

EURACOAL's POSITION ON CO₂ CAPTURE AND STORAGE

1. General comments

In agreement with the European institutions, EURACOAL is of the opinion that:

- a long-term secure supply of energy to Europe,
- the global competitiveness of the continent's growth, employment and
- protection of the environment

must be interconnected. Energy and environmental technologies can contribute to achieving all the above-mentioned objectives at one and the same time. Energy efficiency technologies and CO₂ Capture and Storage belong here as well on the same level as the measures planned by the EU to save energy.

For various reasons, **an energy mix for power generation is an advantage**. An ambitious objective of 20 % by 2020 has recently been established for renewables. Humanity will need oil, gas and coal for centuries in order to cover the worldwide increasing demand for energy. In many countries, it is not possible to do without the abundant and easily accessible resource "coal".

EURACOAL supports the EU objective of achieving major reductions of emissions of greenhouse gases by approximately 2050. Avoiding greenhouse gas emissions is however a **global issue**. Without the participation of all major emitters, (roughly speaking the G-20 states), the global objective will not be reached. Individual measures by states or groups of states such as the EU are not sufficient in this respect. Furthermore, the reduction target must not be placed above other sustainability targets such as competitiveness and employment.

2. **Improved efficiency of power plants: prerequisite for wide-spread introduction of CCS**

On many occasions, EURACOAL has put forward its “**Clean Coal Concept**”, thereby showing that improved efficiency already enabled significant reductions of emissions to be reached and that **further major reductions of CO₂ emissions are possible by 2020** if there is continuous **investment in coal-fired power plants, according to state-of-the-art technology**. This enables not only increasing the average efficiency of power plants in the EU but will also further develop peak efficiency, for example by means of higher pressure and temperatures. Because of the losses of efficiency due to CO₂ Capture & Storage, the further improvement of power plant efficiency **is in fact a prerequisite for the introduction of CCS**. R&D in this direction must be pursued further and be promoted appropriately by both the EU and by its Member States.

3. **Development of CCS technology: cornerstone of energy policy**

The capture and storage of carbon dioxide (CCS technology) give all states the possibility to continue using coal as well as other sources of energy containing carbon in sufficient quantities and while also meeting ambitious CO₂ reduction objectives. This would presumably lead to higher energy prices. It is questionable if gas will in future be available in sufficient quantities for the power plant sector. Hard coal and lignite extracted in the EU therefore remain indispensable for security of supply and the creation of wealth.

CO₂ Capture and Storage is the focus of the activity of the Technology Platform “Zero Emission Fossil Fuel Power Plants”. **EURACOAL supports the activity of the Technology Platform** and especially the vision expressed in the Strategic Research Agenda and in the Strategic Deployment Document. The Technology Platform pursues **ambitious but realistic objectives** and, in the coal industry’s opinion, has outlined the research that is still necessary.

The EU Member States and other industrialized countries have sufficient experience to develop efficient demonstration installations, infrastructures and improved processes in the foreseeable future. Europe must include CCS technology in a global energy-policy concept and reduce reserved acceptance above all against the necessary CO₂ infrastructure.

4. Demonstration projects – Capture and Storage

EURACOAL supports the construction and operation of CCS demonstration plants, i.e. plants of industrial size. The various procedures to capture and store CO₂, but also the projects aiming at major energy efficiency improvements, for example for a 700 ° C coal-fired power plant, must be demonstrated on a large scale. This should lead to practical experience of the most important technological options for large scale capture and storage and help to decrease the costs of this technology. To the extent wanted by investors, the EU and its Member States should also support these projects financially.

Consensus exists that funds to promote research will generally not be sufficient to cover the risks taken by the operators of demonstration installations for the capture and storage of CO₂. EURACOAL greets the fact that the European Union will make €1 billion available for CCS by means of its European Economic Recovery Plan. Certificates from the New Entrants Reserve of the EU ETS can be added to this as well as “innovative” renewables and - in line with the intention of the Directive - they should also be devoted mainly to CCS.

Initial projects have shown that enhancing the production of oil by injecting CO₂, enhancing the production of gas by storing CO₂ and also that storage in deep saline formations are in principle feasible. Concerning **saline formations, it is to be assumed - even if further research is necessary - that potential locations are suitable for the long-term and secure storage of CO₂. Additional potential for storing captured CO₂ must also be researched further.**

5. Legal framework, public acceptance and infrastructure

In addition to accompanying measures for demonstration power plants, the major task remains a stable and long-term, reliable legal framework both for the demonstration installations and for the market penetration of CO₂ Capture and Storage. This framework has been created at EU level by the CCS Directive. In many countries, however, transposition into national law is still lacking. This is decisive for the timely planning of all projects, particularly also in the EU Member States where delays to obtain planning permission are not irrelevant. National legislation concerning CCS must promote investments in the technology, not block them.

6. **Public acceptance and infrastructure: challenge for politicians and the economy**

Successful demonstration projects will also contribute to winning over **public acceptance** of CO₂ Capture and Storage. **Today, the major challenges for CCS technology are here.** Industry alone cannot create acceptance for CCS. Accompanying measures by enterprises, politicians and administrations are necessary. CO₂ storage is tested worldwide in many projects; in the USA, a 3 000 km-long CO₂ pipeline network has been operated for decades without major problems. One must strive towards a common, transparent communication on the challenges and successes of CCS.

An extensive infrastructure for the transport and storage of carbon dioxide would create planning and investment security for the location of European industry and energy production. Not only power plants, but also energy and carbon-intensive industries will have to capture carbon dioxide from their processes and will depend on an infrastructure for transport and storage. The question how the state can get involved in building the CO₂ infrastructure has to be decided as soon as possible.

7. **CCS commercially available**

As soon as possible after 2020 when CO₂ Capture and Storage have been demonstrated on a large scale and are commercially available, CO₂ Capture and Storage must both be introduced on the market as state-of-the-art technology without delay. CCS must initially be taken into account when building new installations. Eventual retro-fitting must be examined by Member States from the point of view of **proportionality** and protection of resources. Other industrialized countries must also play a leading role in this respect. Worldwide introduction is to be aimed for, step by step, but as rapidly as possible because of both emission reductions and the competitiveness of European industry.

Due to the major uncertainties still surrounding the implementation of CO₂ Capture and Storage, **no binding obligations concerning its implementation** or retrofitting should already be foreseen. This issue can be tabled again after it is known when CO₂ Capture and Storage will be commercially available and after the technical and economic issues

concerning the demonstration projects have also been elucidated. As a compromise, the CCS Directive foresees taking a decision after the European Commission has presented its Report in 2015.

New conventional fossil-fuelled power plants can initially be built so that future retro-fitting with CCS remains possible (capture-ready). The power plant therefore makes possible a swift reduction of emissions and still achieving major progress in the long-term to reduce CO₂ emissions.

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