“Infrastructure first”

Benefits, design and financing of a CO₂ transport and storage infrastructure

9th EC-EURACOAL Coal Dialogue

6th June 2013

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Energy Policy Committee
Mitigation of climate change in the EU

Two stages – two speeds

GHG emissions in the EU

For the EU, this means reducing GHGs from 5.8 bn t/a in 1990 to some 4.6 bn t in 2020 and some 1 bn t/a in 2050.
Climate protection is a world-wide challenge Europe cannot solve this problem

Reduction

- CO₂ in ET-sectors
- CO₂ in other sectors

- Increase of GHG-emissions

EU-27 approx. 12%

World approx. 88%

**CO₂ emissions**

- global: 2000 approx. 24 Gt – 2011 approx. 32 Gt
- EU: 2000 approx. 4.1 Gt – 2011 approx. 3.8 Gt
Reducing CCS complexity

- CCS technology demonstration in the power sector, as an integrated process, is proving to be difficult.

- There is a lack of concepts for the industrial application of CCS.

- A separation of the key CCS steps now seems reasonable:
  - **CO$_2$ capture** carried out by operators of facilities: the technologies exist (three processes for power generation), but industrial applications need incentives;
  
  - **CO$_2$ transport & storage** infrastructure constructed and operated by specialist companies: CO$_2$ transport is proven, but public acceptance and regulation are needed, whereas CO$_2$ storage needs cooperation between regions and competition between providers.

Governments should guarantee non-discriminatory access to a CO$_2$ transport infrastructure and ensure sufficient CO$_2$ storage capacity in the future.
Is CO₂-infrastructure a coal question?

CO₂-prices €/t

Power
Steel
Refineries, chemical industry
Cement

CHP Gas Coal

transport and storage

CO₂-mitigation potentials

costs of capture

CO₂-price 2030, if CCS commercially available

6th June 2013, Slide 5
Benefits, design and financing of a CO$_2$ transport and storage infrastructure

1. Climate and energy policy significance of CCS in Central Europe
2. Macroeconomic policy and industrial significance of CCS in Central Europe
3. Options for the development, financing and operation of a CCS infrastructure in Central Europe

Three questions to be answered.
1. Climate and energy policy significance of CCS in Central Europe

- Energy and climate policy strategy EU and Central Europe
- CCS-Option related to $\text{CO}_2$ targets
- Importance of CCS for economic development and competitiveness EU

Question: Do we need CCS?
2. Macroeconomic policy and industrial significance of CCS in Central Europe

- Economic consequences if CO$_2$ transport infrastructure is
  - available
  - not available

- What is the impact on the structure of industry and energy?

Question: What are the benefits of a CO$_2$ infrastructure?
3. Options for the development, financing and operation of a CCS infrastructure in Central Europe

- Quantity of CO$_2$ to be stored, costs for development, operation, maintenance, transport and storage infrastructure
- Discussion of options to finance in context of public interest and private business
- Which options are available to develop a transport and storage infrastructure?

**Question:** What is a feasible road map?
The utilization of oil, gas and coal, increasingly after 2020 and – as things stand today – only possible at all in 2050, with carbon capture.

Security of supply in the electricity sector and industrial production are linked with CCS technology in the medium term already.

A CO$_2$ transport and storage infrastructure will be needed after 2015/2020.

An open CO$_2$ infrastructure creates planning certainty, since a problem is then solved that is unsolvable by "individuals".

A CO$_2$ infrastructure makes the future calculable for investors, because a "maximum price" is defined for CO$_2$.

Upshot: The need for carbon capture and a CO$_2$ transport and storage infrastructure follows from the climate targets and the fact that Central Europe is to remain an industrial region.
Infrastructure first
Next steps

- Workshop together with all interested parties – industry, science, Parliament, Commission – to define questions to be answered and timetable for the study
  - autumn 2013

- Study “Benefits, design and financing of a CO₂ transport and storage infrastructure” to be carried out by “CAWM – Centre for Applied Economic Research Münster” in 2014
  - in 2014

- Invitation to stakeholders to cooperate
Thank you!

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