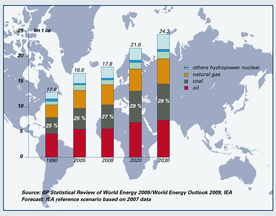
European Coal Days 2010

Coal and lignite – creating wealth

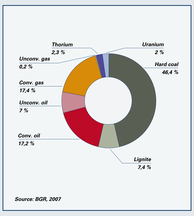
Coal is a valuable natural resource, abundant globally and safe to transport and store. It makes a major contribution to the energy mix in Europe, and enables policy makers to achieve energy security at affordable prices.

The widespread abundance of coal helps reduce fuel poverty. Its use for power generation ensures that European industry remains competitive in a global context.

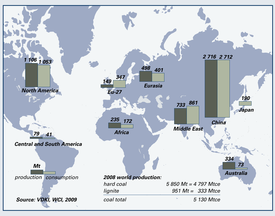
It contributes to Europe's wealth and standard of living in general and is the catalyst for vast economic benefits to be gained throughout Europe in technology development and transfer.



World energy consumption



Global energy reserves dominated by hard coal and lignite



Global hard coal production and consumption

Coal-fired power plants supply the most secure and price-competitive fuel for base load electricity in Europe. Currently, hard coal and lignite have a share of 29 % of EU-27 power generation. In Poland, this share reaches 91 %, the Czech Republic 61 %, Greece 55 % and Germany 47 %.

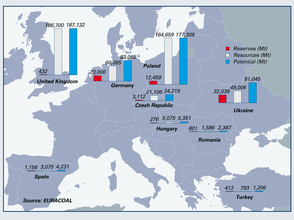
EU hard coal and lignite production and imports in 2009

Europe's coal potential

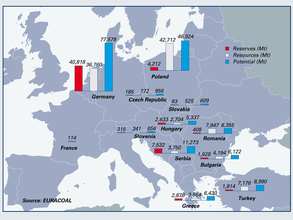
Of the fossil fuel reserves in the EU-27, about 80 % are hard coal and lignite - approximately four times the reserves of oil and gas. The long-term benefits of coal are enormous – an energy resource that will remain widely available across Europe for generations to come.

More than half of the coal used in the EU-27 is supplied by indigenous production. The largest resources and reserves of hard coal are in the UK, Germany, Poland and the Czech Republic. There are extensive reserves of lignite in Germany, Poland, Greece, Bulgaria, Romania and Hungary.

In general, lignite is produced from surface mines, and hard coal is mined underground.



European hard coal potential



European lignite potential

Poland

Germany

Greece

Bulgaria

Daw Mill, United Kingdom

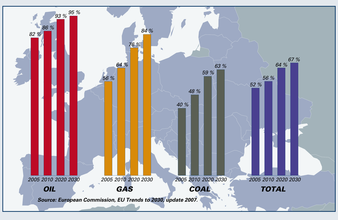
Security of supply

Security of energy supply

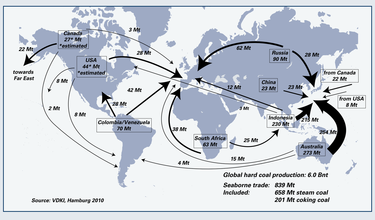
Indigenous coal has particular advantages for Europe's security of supply. In an increasingly globalised world, Europe should keep its own coal and lignite production. In addition to the important contribution of indigenous coal to a balanced EU energy mix and to regional economic growth throughout Europe, imported coal also contributes to the security of Europe's energy supply.

Coal reserves are spread across the world, with international trade taking place in accordance with free market principles. It means coal is available on international markets at prices more stable than oil and gas. Both indigenous and imported coal clearly minimise the EU's energy supply risks.

Hard coal is also an essential fuel for steel production. In addition, both hard coal and lignite are widely used in industrial and domestic sectors.



EU fossil fuels import dependency



Main hard coal seaborne trading routes in 2009

Germany

Spain

Poland

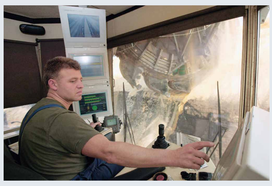
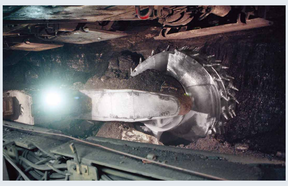
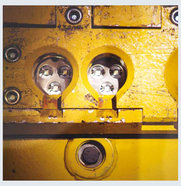
Hungary

Mining technology – innovation for the future

High-tech mining machinery and coal power plant equipment produced in Europe have a high export value. Currently, European underground and surface mining technology dominates the world market, with a share of more than 50 %.

This position of market leaders depends on a continuing and significant indigenous coal production. The position of European companies in growing markets like China, India, Indonesia and Africa can only be maintained with continual technological advancements.

Productivity improvements and process innovation are crucial for the economic success of any mining company. Achieving further improvements in productivity depends on technological innovation in areas such as automation, communications and infrastructure. This includes improvements in drive systems and winning technology, logistics, plant maintenance, planning and organisation.

Sensor-based remote control of cutting machines for effective coal mining

Lignite opencast mine Turów, Poland

Adding value and social acceptance

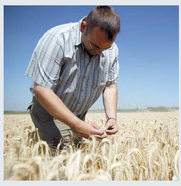
Adding value to an entire region

With its historic legacy, the coal industry has a long-term commitment to the mining areas, which retain deep social and cultural roots in the regions. Coal companies and their customers are major players in regional economies throughout Europe, creating work and wealth in a wide range of support sectors, businesses and communities. They make a major contribution to a healthy economy for mining communities and regions.

A 1000 MW power station operating 7000 hours per year and selling electricity at € 40 per MWh generates € 6 billion in the region over 20 years. With indigenous coal, benefit remains entirely in the region.

Czech Republic

Slovenia



Germany

Slovakia

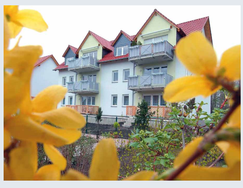
Spain

Poland

Creating jobs and life quality

Today, the European coal industry directly employs around a quarter of a million people. Regional economic studies show that for each person employed directly by the coal industry, another indirect job is created. As the workers' income is mainly spent in the region, the supplementary impact of the industry on the entire economic development of the region is almost trebled to around 700,000 jobs in the EU-27.

Surface mining occasionally involves the relocation of people, with solutions identified as a result of consultation between mine operators and the people involved. The practice to date has shown that a full relocation of an entire village best meets the social and financial needs of the people involved. The living standards of the relocated people often results in higher life quality than before.



Germany

Germany

Photos: LMBV-archive

Germany

Photos: LMBV-archive

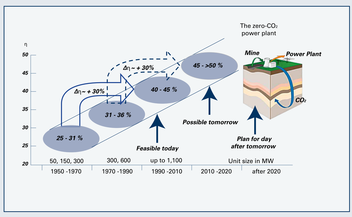
Oxy-fuel pilot plant Schwarze Pumpe, Germany

Technology for the future

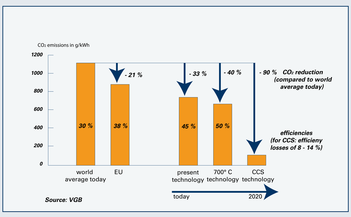
Power plant technology

Continuous investment in state-of-the-art higher efficiency coal-fired power plants will provide significant reductions of CO_2 emissions. It will increase the average efficiency of power plants in the EU and it will also be more flexible, in order to better respond to peak demands.

New materials are being tested that will permit higher boiler temperatures and steam pressures. The concept of the 700 °C power station with an efficiency level of over 50 % promises to deliver another significant improvement in power station efficiency within a decade. R&D in this direction should be pursued further and be promoted appropriately by both the EU and the Member States.



Continuous modernisation provides immediate benefits



Reducing CO_2 emissions from hard coal-fired power plants

Germany

Greece

Germany

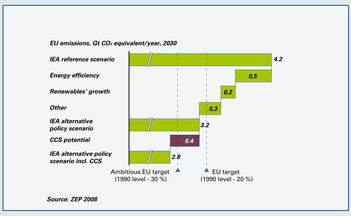
United Kingdom

CCS technology

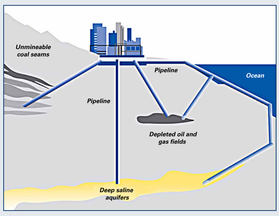
Carbon capture and storage (CCS) technology provides Europe with the opportunity to meet and exceed ambitious CO_2 reduction objectives, with coal in the long term.

In order to meet ambitious carbon reduction targets, energy- and carbon-intensive industries will have to capture carbon dioxide from their processes. These processes will then depend on a pipeline infrastructure for transport and storage. An extensive CCS infrastructure for the transport and storage of carbon dioxide would attract investment into Europe as a location for industry and energy production.

The intention to develop a CCS demonstration plant network by 2015 is a major step towards the world-wide commercial use of exciting new technology.



CCS is one of the measures required to meet CO_2 abatement aspirations



Development of an integrated concept for carbon capture, transport infrastructure and storage in a European context

Germany

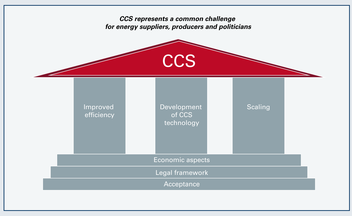
Poland

Denmark

Climate protection through innovation

The European Union has adopted a directive enabling the demonstration of CCS; furthermore, it has committed itself to make € 1 billion available for CCS by means of its European Economic Recovery Plan. Additionally, and in line with the intention of the EU ETS directive, a big part of the 300 million allowances from the New Entrants Reserve allocated to CCS and innovative renewables technologies should be devoted to CCS.

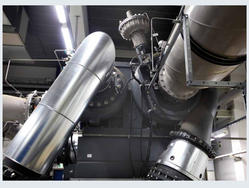
Successful demonstration projects will also contribute to winning over public acceptance of CO_2 capture and storage. Industry alone cannot create acceptance for CCS. Accompanying measures by enterprises, politicians and administrations are necessary. CO_2 storage is tested worldwide in many projects; in the USA, a 3000 km-long CO_2 pipeline network has been operated for decades without major problems.



EU flagship programme addresses challenges

Germany

Germany



Germany

Recultivated landscape in Slovenia

Safety and quality for our environment

Responsible mine planning

Unlike many other industries, coal and lignite mines need to locate their facilities close to the mineral deposit. The coal industry has succeeded in reducing its ecological impact and strives to accommodate the needs of nearby communities.

In Europe, to gain planning consent for the mining of coal or lignite, all environmental impacts have to be considered. An in depth environmental impact assessment is an integral part of the approval procedure and is carried out at a very early stage of the planning process.

Czech Republic

Czech Republic

Czech Republic

Czech Republic

Germany

Germany

Photos: LMBV-archive

Photos: LMBV-archive

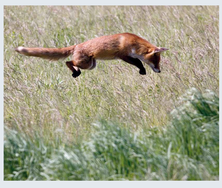
Caring for the environment

Stringent European directives and national law concerning nature, water and soil conservation are observed before, during and after the extraction of coal. There is also a specific directive on the management of mining waste.

Together with nature protection, the restoration of the surface during and after mining is typically discussed in detail with authorities, neighbours and the public, sometimes many years prior to coal production commencing.

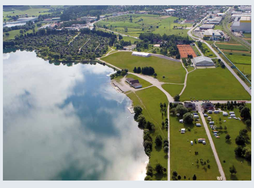
With its underground and surface mining, the European coal industry sets world standards. Mining in Europe demonstrates to countries like China, India and South Africa, as well as the domestic European audience, that mining coal whilst maintaining high environmental standards is achievable.

The EU should remain a model for a world-wide audience and provide a positive influence on those countries now expanding the production of their most abundant energy resource – coal.

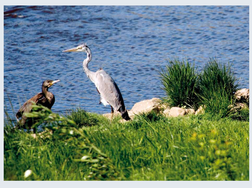


Germany

Poland



Slovenia



Germany

Germany

Hungary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European Association for Coal and Lignite