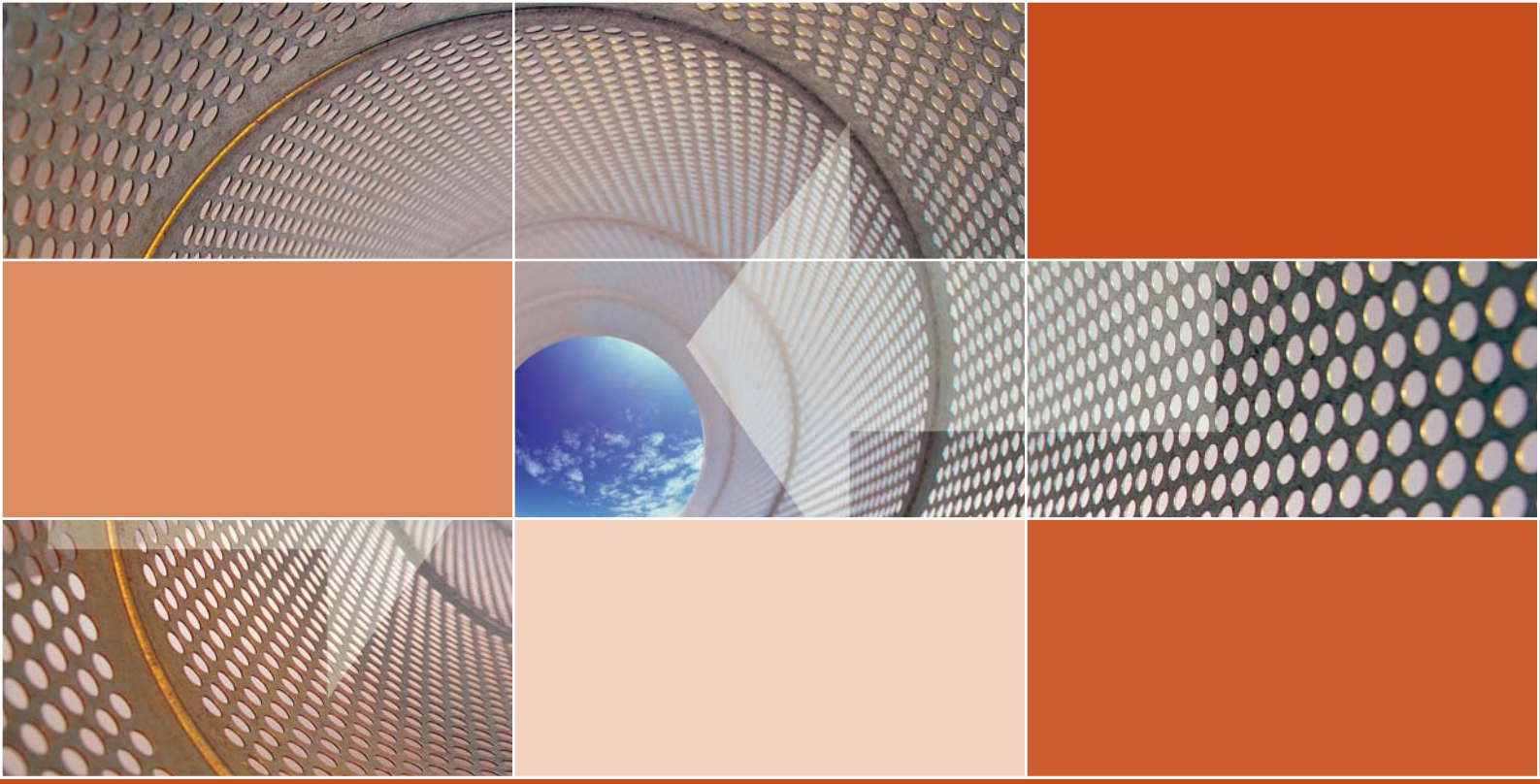


Business Action for Energy | BAE

BAE News

Countdown to CSD 15

February 2007

A joint initiative for UNCSD 14 and 15 by the:

International Chamber of Commerce (ICC) *www.iccwbo.org*
World Business Council for Sustainable Development (WBCSD) *www.wbcsd.org*
World Energy Council (WEC) *www.worldenergy.org*

Welcome to the February edition of "BAE News – Countdown to CSD-15"

The January edition provided an overview of Business Action for Energy, highlighted the business and industry priorities for action for CSD-15 and offered a brief hydropower synopsis.

This edition expands on the business and industry priorities, namely energy efficiency. Business supports energy efficiency because it helps reduce costs, consumption and negative environmental impacts, in particular climate change. Energy efficiency also contributes to energy security by reducing energy demand and possible supply chain losses, while extending resource life.

This edition also provides a brief overview of coal and highlights the aluminium industry's contribution to sustainable development. Future editions will address energy options (nuclear, oil and gas), energy issues (technology transfer and public private partnerships), and the contributions of BAE participants to sustainable development. They will also address key business policy recommendations and BAE plans for participation in CSD-15.

1. Energy Efficiency

Energy efficiency is fundamental to developing a sustainable energy future. As global demand for energy increases, action to increase the energy efficiency of all economies is vital to enhancing the decoupling of economic growth from its environmental and social impact.

In developed countries, although energy intensity has improved, much more can still be done. In developing countries, the right investments today would bring energy savings over the next several decades. Energy efficiency also plays an important role in improving the affordability of modern energy services to people in developing countries and thus supports access goals.

The 20th century saw the dominance of a limited range of energy sources, with a focus on carbon-based fuels and nuclear power. However, this century's energy needs will require a further diversification of energy sources, a more efficient use of these resources to produce energy, and a focus on demand-side management. Despite the growing importance of wind power, solar power, biofuels and other renewable energy sources, traditional fuels such as oil, gas and coal are, for the foreseeable future, expected to remain the dominant energy sources for developed and developing countries alike.

Energy efficiency can play a major role in reducing the environmental impacts associated with climate change and local air pollution. Energy efficiency, however, is not a silver bullet solution. It must be combined with an increased diversification of energy sources and technological advancements in order to make a significant impact on increasing demand for the services energy provides and environmental protection. In addition, efforts to improve energy efficiency will also create substantial numbers of jobs and improve economic efficiency.

A number of measures, both horizontal and sector specific, could greatly impact our drive towards improved energy efficiency. These include:

- Advanced technology development – The development and global implementation of new, cost-effective energy technologies in all sectors is the most effective way to improve energy efficiency and reduce greenhouse gas emissions.
- Technology transfer – The rules under the Kyoto Protocol that encourage clean development are one way to foster technology transfer.
- Fiscal instruments – Fiscal measures can be effective in stimulating consumers to shift to more energy-efficient products and services. For example, several European

countries have dramatically reduced taxation on energy efficient products for the renovation of buildings.

- Building codes and standards – Strong national building codes can be an effective tool to ensure that the buildings of today are built to minimize energy use.
- The right framework conditions – Many companies are using entrepreneurial innovation to adapt their business models and develop strategic approaches to reducing carbon emissions. Yet business can only go so far on its own. Many technology projects require government policies on issues such as R&D, risk management and large demonstration projects. Governments therefore need to establish policies that point to a future in which energy efficiency and low-carbon energy will be valuable to companies and to society.
- Voluntary commitments – Voluntary agreements or initiatives can offer a fast and flexible approach to improving energy efficiency. For example, in Japan the Keidanren Voluntary Action Plan has been instrumental in helping industries develop their own plans, and in South Africa members of the National Business Initiative signed an Energy Efficiency Accord with the Department of Minerals and Energy.
- Consumer information – The US Energy Star Program and Europe's energy label approach have had success in improving energy efficiency in buildings and products such as refrigerators and photocopy machines, among others.

Business supports energy efficiency. Given the right fiscal and regulatory frameworks, business can do much more to support governments in their efforts to achieve their growth, job creation and environmental improvement objectives.

2. Technology Focus – Coal

Compiled by Christine Copley, Senior Manager, World Coal Institute

In 2005 global demand for coal was around 4,300 megatonnes (4,300 million metric tons) – more than 50% higher than demand levels 20 years ago. The International Energy Agency has recently forecast similar growth in demand between now and 2030.

Coal is affordable and abundant; it is geographically dispersed and used in more than 70 countries worldwide. Coal provides significant energy security benefits and drives economic growth in developed and developing countries alike.

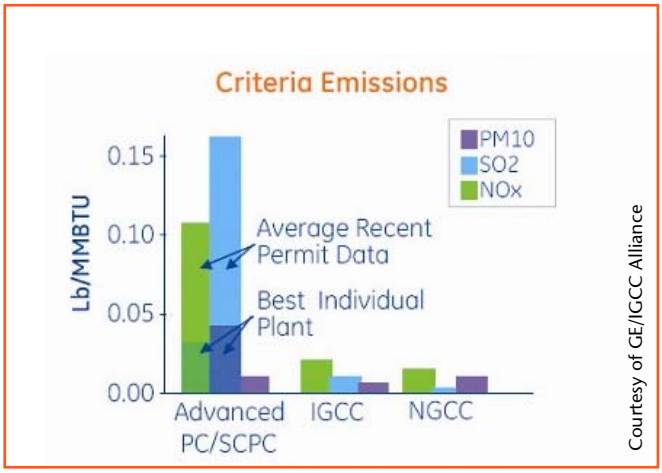
Coal, like other energy sources, faces environmental challenges – but the industry is accelerating down a pathway towards near-zero emissions. One promising technology in achieving this goal is Integrated Gasification Combined Cycle (IGCC) power generation.

IGCC is a technology that converts coal to a gas and generates electricity through the combined use of gas and steam turbines. This results in increased energy efficiencies - up to 50% with current technologies – and an associated reduction in CO_2 emissions. Emissions of local and regional pollutants are also significantly reduced. In conjunction with carbon capture and storage, IGCC can offer a viable and economic route to near-zero emissions from coal.

In IGCC power generation, coal reacts with steam and a limited amount of oxygen to produce a synthesis gas that largely consists of carbon monoxide and hydrogen. The syngas is then used to drive the combined cycle turbines, generating electricity. In a typical IGCC plant, about 65% of the electrical energy is produced by the gas turbine and 35% by the steam turbine.

The plants use up to 40% less water and up to 90% of mercury emissions can be captured compared to conventional plants. Emissions of nitrogen oxides are

reduced by at least a third and sulfur oxides by more than two-thirds. Particulate emissions are reduced to almost zero.



Greenhouse gas emissions are significantly reduced due to the efficiency gains of using this technology. However, the process can be further modified to remove carbon dioxide entirely, storing it underground in deep geological formations and reducing greenhouse gas emissions to near-zero – at a potentially lower cost than for a conventional coal-fired plant.

The capital costs of IGCC plants today are around 20% higher than for conventional coal plants, but increasing interest in the technology and industry collaboration are driving costs down. Government incentives (e.g., in the US) are similarly encouraging the development of this technology, and a number of large-scale projects have been announced to demonstrate the near-zero emissions concept in Europe, Australia, China and the US.

For further information, please visit www.worldcoal.org

3. Aluminium – *Part of the Solution* for a Sustainable Future

Aluminium is a unique metal; strong, durable, flexible, impermeable and lightweight, it does not rust and is 100 percent recyclable. It comes in a variety of surface finishes and can take many forms, allowing its use in a vast array of products. First produced in 1888, aluminium has become the second most used metal in the world after iron. Three-quarters of all aluminium ever made remains in use today, representing a growing "energy and resource bank", and the metal can be reused endlessly. Areas where aluminium helps people and the economy to operate effectively and efficiently include: air, road, rail and sea transport, food and medicine, packaging, construction, electronics and electricity transmission.

By working continuously to minimize aluminium's environmental negatives and maximize its positives, the aluminium industry has committed to ensuring that it is part of the solution for a sustainable future.

Sustainable growth for the aluminium industry
The aluminium industry is committed to securing business success and continued growth towards a more sustainable future global economy. It will achieve this by progressively improving its environmental, occupational health and safety performance, and by increasing its positive socioeconomic contribution through the "Aluminium for Future Generations" sustainable development program.

This program, overseen by the International Aluminium Institute, whose member companies are responsible for over 70% of global aluminium production, comprises 12 voluntary objectives covering all key phases of the aluminium lifecycle, from pre-mining to post-consumer. Headline objectives of the program include best practices in workplace health and safety, environment and safety management systems, mine rehabilitation, water and energy efficiency, emissions reductions including greenhouse gases, and recovery and recycling of aluminium.

The global aluminium industry has developed a four-pronged voluntary strategy to meet the challenges of energy demand and climate change, encompassing the full lifecycle of aluminium from production, to primary use, to recycling and reuse:

1. Increase energy efficiency in aluminium production

- The average electrical energy required to reduce one tonne of aluminium from alumina was cut by 5% between 1990 and 2005 *(objective: 10% reduction during the period 1990-2010).*

2. Maximize used-product collection, recycling and reuse

- Aluminium recycling benefits present and future generations by conserving energy and other natural resources. The recycling of aluminium requires up to 95% less energy than that required for primary

aluminium production, thereby avoiding corresponding emissions, including greenhouse gases.

- The contribution of scrap metal "resources" to the global output of aluminium metal has increased from 17% in 1960 to 33% today and is projected to rise to almost 40% by 2020.

3. Reduce greenhouse gas emissions from aluminium production

- Perfluorocarbon (PFC – a potent GHG) emissions from the global aluminium industry were reduced by 76% per tonne of aluminium between 1990 and 2005 *(objective: 80% reduction during the period 1990-2010)*. Total PFC emissions have been reduced by over 60% while primary production has increased from 20 to 30 million tonnes per annum.

4. Promote the lightweighting of vehicles

- The industry employs a life cycle approach to address the challenges of climate change, focusing not only on the energy required to produce aluminium products, but also on the energy savings to be made through their use and reuse. It is in the use phase that the majority of energy is used and/or saved (e.g., during the useful life of cars, buildings, aircraft, etc.). The high strength-to-weight ratio of aluminium plays a crucial role in producing lighter vehicles and other forms of transport, reducing fuel consumption without compromising performance and safety. The use of lightweight aluminium components in a vehicle can save six to twelve times the energy taken to produce the primary aluminium used in its construction. Up to 8% fuel savings can be realized for a 10% reduction in weight. One kilogram of aluminium, used to replace heavier materials in a car or light truck, has the potential to eliminate 20 kg of CO_2 over the lifetime of the vehicle. For other vehicles, such as trains, ferries and aircraft, the potential savings are even greater. Modeling projections show that by 2020 avoided emissions through the increased use of aluminium in vehicles could be greater than the greenhouse gas emissions from the worldwide aluminium industry.