operations and indirect emissions. The User’s Manual and associated worksheet, based on the International Calculation Tools will also facilitate mills’ compliance with the emissions trading reporting obligations.

The European paper industry aims to increase the share of biomass from 49% to 56% on average in its on-site total primary energy consumption by 2010.

To further contribute to the renewable energy sources targets put forward by the Community while maintaining the sustainability of the forest eco-cycle, the paper industry proposes the following:

• Increase awareness and value of the life and carbon cycle of wood and paper products, thereby giving recognition to the use of CO2-neutral wood in production and its recyclability while better fulfilling ratified international commitments (e.g. climate change).
• Procurement conditions that secure the availability of major raw materials (such as wood and recovered paper).
• Production residues and by-products (e.g. bark, black liquor, bio-sludges etc.) not suitable for use as raw material are to be considered as renewable energy sources.
• A level playing field enabling fair competition in the use of renewable energy sources should be established.
The European pulp and paper industry in some figures:

- It is composed of 900 companies and 1,300 mills
- It has a turnover of €74 billion
- It employs some 275,000 people directly and the forest-based industries cluster employs some 4 million people
- It produces some 93 million tonnes of paper and 40 million tonnes of pulp
- Some 56% of the paper and board consumed is recovered
- It exports 12.5 million tonnes of its products
- It represents 28% of world production