



# ***Tracking Industrial Energy Efficiency and CO<sub>2</sub> Emissions: The Way Forward***

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

*In collaboration with the World Business Council for Sustainable Development*



**1-2 October 2007**

*IEA Headquarters*

*9 Rue de la Fédération, 75015 Paris*

*Métro Bir-Hakeim (Line 6), RER C - Champ de Mars – Tour Eiffel*

At their 2005 Gleneagles Summit the G8 leaders asked the IEA to provide advice on a clean, clever and competitive energy future, including a transformation of how we use energy in the industrial sector. The recent IEA publication, *Tracking Industrial Energy Efficiency and CO<sub>2</sub> Emissions* was prepared in response to that request. The report uses the best publicly available statistics combined with innovative methodologies to examine trends in worldwide industrial energy efficiency and estimate the additional technical savings potential.

The findings of this analysis show how industrial energy efficiency has improved dramatically over the last 25 years. Yet important opportunities for additional gains remain. The report calculates that technical energy savings potentials of 25 to 37 EJ per year are available based on proven technologies and best practices. This is equivalent to 600 to 900 Mt of oil equivalent per year or one to one and a half times Japan's current energy consumption. Improved energy efficiency contributes positively to energy security and environmental protection and helps to achieve a more sustainable economic development. The industrial CO<sub>2</sub> emissions reduction potential amounts to 1.9 to 3.2 Gt per year, about 7 to 12% of today's global CO<sub>2</sub> emissions.

This study is a first attempt to provide a reliable and meaningful set of global indicators of energy efficiency and CO<sub>2</sub> emissions in the manufacturing industrial sector. It has drawn on a comprehensive analysis of the available data, numerous workshops with experts from key industries and an extensive review process. One important conclusion from this process is that more work is needed to improve the quality of data and refine the analysis. Key sectors requiring further work include iron and steel, chemicals and petrochemicals, and pulp and paper.

Improving and extending the analysis will require sensitivity and confidentiality issues to be overcome to allow a more detailed, complete, timely, reliable, and open database to be developed. Policy makers, industry, analysts and others are calling for more reliable estimates of energy savings and CO<sub>2</sub> emission reductions potentials. This can only be achieved if accurate and complete energy use and efficiency data are available.

Modelling and scenario development plays an important role in the industry analysis, especially in the second part of the IEA's programme of work. As a first response to the G8 request, the

IEA has developed new scenarios that analyse impacts of technology related policies in the period to 2050. These scenarios were presented in *Energy Technology Perspectives: Scenarios & Strategies to 2050* (IEA, 2006a). It concluded that substantial global energy efficiency potentials remain based on current technology and different operational techniques. The next edition of *Energy Technology Perspectives* in 2008 will contain a special chapter with industry scenario analysis that cover the potential of existing and emerging technologies.

The two main objectives of this workshop are: 1) to review the recent IEA work on industrial energy efficiency and CO<sub>2</sub> emissions and 2) to discuss our industry scenario analysis for ETP 2008. The workshop also strives to learn more about other related activities by industry and others, agree what further work is useful and practical and discuss the next steps to achieve a better analysis of both our industry indicators work and our industry scenario analysis.

### **Questions to be addressed:**

What further work on industrial energy efficiency and CO<sub>2</sub> emissions is necessary?

What methodologies should be used?

Are there additional indicators that need to be developed in each sector?

What data is needed to support these analyses?

How can data confidentiality issues be overcome?

How can the IEA co-operate with industry and others on these issues?

What are each sector's baselines (i.e., the time profiles of component technology efficiencies and production shares coming from routine technical improvements and capital stock turnover)?

How do they translate into energy use and CO<sub>2</sub> emissions per tonne of product?

How much can emerging and breakthrough technologies contribute to efficiency and emissions reduction gains?

What are the technical/cost barriers to their cost competitiveness and widespread implementation?

What are the R&D needs to overcome these barriers? What are the non-technical/cost barriers?

What is the likely timeframe for implementation? What are the limits to these technologies' share of production?

What are the limits to recycling in the various sectors? What are the limits to clinker substitutes in the cement sector?

How would implementation of the emerging and breakthrough technologies (within the stated limits and capital stock turnover cycles) translate into energy use and CO<sub>2</sub> emissions per tonne of product?

What are the best ways to portray these scenarios simply, but meaningfully?

## **Monday 1 October**

**9:00 Registration**

**9:20 Welcome address**

*Nobuo Tanaka, Executive Director, IEA*

**9:30 Key Message from Japanese G8 Chair**

*Jun Arima, Japan*

**9:40 Key Message from World Business Council for Sustainable Development (WBCSD)**

*Stefanie Held, WBCSD*

**9:50 Tracking Industrial Energy Efficiency and CO2 emissions**

*Dolf Gielen, IEA*

**10:10 Workshop Goals**

*Peter Taylor, IEA*

**10:30 Coffee break**

**11:00 *Session 1: Feedback from Industry***

*Chair: Adam Kirkman, WBCSD*

Iron and Steel Sector

*Ikuo Jitsuhara, International Iron and Steel Institute (IISI)*

Petrochemicals Sector

*Giuseppe Astarita, International Council of Chemical Associations (ICCA)*

Pulp and Paper Sector

*Marco Mensink, International Council of Forest Products Association (ICFPA)*

**13:00 Lunch**

**15:00 *Session 2: Scenario Analysis for Industry***

*Chair: Dolf Gielen, IEA*

Industry Scenarios: ETP 2008

*John Newman, IEA*

Cement Sector

*Bruno Vanderborght, Cement Sustainability Initiative (CSI)*

Aluminum Sector

*Ken Martchek, International Aluminium Institute (IAI)*

Ammonia Sector

*Rune Ingels, International Fertilizer Association (IFA)*

## **Tuesday 2 October**

### **9:00 Session 3: Break out Sessions**

**Iron and Steel – IEA**

**Petrochemicals & Ammonia– IEA**

**Cement –WBCSD**

**Pulp & Paper – WBCSD**

**Aluminium –IEA**

Topics to be discussed during break out session include:

Scenario analysis

Potential for new technologies and cost of deployment

Data issues

Recommendations for deepening indicators analysis

### **10:30 Coffee break**

*Continuation of break out sessions*

### **12:30 Lunch break**

### **14:00 Session 4: Next Steps**

*Chair: George Weyerhauser, WBCSD*

Each group will have 10 minutes to present the conclusions from the break out session.

### **15:15 Coffee break**

### ***Roundtable***

*Chair: Neil Hirst, Direct of Energy Technology and R&D, IEA*

### **15:45 Recommendations for G8 and other activities:**

- RD&D needs and framework for cooperation (Cross industry and sector)
- Technology/environment standards (related to energy efficiency)
- Voluntary agreements and benchmarking
- Energy efficiency indicators
- Towards an international dialogue: which platform?
- Involvement of producers from developing countries

**APP, WBCSD and G8 are invited to give a short summary to start off the roundtable**

### **17:15 Closing remarks**

*Stefanie Held, WBCSD and Neil Hirst, IEA*