



## ***Energy and the Forest Products Industry: Towards Higher Energy Efficiency and CO<sub>2</sub> Emission Reductions***

### ***Concept Note and Preliminary Agendas***

Intergovernmental organizations and the private sector have joined forces to address the forest products industry and energy nexus. In two complementary international meetings, they plan to address challenges for the competitiveness of forest products and processing industry resulting from global energy developments and trends and possible responses, in particular the increase of energy and material efficiency.

A first technical workshop on 9 October 2006 in Paris will focus in particular on the technology systems leading to energy efficiency and CO<sub>2</sub> emission reduction in the pulp and paper industry. It is planned to invite selected experts specialized in the technologies to be discussed. The results of this workshop will serve as input for the international seminar on energy and the forest products industry which will be held in Rome on 30-31 October 2006. This seminar is intended for decision makers in the public and private sectors.

### **BACKGROUND**

The forest products industry is a major consumer of energy. Worldwide, the final energy use of the pulp & paper industry amounted to 6 ExaJoules in 2003 (6% of total industrial energy use). The pulp & paper industry also produces energy as by-products, as well as other by-products that can be used for energy generation. It already generates approximately 50% of its own energy needs. A significant share of its energy use is renewable CO<sub>2</sub>-neutral biomass.

Energy costs, energy supply and climate change are amongst the core issues impacting on the future of the forest products industry. They will have impacts on the manufacturing costs, as well as on the allocation of investments around the globe. The increasing focus on biomass as an energy source may on the one hand lead to competition on the raw material markets for existing industries, but on the other hand open new markets to other parts of the forest cluster. Bio-markets of different sectors and industries will be interlinked. The expected increasing demand for bio-energy will have an impact on the environment. Climate change mitigation policy will add extra force to all these developments. Renewable energy policies are likely to affect the demand for forest products compared to other competing non-wood products. Finally, the already rapid globalization of raw material production and trade for the forest product industry completes a picture of interlinked developments and challenges ahead.

The forest products industry has the potential to play a leading role in these developments, optimizing the use of raw material, increasing energy efficiency, saving energy costs, producing bio-energy itself

and expanding its business into bio-refinery products. In the long term, the industry could even develop into a clean energy supplier if residues are used efficiently. Besides emerging technologies, completely new process designs and processing techniques could bring considerable and long-term energy efficiency improvements in paper production.

Energy and forest policies around the globe set the stage for these developments and need to be well integrated and carefully balanced. Here, governments, industry, institutions and society at large each have a role to play.

With two meetings it is intended to cast more light on the issue and highlight option for governments and the forest products industry:

- **A technical workshop on energy efficiency and CO<sub>2</sub> emission reductions in the pulp and paper industry, Paris, 9 October;**  
**and**
- **International seminar on energy and the forest products industry, Rome, 30-31 October.**

A summary report of the technical workshop will be presented at the international seminar which will also highlight economic and technological aspects.

The meetings will end with a wrap-up roundtable discussion, during which it is planned to develop some common views on the issues discussed and further action to be proposed.

The results of both meetings will be fed by the various partner organizations and associations into national, regional and international processes, e.g. into the G8 dialogue, and presented at the COP 12 of the UNFCCC in November 2006.

**The meetings aim to find answers to the following questions:**

What is the current energy use and CO<sub>2</sub> emissions in the pulp & paper sector?

What has been the development of energy efficiency in the pulp & paper sector over the past three decades?

What options can play a key role for emissions reduction in pulp & paper?

How can energy indicators for pulp & paper be used in setting policy for energy efficiency?

Is the data necessary for developing these indicators available?

Which emerging technologies provide the greatest opportunity to improve energy efficiency?

Role of integrated energy systems, alternative fuels and processes?

What are the barriers to making these technologies commercial?

How can they be overcome?

What is the technological potential to reduce energy use and CO<sub>2</sub> emissions?

Is there a need for more R&D? If so, where should it be focused?

On what should the G8 countries and the IEA focus in order to further enhance energy efficiency and reduce CO<sub>2</sub> emissions?



## ***Energy Efficiency and CO<sub>2</sub> Emission Reductions in the Pulp and Paper Industry: Focus on Technology Systems***

***A Technical Workshop in the Framework of the G8 Dialogue on Climate Change, Clean Energy and Sustainable Development-***

*In collaboration with WBCSD*



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9, rue de la Fédération, 75015 Paris  
Métro Bir-Hakeim (Line 6), RER C – Champ de Mars – Tour Eiffel  
<http://www.iea.org/textbase/about/map.asp>***

**Paris, 9 October 2006**

### **Objective**

The technical workshop aims at better quantifying the global potential for energy efficiency and CO<sub>2</sub> reduction in the pulp and paper sector and at discussing various approaches to overcome the barriers to improvements.

It will focus on the following areas:

- 1) Current energy efficiency in the sector
- 2) Energy indicators for pulp and paper industry
- 3) Technologies for enhanced energy efficiency and CO<sub>2</sub> reduction

### **Participants**

Pulp and paper technology and energy experts from industry, academia, governments and international governmental organizations and participants of the IEA Industrial Energy-Related Technology Systems (IETS) Implementing Agreement.

**9:00**    **Opening and the G8 programme**

**9:15**    **Key messages on Sustainable Forest Products Industry, Carbon and Climate**

**9:30**    **Pulp & paper industry and energy indicators in the G8 industry task**

**10:00 Status and global trends**

*Chair: Bob Dixon, Head, Energy Technology Policy Division, IEA*

- Energy efficiency developments in the North and South American Pulp & Paper industry;
- Energy efficiency developments in the European Pulp & Paper industry;
- Energy efficiency developments in the Asian Pulp & Paper industry;
- Benchmarking energy use and GHG emissions.

**11:15 Coffee break**

**11:45 Technologies to improve energy efficiency and reduce CO<sub>2</sub> emissions**

- Improvement potential in chemical pulping: Black liquid gasification;
- Improvement potential in mechanical pulping Advanced paper making technologies and technologies to reduce CO<sub>2</sub> emissions;
- Energy conversion: Increasing the use of CHP systems.

**13:00 Lunch break**

**14:30 Integrated Energy Systems, alternative fuels, feedstocks and processes**

- Energy efficiency in pulp and paper making in Japan: the benchmark for the world?
- Status of Bio-refinery development in the US and Europe;
- Programs to improve energy efficiency in Sweden's P & P industry KAM and FRAM;
- Energy transition in the paper chain.

**16:00 Coffee break**

**16:30 Roundtable: Recommendations for G8 activities**

Discussion will focus on:

- R&D needs;
- Achieving efficiency and CO<sub>2</sub> reduction;
- Benchmarking and other approaches;
- ETS & IPCC;
- Energy Indicators;
- Extending best practices to developing countries;
- Coordination of international activities in this field.

**18:00 Closing remarks**



*In collaboration with*



## ***International Seminar on Energy and the Forest Products Industry***

**Rome, 30 – 31 October 2006**

### **Objectives**

The seminar aims to:

- assess the energy challenges facing the forest product industry globally in an integrated way;
- examine the impact of new energy policies and future energy scenarios on the competitiveness of forest products;
- focus on the potential of bio-energy and bio-refinery and the potential for further energy and material-efficiency within the sector;
- discuss the possible response and contribution of forest products industry to changing energy scenarios;
- formulate a vision on the role of governments and institutions to develop requirements for well integrated and carefully balanced policies at global, regional and national levels.

### **Participants**

Decision makers and experts from forest products industry, energy industry and service sector, government officers, members of international governmental and non-governmental organizations.

### **The meeting**

The meeting will be subdivided in three thematic blocks addressing issues related to energy policies and trends, wood as energy source, and energy efficiency issues.

The seminar will benefit from the technical workshop on energy efficiency organized by IEA on 9 October 2006 in Paris. Under each block, the subject matter will be briefly presented by invited experts, followed by panel discussions and /or roundtables. The issues will be discussed in plenary. Proceedings will be published.

## **Thematic blocks**

### **1. Energy policies and trends**

Setting the scene regarding the overall energy scenarios and trends, highlighting the importance of renewable energy policies, impacts of subsidies, and trends for energy costs:

- Overall review of global energy scenarios (including renewable energy);
- New energy policies- How they affect forest industries;
- Roundtable discussion with all speakers, including questions from the audience.

### **2. Role of wood as energy source**

The increased utilisation of woody biomass as renewable energy source will likely create competition between fuels and forest products. This session will present and discuss key related topics such as:

- Overall review of global bioenergy scenarios;
- Economic and environmental implications of woodfuel production and competition with other uses;
- Forest products policies, prices, subsidies, incentives and implications for future wood energy scenarios;
- The sector's response to the challenges ahead;
- Roundtable discussion with all speakers with questions from the audience.

### **3. Energy and material efficiency in the forest products industry**

The response of the forest products industry as a producer and consumer of energy to the changing energy scenarios will be discussed, including the roles of cogeneration and other technological options, investment decisions, positioning of forest products industry in the international dialogue, interchange with energy sector and governments. Issues to be discussed will be:

- Overview of energy efficiency technologies;
- Economics and energy saving potential in pulp & paper industry;
- Forest industries in the light of the Kyoto Protocol: Potential for CO<sub>2</sub> emission reduction in industry;
- Benchmarking energy use and GHG emissions;
- Energy production including cogeneration by industry;
- Bio-refinery as part of the solution;
- Roundtable discussion with questions from audience.

**Monday, 30 October**

**08h00 Registration**

**Theme 1: Energy Policies and Trends**

**09:00 Opening and the G 8 – Programme**

**09:15 Overall review of global energy scenarios including renewable energy**

**09:45 Coffee break**

**10:15 Overview of existing and emerging energy policies: how they affect forest industries**

**11:15 Energy policies as a global investment factor**

**11:45 Round-table discussion with questions from the audience**

**12:30 Lunch**

**Theme 2: Role of Wood as Energy Source**

**14:00 Overall review of global bioenergy scenarios**

**14.30 Sustainable forest products industry, carbon and climate**

**14:40 Forest products policies, prices, subsidies and incentives, and implications for future wood energy scenarios**

**15:10 Coffee break**

**15:30 Lessons learnt from tropical regions**

**15:50 Economic and environmental implications of woodfuel production and competition with other uses**

**16:40 Round-table discussion with questions from the audience**

**19:30 Dinner**

**Tuesday, 31 October**

**Theme 3: Energy & Material Efficiency in the FP industry**

**08:30 Overview of worldwide energy efficiency today: Summary report of the IEA/IETS workshop on technologies to improve energy efficiency and reduce CO<sub>2</sub> emission**

**09:00 Economics of energy saving potential in the global pulp and paper industry**

**09:20 Material efficiency**

**09:40 Energy efficiency developments initiatives in the pulp and paper industry**

**10:00 Transition to a low-carbon economy**

- 10:30 Coffee break.**
- 10:50 Benchmarking energy use and GHG emissions**
- 11:10 Energy production incl. cogeneration by industries**
- 11:40 Round-table discussion with questions from the audience**
- 12:30 Lunch.**
- 14:00 A company perspective on energy efficiency and emission reduction**
- 14:20 Round-table discussion of forest industries**

**Topics:**

- R&D needs;
- Achieving efficiency and CO2 reduction;
- Benchmarking and other approaches;
- Indicators;
- ETS;
- How to include developing countries

- 16:00 Coffee break**
- 16:15 Wrap-up discussion**
- 16:45 Closing remarks**

AF&PA	American Forest and Paper Association
CEPI	Confederation of European Paper Industries
COGEN Europe	European Association for the Promotion of Cogeneration
EFFE	Evaluating Financial Instruments in Forestry in Europe
EFI	European Forest Institute
ETS	European Trading System
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FPAC	Forest Products Association of Canada
FRAM	Future Resource Adapted pulp Mill
ICFPA	International Council of Forest and Paper Associations
IEA	International Energy Agency
IIASA	International Institute for Applied System Analysis
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
JPA	Japan Paper Association
KAM	Ecocyclic Pulp Mill (closed cycle pulp mill)
TAPPI	Technical Association for the Pulp & Paper Industry
UBC	University of British Columbia
UNECE	United Nations Economic Commission for Europe
USDoE	United States Department of Energy
USFS	United States Forest Service
WBCSD	World Business Council for Sustainable Development