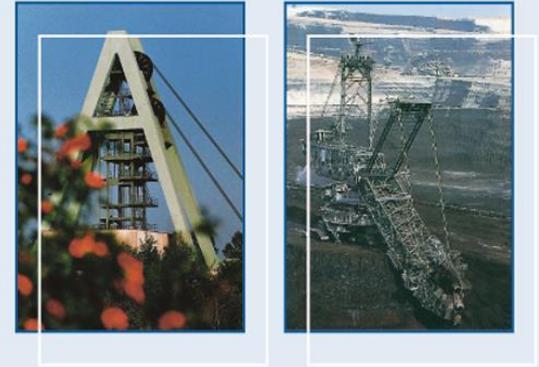


# EURACOAL

European Association  
for Coal and Lignite



## “Infrastructure first”

**Benefits, design and financing of a CO<sub>2</sub> transport and storage infrastructure**

9<sup>th</sup> EC-EURACOAL Coal Dialogue

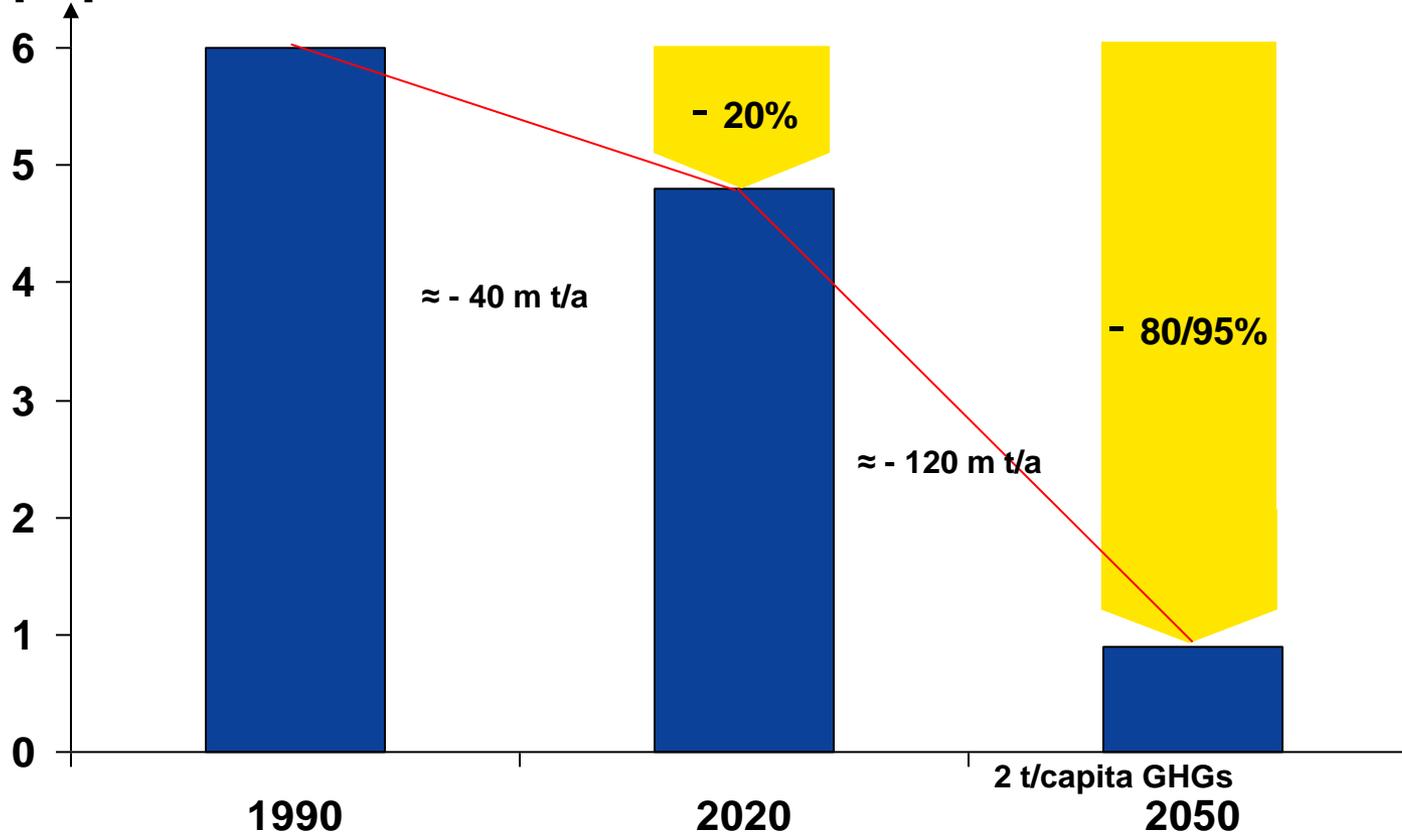
6<sup>th</sup> June 2013

Dr.-Ing. George Milojcic – Chairman EURACOAL  
Energy Policy Committee

# Mitigation of climate change in the EU

## two stages – two speeds

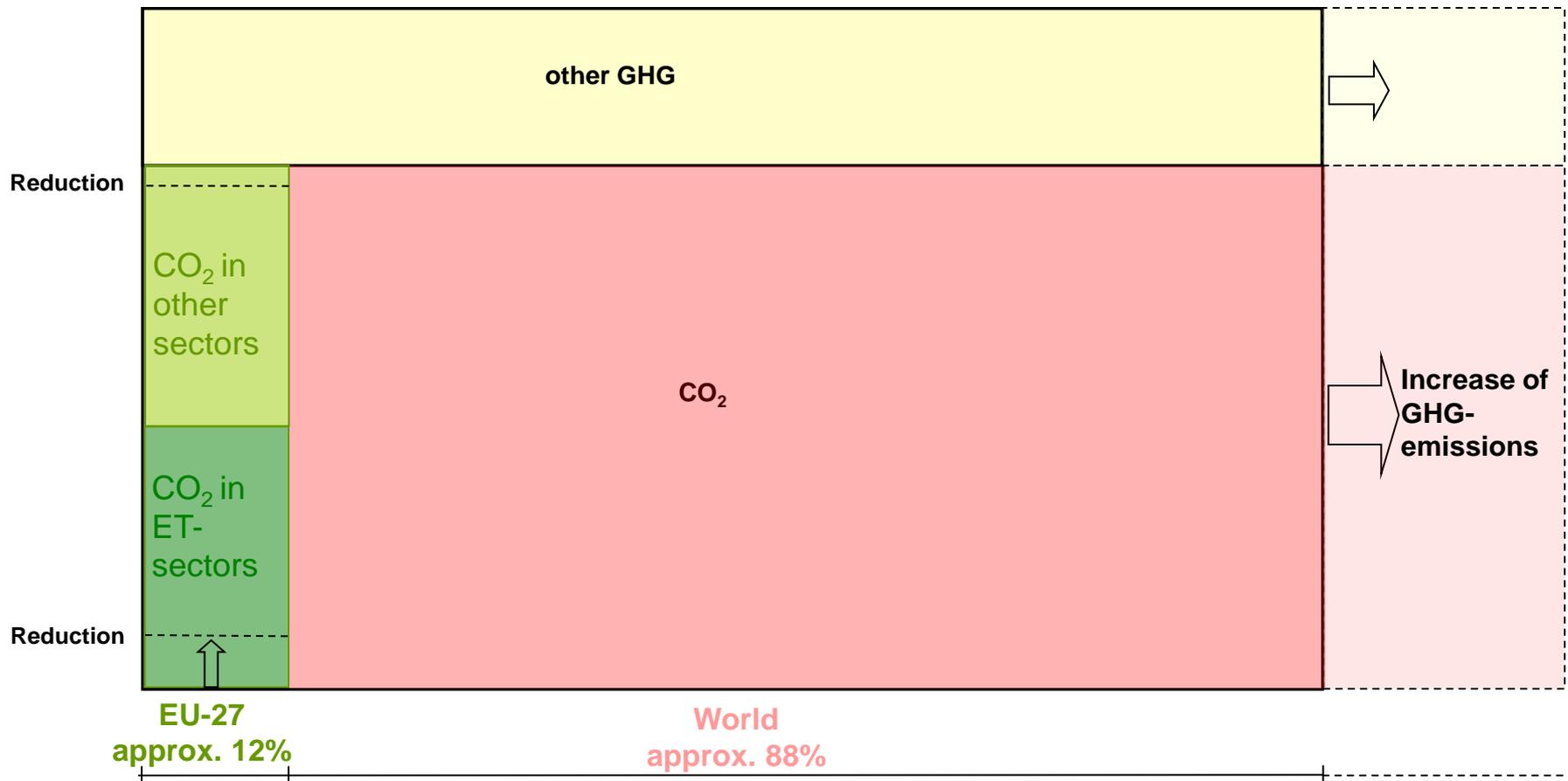
GHG emissions in the EU  
[bn t]



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



CO <sub>2</sub> emissions	global:	2000 approx. 24 Gt – 2011 approx. 32 Gt
	EU:	2000 approx. 4,1 Gt – 2011 approx. 3,8 Gt

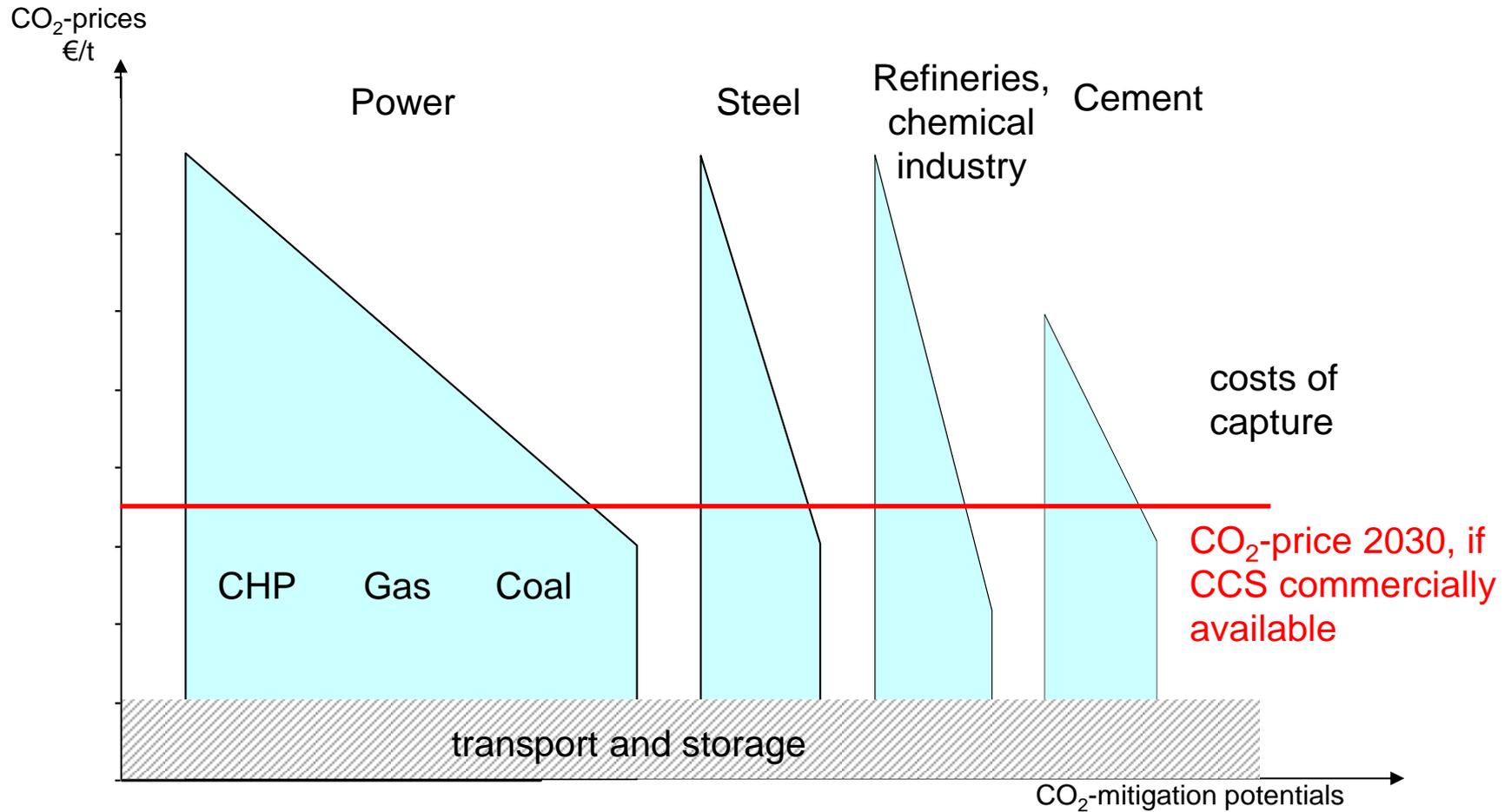
# Reducing CCS complexity

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- 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<sub>2</sub> capture** carried out by operators of facilities: the technologies exist (three processes for power generation), but industrial applications need incentives;
  - **CO<sub>2</sub> transport & storage** infrastructure constructed and operated by specialist companies: CO<sub>2</sub> transport is proven, but public acceptance and regulation are needed, whereas CO<sub>2</sub> storage needs cooperation between regions and competition between providers.

Governments should guarantee non-discriminatory access to a CO<sub>2</sub> transport infrastructure and ensure sufficient CO<sub>2</sub> storage capacity in the future.

# Is CO<sub>2</sub>-infrastructure a coal question?



# Benefits, design and financing of a CO<sub>2</sub> transport and storage infrastructure

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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 CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> infrastructure?

### **3. Options for the development, financing and operation of a CCS infrastructure in Central Europe**

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- Quantity of CO<sub>2</sub> 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?

# CO<sub>2</sub> infrastructure as location factor

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- 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<sub>2</sub> transport and storage infrastructure will be needed after 2015/2020.
- An open CO<sub>2</sub> infrastructure creates planning certainty, since a problem is then solved that is unsolvable by "individuals".
- A CO<sub>2</sub> infrastructure makes the future calculable for investors, because a "maximum price" is defined for CO<sub>2</sub>.

Upshot: The need for carbon capture and a CO<sub>2</sub> transport and storage infrastructure follows from the climate targets and the fact that Central Europe is to remain an industrial region.

# Infrastructure first

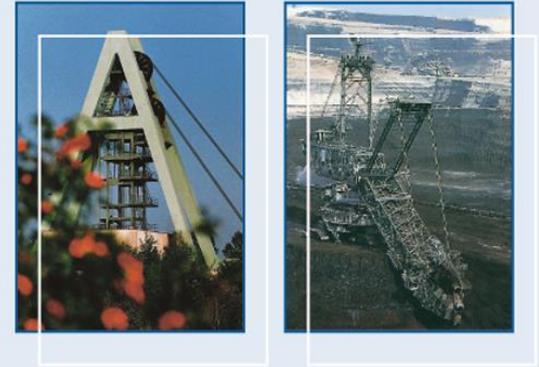
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## Next steps

- 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 CO<sub>2</sub> 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

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## Thank you!

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