

MINUTES

EUROPEAN ROUND TABLE ON COAL

Managing Greenhouse Gases in a Low-Carbon Economy European Parliament (Brussels), 29 November 2011

Participants numbered around 60 and included:

Dr. Christian EHLER MEP (chair);

MEPs Mr. Bogdan MARCINKIEWICZ; Mr. Jan BŘEZINA; Mr. Czesław SIEKIERSKI;

MEPs' assistants;

European Commission officials (Dr. Jörg KÖHLI, Dr. Marion WILDE and Mr. Balazs JOZSA);

representatives from the national and regional permanent representations to the EU; EURACOAL President, Dr.-Ing. Hartmuth ZEIB, Secretary-General, Mr. Brian Ricketts and members; and

other representatives of the European coal and lignite industries, utilities, power equipment suppliers, NGOs, trade associations, research institutes and universities.

1. Introduction and welcoming remarks – Dr. Christian Ehler MEP

Meeting the very ambitious carbon reduction targets of the EU became even more ambitious in the last months, following Germany's decision to phase-out nuclear, according to Dr. Christian Ehler MEP who chaired the 15th European Round Table on Coal. Europe's power industry will have to face huge challenges in the decades to come, dealing on the one side with an increasing share of expensive and intermittent renewables in their energy mixes, and on the other side with a European energy policy seeking near-zero emissions power generation by 2050.

One merit of the Coal Round, said Dr. Ehler, is that it managed to launch a new discussion on the impacts of such an ambitious energy policy for Europe. Europe's climate policy cannot only consider the environmental impact: the affordability of electricity prices and the impact on the competitiveness of European industry are also very important aspects which have to be analyzed carefully. In order to achieve its ambitious climate targets, Europe will have to consider all available technologies and invest in all known carbon abatement options, as well as invest in R&D to find new solutions.

CCS and CCU technologies will certainly be among these new technologies and it is very important that the individual Member States find solutions to implement the CCS Directive into their national laws, in order to remove legal hurdles for the deployment of CCS, concluded Dr. Ehler before introducing the speakers.

2. CO₂ Capture and Use (CCU) – *Dr. Johannes Heithoff, Member of the Board, Deutsche Wissenschaftliche Gesellschaft für Erdöl, Erdgas und Kohle e.V. (DGMK) and Coal Advisory Group Member of the EC Research Fund for Coal and Steel*

Dr. Johannes Heithoff from RWE Power explored the possible routes for carbon capture and utilization (CCU): the different technologies, the role of power plant operators and the amounts of CO₂ that could be mitigated by these technologies. CO₂ can be and is already used as dry ice for cooling or for dry cleaning, as fertilizer in greenhouses, to carbonate drinks, or in solvents, fire extinguishers and other similar uses. Using basic technologies, CO₂ can be used in the manufacture of technical or synthetic gases, plastics, fuels, synthetic natural gas or biogas. In Germany, the potential market for CO₂ use is estimated at 10 million tonnes per year within the next 10 years.

The challenges for the use of CO₂ are firstly its efficient capture followed by its conditioning to ensure the degree of CO₂ purity. RWE Power, for example, provides CO₂ from lignite combustion for the production of polyurethane which can then be used as hard foams in construction and thermal insulation or soft foams for mattresses and car seats. CO₂ can also be a component in the chemical storage of renewable energies as methanol or methane. RWE Power has other pilot projects such as an algae project, where biomass fuel is produced from algae, with the captured CO₂ used to accelerate algae production.

CCU could become a very promising technology to reduce CO₂ emissions. However, current EU ETS legislation does not recognise CCU as a CO₂ reduction technology; only CO₂ storage is recognised. This means that power plant operators would have to purchase certificates for any captured CO₂ which is further used. This must be amended in order to encourage CCU technologies to develop.

The utilisation of CO₂ as a carbon source is also a very promising approach because it combines a new source of raw material with CO₂ reduction. A R&D focus on new CO₂-based production routes and on new products based on CO₂ is needed; interdisciplinary and international collaborations will be indispensable.

Looking ahead, the technology needs the recognition of CO₂ capture and use by law and positive public communication on CCU as a viable emissions reduction option.

3. Carbon Footprints of Fossil Fuels for Power Generation – *Dr. Hans-Wilhelm Schiffer, Head – General Economic Policy & Science, RWE AG*

In the next presentation, Dr. Hans-Wilhelm Schiffer from RWE Power made a comparison of the carbon footprints of pipeline gas from Russia and Norway with those of LNG, shale gas and coal. In analyzing carbon footprints, one must consider the entire chain, from extraction, transport, possible storage through to utilisation. Taking also into account emissions due to energy consumption and leakage along the supply chain, a comparison was made based on 20- and on 100-year periods (the greenhouse gas warming potential of methane differs depending on the time period considered) and on power generation with and without CCS.

If the entire chain is included, the climate impacts converge – although gas has an advantage when CCS is not applied. To achieve the agreed climate targets, CCS will be indispensable in the future. If power is generated with CCS, coal has no disadvantage over gas. In power plants with CCS, coal does better than shale gas and, even without CCS, the life-cycle emissions from shale gas might be worse than for coal (according to Howarth *et al.* 2011). Dr. Schiffer concluded that it was not the substitution of energy sources that was the key to climate protection but new technologies, efficiency improvements and CCS.

4. Discussion & Wrap-Up – *chaired by Dr. Christian Ehler MEP*

Dr. Tim Cockerill from the Imperial College Centre for Energy Policy & Technology (ICEPT) noted that there was an increasing recognition of the importance of LCA to evaluate technologies, but said that there were still uncertainties over scope and data. LCA results still depend on input data and many assumptions are made to complete an analysis, such as the fate of waste products, the source of upstream energy inputs and other assumptions.

The further away the assumptions lie, the less reliable they are. For example, recent studies question the benefits of shipping biomass from South America to Europe in order to produce “green energy”. Moreover, nobody can really say how CCS technologies will look in 2050: whether CO₂ will be securely stored, whether shale-gas will be exploited and, in the near term, whether CCS will be accepted by politicians and the public. Up to now, the CCS Directive has been transposed in only two Member States. The announced CCS projects across Europe are either stalled or simply stopped. Only the UK and the Netherlands, who have access to off-shore storage, seem to be making progress with CCS.

In the roundtable discussion it became clear that it was senseless to switch from coal to gas, as emissions from gas will have to be abated as well, which would become very costly. Before retrofitting all coal-fired power plants with CCS, efficiency improvements must be made to give early emission reductions. CCS is the most expensive solution, whilst efficiency increase would be for the moment a cheaper and faster solution.

As CCS encounters many obstacles, it is not certain if there will be sufficient time to demonstrate the announced projects. The economic crisis will limit the possibilities for investments and there is a danger that power plant operators won't invest in the near future. Even Commissioner Oettinger calls for rational solutions in order to avoid carbon leakage becoming an undesirable outcome of EU energy and climate policy. Rising energy prices will affect Europe's industry and hence Member States' budgets and social welfare. Therefore, Europe should stay open to all new technologies and give them the necessary legal and financial frameworks to develop.

If, by 2020, there are no positive showcase CCS projects, then Green politicians will argue even more strongly against fossil fuels and in favour of renewables. Dr. Ehler warned that this would be economically damaging. In conclusion, he urged all participants of the Coal Round to ensure that coal had its rightful place in the upcoming Horizon 2020 R&D programme. Dr. Ehler believed that the development, demonstration and deployment of new technologies was crucial to coal's future.

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Annexes: Presentations by Messrs. Heitoff and Schiffer.