European Power Plant Suppliers Association

Developing the Future

Nach dem Klimagipfel Kopenhagen

Chance oder Bedrohung für die europäischen Hersteller?

ABB Schwetzinger Energie-Dialog

17th March 2010

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www.eppsa.eu

Outline

- About EPPSA
  - Who we are & What we do
- The Copenhagen climate summit and its key elements
- The EU climate change legislation
- The consequences for power plant suppliers
- Conclusions

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About EPPSA

EPPSA is the voice, at a European level, of companies both manufacturing components for, and constructing turnkey power plants.

EPPSA actively promotes projects aimed at increasing efficient and environmentally friendly improvements in power generation, particularly zero or near zero emissions power generation.

About EPPSA: EPPSA Members

This leading technology branch has more than 100 000 employees and an annual turnover of over €20 billion

About EPPSA: EPPSA believes...

... in a balanced energy mix

... in improved efficiency in power generation

... that clean, competitive fossil fuel power plants need new technology

... that addressing climate change worldwide requires technological innovations

... in increased Research & Development

... that urgent investment in 10-12 demonstration plants is required to make Europe a world leader

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The Copenhagen climate summit

"Copenhagen is a first step toward a new world climate order, nothing more but also nothing less" *Dr. Angela Merkel*

Key elements:

- Recognition that increase in global temperature shall not exceed **2°C above pre-industrial level**
- Formal adoption ("take note of„) was **supported by the vast majority of the Parties**, including the main emitters responsible for **80% of world emissions**
- **Financial measures:**
  - **Fast track financing** – provision of USD 30 bn for the period 2010-2012
  - **Long term financing** – joint mobilisation goal of USD 100 bn a year by 2020
  - **Copenhagen Green Climate Fund** – to channel financial support to adaptation and mitigation
  - **High Level Panel** –to study potential means of revenue
- Creation of a **Technology Mechanism** to support and accelerate technology development and transfer to developing countries (Country Driven Approach)

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EU Energy & Climate Change Package

March 2007

European Council adopts an **Action Plan** based on the Commission's Communication **"An Energy Policy for Europe"** setting the 20-20-20 targets

January 2008

European Commission adopts the **Energy & Climate Change Package**

December 2008

Final adoption of legislative compromise via **Trilogue** (European Parliament, European Council and European Commission, 17.12.2008)

EU Energy & Climate Change Package

The 20-20-20 targets:

- A reduction in EU greenhouse gas (GHG) emissions of at least 20% below 1990 levels by 2020 (-30% if comparable effort by other industrialised countries)
- Increasing the share of renewable energy to 20% by 2020
- Improving the EU's energy efficiency by 20% by 2020

The climate-energy legislative package includes a.o. the following acts:

- New rules promoting the use of energy from **renewable sources** (RES)
- Directive on the **Geological Storage of CO_2**
- Revised **EU Emission Trading System** for GHG (**EU-ETS III**)

CO_2 emissions must decrease to meet targets

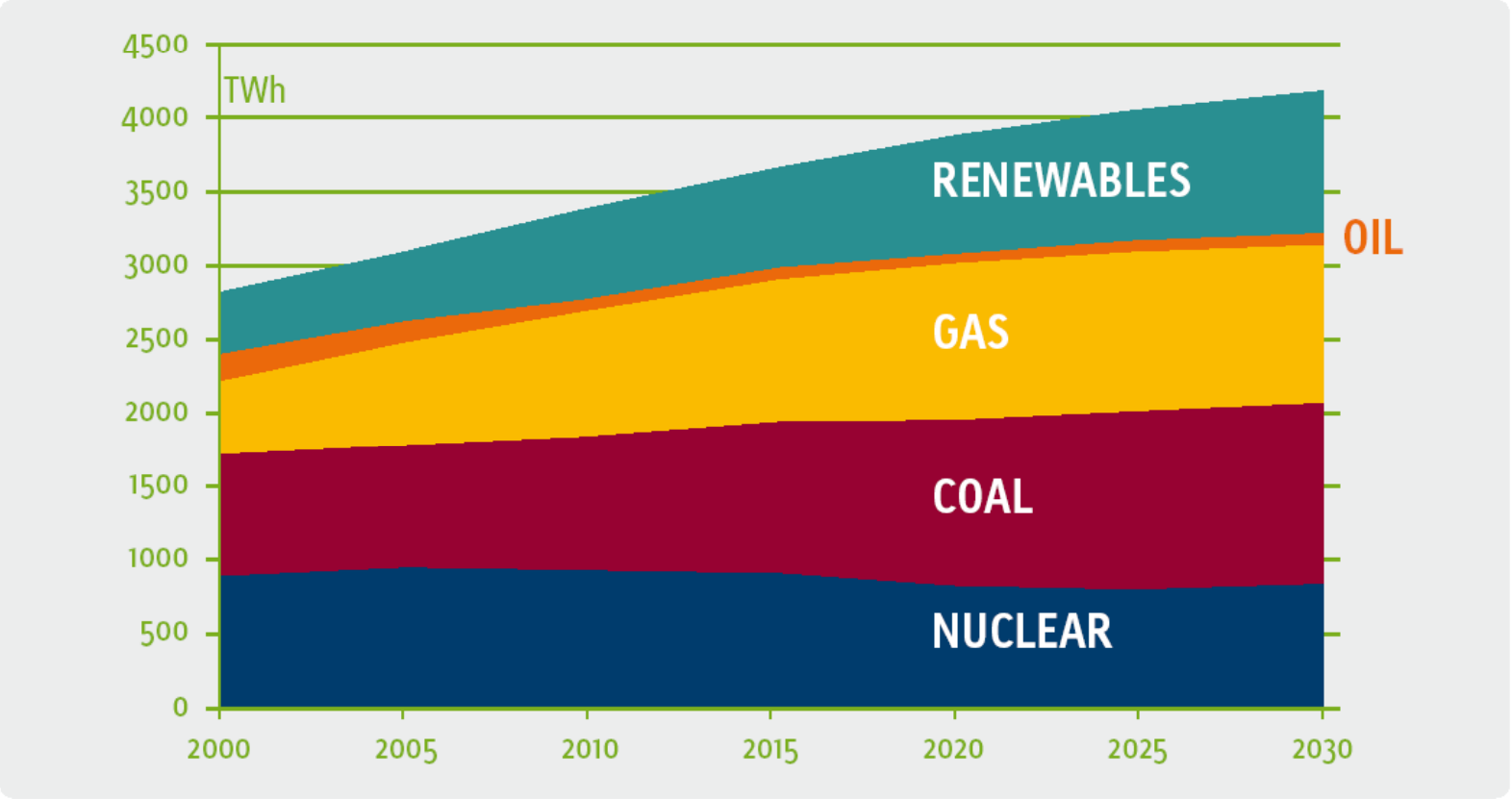
- in order to meet the targets, the overall global annual temperature increase should not exceed **2 °C above pre-industrial**

- this corresponds to the **IEA 450 ppm Scenario** which stabilises GHG emissions at 450 parts per million (ppm) of CO_2-equivalent

- global GHG emissions **50% below 1990 levels by 2050**

- EU GHG emissions **60 to 80% below 1990 levels by 2050**

Increasing power generation in EU27 to 2030

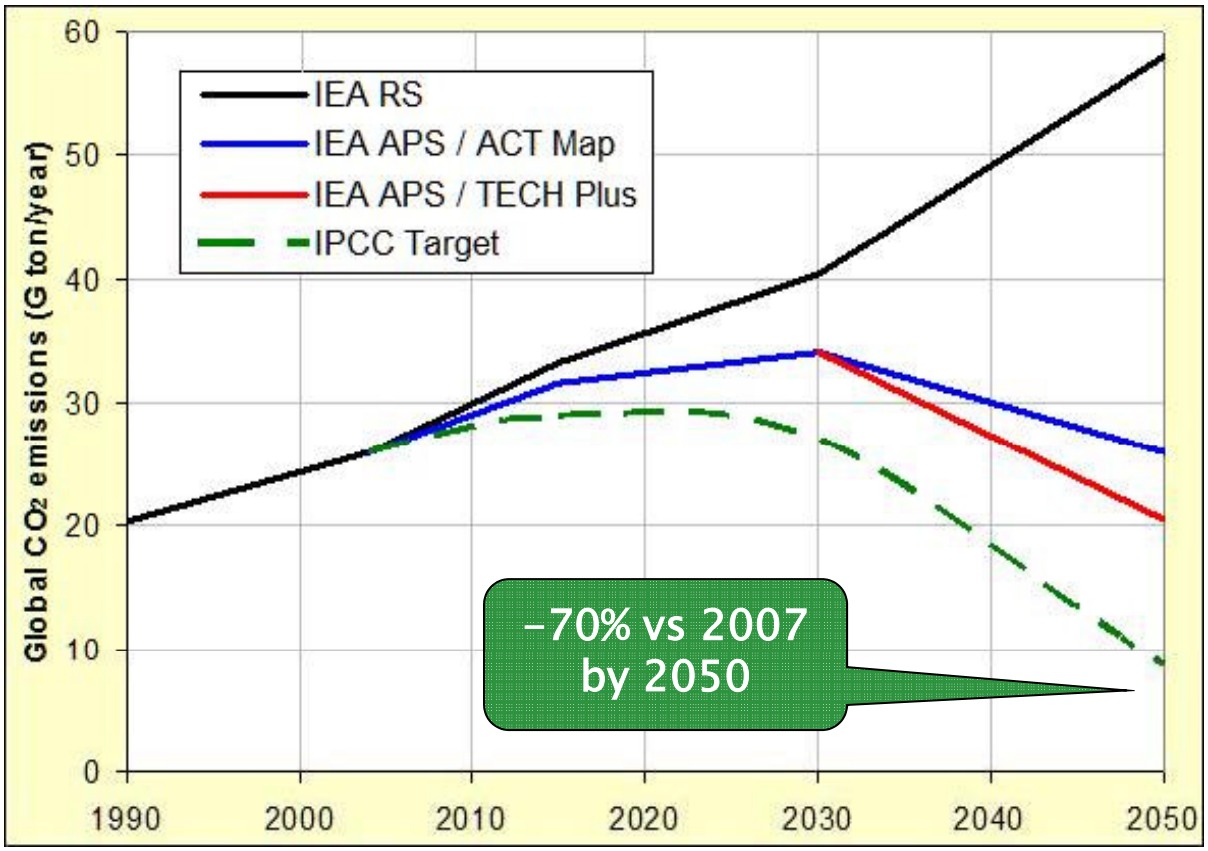


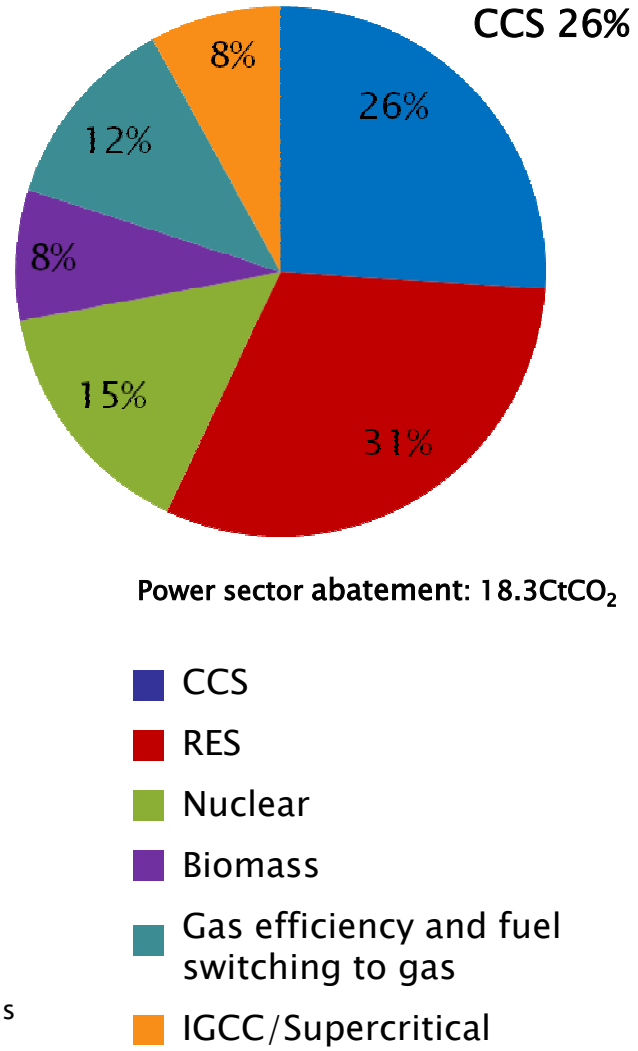
Coal remains the main fuel for power generation in EU 27 throughout the period to 2030!

Fossil fuels still necessary for grid stability

Source: *EU-27 Energy Baseline scenario Trends to 2030 – update 2007,* DG TREN, European Commission

Global CO_2 emissions from the IEA scenarios





Blue line: The IEA Alternative Policy Scenario until 2030 and extrapolation to the ACT Map scenario for 2050.
Red line: Extrapolation to the TECH Plus scenario for 2050.
The IPCC recommends 50 to 80 percent reduction in global CO_2 emissions by 2050. This is represented by the green line which gives 70 percent reduction from 2007 to 2005.

Source: *Scenarios for Global CO_2 emissions, Bellona*

CCS: addressing the CO_2 challenge

Two main fund schemes to support demonstration projects at the EU level:

. **European Energy Programme for Recovery (EEPR)** allocates **€1.050 billion** is to 6 CCS projects selected by the European Commission.

. **€180 million** are assigned to each project except for the Porto Tolle project in Italy (€100million granted)

. **EU-ETS 300 million allowances** put aside from the new entrance reserve (NER). Maximum combined EU funding from EEPR and NER300 is limited to **50%** of the net costs, excluding national or different EU funds

. bring down the cost of this technology and to prove its safety before it becomes commercial available in 2020

. both schemes are based on a **knowledge sharing** approach

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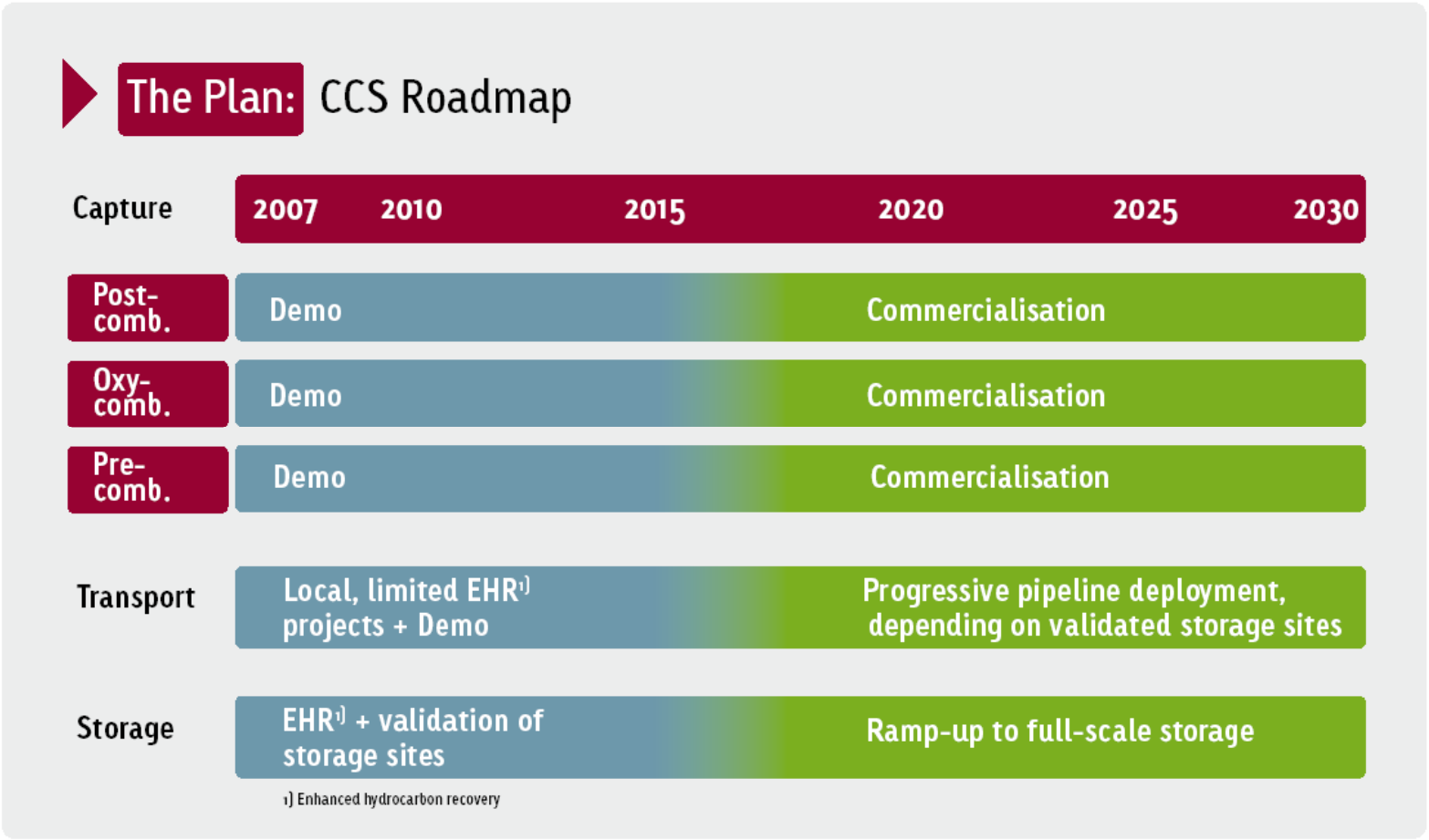
CCS Roadmap

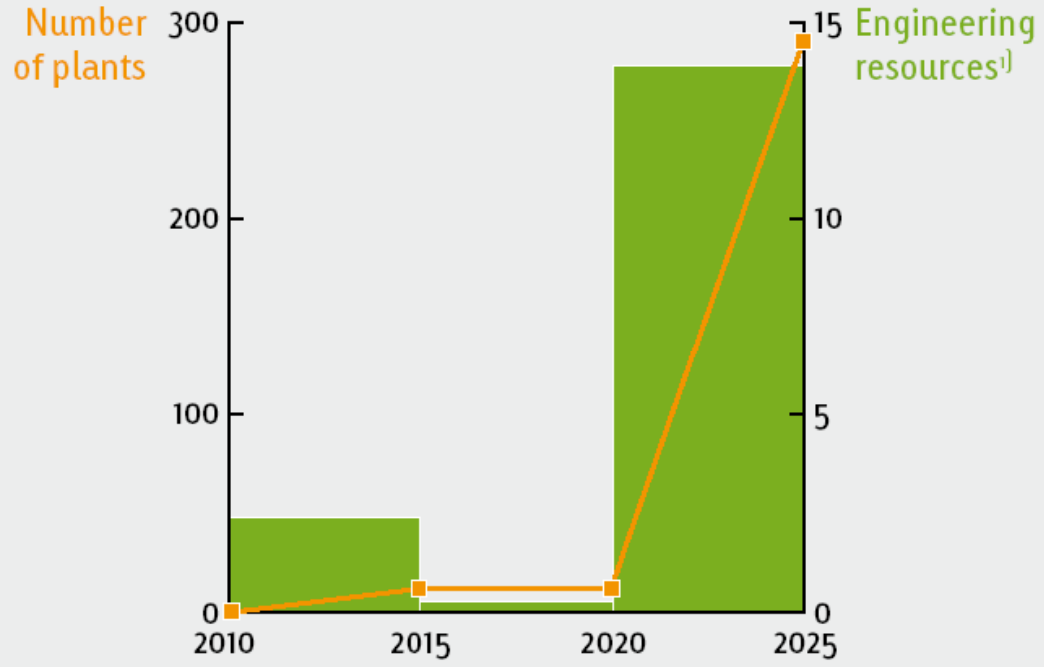


"CCS technologies will contribute more to a reduction of greenhouse gas emissions that a switch to renewables"

International Energy Agency, World Energy Outlook 2009

CCS: Engineering resources

Engineering resources to build CO_2 capture plants in EU27



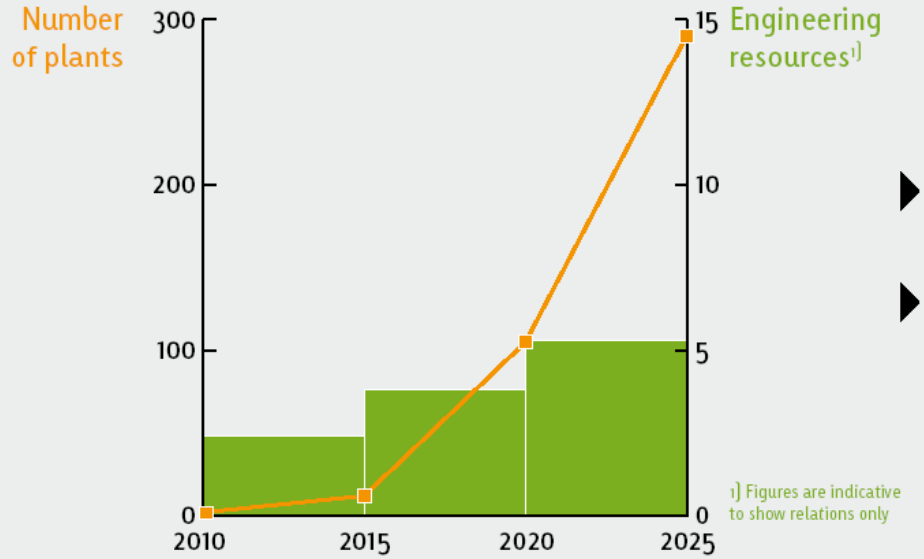
Business as usual

- Know-how and engineers not retained after Demo Phase from 2015
- No considerable reduction of CO_2 emissions before 2020

[1)] Figures for engineering resources are indicative to show relations only

CCS: Engineering resources

Engineering resources to build CO_2 capture plants in EU27



EPPSA proposal

- Continuous build up of know-how and resources
- Early reduction of CO_2 emissions

Commercialisation has to start following demo projects without any delay to maintain skills, obtain full benefit from Demos and accelerate deployment.

CCS framework

In order to introduce CCS we need

- Early implementation of EU directive into national laws
- At least 10 -12 Demonstration projects in the EU, operational circa 2015-16
- Storage and pipeline networks need to be established
- Reliable planning over next 20 – 30 years for industries
  - Need a roll-out plan beyond 2016
- Continue to support innovation through IPR protection
- Public Acceptance by local political support (Green Technology)

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Conclusions

- Electricity demand in EU27 will increase to 2030 and beyond
- New fossil fuel plants are needed by 2020
- CO_2 emissions from these plants must be cut in order to meet the 2020 targets set by the EU
- To meet these targets fossil fuelled power plants need to be retrofitted or built with CO_2 capture
- In order to build power plants equipped with CO_2 capture in EU27 and meet climate targets, we need to retain know-how and resources:
  - early initiation of 10 -12 demos is essential
  - commercial roll - out needs to start immediately after the first demo projects and not wait until 2020

Conclusions

. Deployment of CCS demo plants is needed to pass the **China test**: technology at considerable low prices and proven reliability.

Since:

. No legal framework for mandatory CO_2 reduction

. No high prices for CO_2 allowances

⇒only **levies on electricity prices** (as the UK Climate Change Levy) or **Feed-in Tariffs** supporting the large scale introduction of CCS Technology can force a timely CO_2 reduction EU-wide to meet our mid-term reduction goals at affordable prices

⇒ Without CCS the overall costs to halve emissions by 2050 rise by 70%

(IEA, Energy Technology Perspectives 2008)

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THANK YOU
FOR YOUR ATTENTION!

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