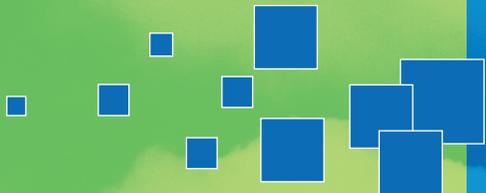




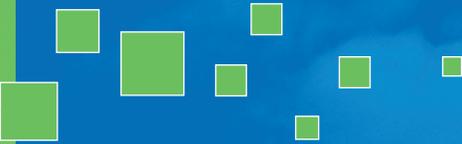
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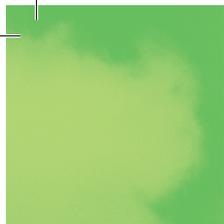
European Association for Coal and Lignite



FIFTH COAL DIALOGUE



8TH MAY 2009
IN BRUSSELS



INTRODUCTION

On 8th May 2009, the Commission's and EURACOAL's joint Coal Dialogue took place for the 5th time. The event was chaired by **Jan PANEK**, Head of Unit C3 (Coal and Oil) within DG TREN and EURACOAL's President, **Petr PUDIL**. It was attended by about 70 participants from Member States, the Commission, the European Parliament and industry, particularly the hard coal and lignite industries.

In his welcome, EURACOAL's President Mr. PUDIL recalled that climate policy measures to the horizon 2020 have, by and large, been established by the EU's Energy and Climate Package adopted in December 2008. He welcomed the fact that the EU is again focusing more on security of energy supply, including an Energy Policy Agenda for 2030 and A Vision for 2050.

In his presentation, **Mr. PUDIL** stressed the role that coal can play to limit energy import dependency and supported the Commission's proposal in the Energy Security and Solidarity Action Plan to develop a set of recommendations regarding best use of indigenous fossil fuel resources. Mr. PUDIL said that those aspects of the Climate Package that seem to be rather positive for indigenous coal should be implemented. Examples were the aid for CCS demonstration plants and the option for Member States to use auctioning revenues to support new highly efficient and capture-ready power plants with 15% of the investment costs between 2013 and 2016. The latter would be helpful, since the operation of a state-of-the-art 1 000 MW power station, i.e. with substantially higher efficiency than the older power station

it replaces would alone save nearly 3 million tonnes annually in that station.

In the second part of his presentation, Mr. PUDIL praised the Commission's planned CCS Project Network and the plans for 10 to 12 CCS demonstration plants from 2015, both directed to overcome obstacles to CCS in the technical and public acceptance areas. EURACOAL also agrees with the Commission that mandatory CCS should only be taken into account after the results of industrial demonstration have been evaluated.

Mr. PUDIL stressed that if the objectives to limit the global rise in temperature to 2° C and to 450 ppm CO₂ in the atmosphere resulted in 50 % less CO₂ emissions globally and 80 to 95 % less CO₂ emissions in the developed countries (2050 compared to 1990), a CCS infrastructure would have to be constructed quickly. As this level of decarbonisation would necessarily lead to all fossil fuels being used in industrial installations having CCS, a major CCS infrastructure would clearly be necessary; this would preferably be a pan-European system.

Dr. Marion WILDE, DG Energy and Transport, Unit Coal and Oil referred to the Second Strategic Review and to the Energy Security and Solidarity Action Plan including provisions aiming at the best use of EU's indigenous coal. On the basis of EU coal production amounting to 155 Mt hard coal and 438 Mt lignite (2007) and the role of coal for electricity production in the EU, the sector fulfils an important function for economic and social development in Europe. The coal industry employs about 280 000

people, and also creates a large number of jobs in coal-related sectors. Coal is also an important factor in many regions and regional policies. Due to the significant contribution of coal to the EU's security of energy supply, it is important to facilitate further development of this sector and to analyse the factors which affect the availability and affordability of coal resources.

The factors with a major impact on the best use and possible actions were presented starting with the transparency of Europe's coal inventory. An obstacle which could easily be overcome is the lack of harmonized rules for assessing coal reserves and coal resources considering all possible utilisations. Regulatory framework related to access to land and environmental impacts are key requirements for the coal mining industry and could be improved to facilitate the better use of indigenous coal resources.

Public awareness and acceptance have become one of the main hurdles for new coal mines and coal-fired power plants. Actions in this field are of high importance.

Dr. WILDE also stressed that more research relating to innovative and environmentally-friendly technologies of coal exploration, extraction and conversion could be necessary. Finally, this required that the current outstanding standards of training be maintained and further developed both in universities and in the mines.

The COM welcomes feedback from the industry and national authorities on the better use of coal resources. A set of recommendations regarding the action necessary to further this objective will be on the Agenda of the Berlin Fossil Fuel Forum in October 2009.

Also on behalf of the European Commission, DG Energy and Transport, **Chris BOLESTA** reported on the latest developments on CCS demonstration in the EU. He stressed that it is not needed for CCS to be obligatory now as it would not accelerate its deployment by 2020. He reminded participants of the policy goal to have CCS commercially viable by 2020, this being underpinned by a number of initiatives including the Strategic Energy Technology Plan, the Climate Package including the Emissions Trading Scheme (300 million allowances reserved for CCS demonstration projects and innovative renewable energy sources) and also the European Economic Recovery Package (EERP) adopted in May 2009, including 1.05 billion Euros financial support for CCS demonstration. The decision on how the ETS resources are spent will be taken by the end of 2009, while the money from the EERP will be already allocated to individual projects in 2009. The network of CCS demonstration projects will be an EU structure aiming to stimulate the demonstration of CCS power plants without providing direct financial support. The entities participating in the network would benefit from information, coordination and exchange on the European level, including identification and sharing of best practices, useful information and experience.

The Commission is already thinking of future deployment of a CO₂ infrastructure and it now intends to develop a complete and integrated database of European CO₂ sinks and sources. The main outline of a CO₂ transport infrastructure for different scenarios is also intended. To this end, a study is to be carried out in 2009 and 2010.

He concluded that without CCS coal will have no future in the energy mix in the CO₂-constrained reality and that the economic crisis should be seen as an opportunity for a transition to cleaner coal technologies in general.

Marianne WENNING, Head of Unit C.4 within DG Environment, reported on the Commission's work on industrial emissions policies, particularly the impact of the proposal to amend the Directive on Large Combustion Plants. The key element of the proposal is to merge the Large Combustion Plant Directive, the Integrated Pollution Prevention and Control Directive and five other so-called sectoral directives into (one) Industrial Emissions Directive. This proposal aims at strengthening the Best Available Techniques and the role of the BAT reference documents (BREF) as well as to establish new minimum emission limit values for large combustion plants. For each type of installation, the Commission and Member States would agree on BREFs. BAT associated emission levels would be established, defining the emission levels to be achieved by new and / or existing plants. The Emission Limit Values determined in the Annex of the Directive would only act as a "safety net" that could never be exceeded. These Emission Limit Values would be tightened as from 2016 onwards; no more National Emission Reduction Plans for existing plants would be allowed. Also, an opt-out clause would only be granted if the installation did not run for a specific amount of time per year. Mrs. WENNING also referred to the ongoing work under the Czech Presidency and assumed that the Presidency would come to a political agreement by June 2009.

Dr. Wolfgang RITSCHHEL, Director of the Verein der Kohlenimporteure and Vice President of EURACOAL, reported on current developments on the world coal markets.

In 2008, there were increases both in world coal production (now 5 800 Mt) and in international hard coal trade (929 Mt). However, during the first quarter of 2009, and compared with the first quarter of 2008, the coking coal world market decreased by 24 % or 9.5 Mt. World steam coal trade remained relatively stable.

Looking at coal prices, 2008 experienced peaks in summer in all segments, followed by a sharp decrease, the main reason being the global economic downturn. Dr. RITSCHHEL stated that in the long-term, stable world steam and coking coal markets would be able to satisfy European coal demand at competitive prices.





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**COAL AS
A STRATEGIC ENERGY
RESOURCE**

**PETR PUDIL
PRESIDENT EURACOAL**



5th Coal Dialogue

Coal as a Strategic Energy Resource

5th Coal Dialogue
Brussels – 8th May 2009

Petr Pudil
President

Coal as a strategic energy resource

Overview

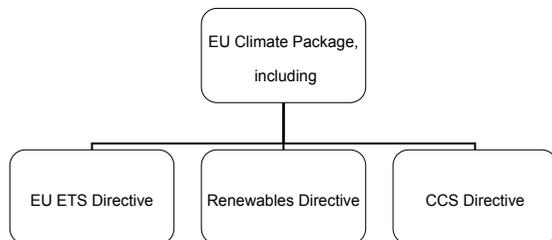
- Strategic Energy Review II and its follow-up
 - Security of Supply back in the focus
 - Best use of domestic energy resources – exploring and mining
- The climate protection challenge
 - increase of power plant efficiencies
 - CCS, particularly infrastructure needs in case of very ambitious climate policies

Slide 2

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EU Climate Protection Policy

The EU has committed to the “20 – 20 – 20” initiative in 2007



With the adoption of the Climate Package in December 2008, the measures till 2020 are fixed.

Slide 3

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The Strategic Energy Review - Focus on Security of Energy Supply

- **Background:** Fossil fuels, inter alia coal, remain an important component of Europe's energy supply for decades
- **Major proposal** in the Strategic Energy Review/ An EU Security and Solidarity Action Plan (November 2008):
 - In 2010, review of the “Energy Policy for Europe” (to be supported by a new Action Plan) with a view to charting
 - A policy agenda for 2030
 - A vision for 2050

Slide 4

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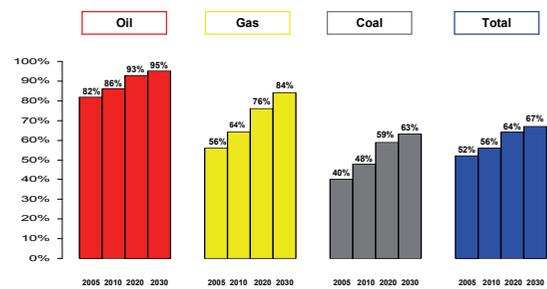
The Strategic Energy Review – Measures envisaged for fossil fuels, incl. coal

- Limiting the risks of import dependence
- With regard to coal the SER II states that “it is available in large quantities from numerous suppliers around the world”
- Advantages of domestic production are mentioned, e.g. the creation of wealth within Europe
- The Commission invites the EP and Council to promote the environmentally-compatible development of the EU's indigenous fossil fuel resources and to encourage the Berlin Fossil Fuel Forum to develop a concrete set of recommendations regarding the action necessary to further this objective

Slide 5

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Projected EU Energy Import Dependence



Source: European Commission, EU Trends to 2030, update 2007

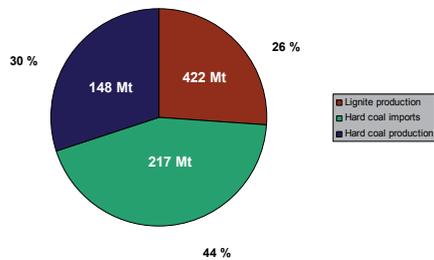
The use of coal reduces import dependence.

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Both imported and indigenous coals are making a major contribution to our supply

EU Solid Fuel Supply 2008 (adjusted for calorific value)



Source: EURACOAL

Slide 7

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2010 Energy Policy for Europe – Combining Security of Supply and the Climate Package

- The Climate Package had negative consequences for security of supply – coal as the most abundant fossil fuel in the EU was disadvantaged
- Therefore, these consequences should be limited by fully implementing
 - The aid for CCS demonstration plants
 - JI/CDM
 - The option for MS to help new power plants with 15% of the investment costs

Slide 8

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European Council: We must make best use ...

... of Europe's strategic fossil fuel resources, particularly coal resources.

- Where are they? How much of it?
- How can we secure full access to them?
- How can we fully exploit the resources that are mined?
- The use of coal for steel making and in power plants – how?
- Are there opportunities for novel use of coal resources (UCG, CTL), and how?

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Coal as a strategic energy resource

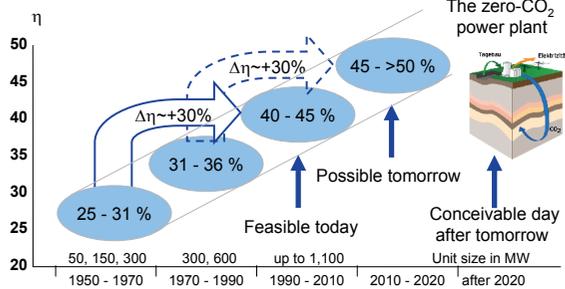
Overview

- Strategic Energy Review II and its follow-up
 - Security of Supply back in the focus
 - Best use of domestic energy resources – exploring and mining
- The climate protection challenge
 - increase of power plant efficiencies
 - CCS, particularly infrastructure needs in case of very ambitious climate policies

Slide 10

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Better use of coal for electricity generation has different aspects ...

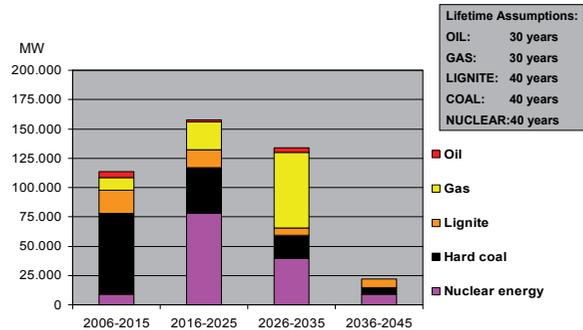


The right approach: continuous power plant modernization/renewal

Slide 11

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Significant capacity needs to be replaced in the short to medium term



Source: Prognos, here: EU-25

Slide 12

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CCS – EURACOAL's overall position

- CCS is a **highly promising technology** within climate protection policies
- The demonstration **project network** proposed by the Commission / the ZEP Technology Platform must be put into practice as soon as possible
 - Project selection - criteria and modalities to be definitely fixed in the Comitology procedure
 - Encourage Member States to co-finance the projects from auctioning revenues
- Decisions on CCS obligations only after results of industrial demonstrations have been evaluated (review in / after 2015)
- Retrofit with CCS after 2020: in some places, top efficiencies may be the best option; any retrofit is subject to proportionality
- Capture-readiness as defined in the CCS Directive is backed

Slide 13

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Council and EP Decisions concerning Climate Protection

Till 2020:

- 20 % renewables, 20 % energy savings; 20 % less GHG

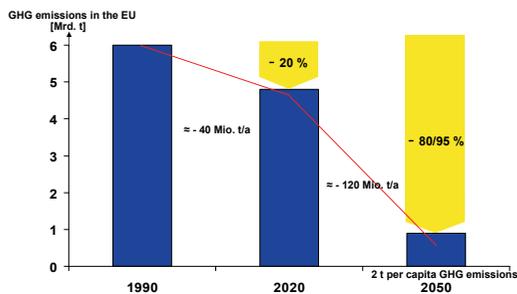
Till 2050:

- Limit global rise in temperature $\leq 2^{\circ}\text{C}$;
objective ≤ 450 ppm CO_2 in atmosphere
- Worldwide reduction of anthropogenic GHG emissions to 50 % of 1990 level
- Fair burden sharing, i. e. industrialised countries reduce over-proportionally, i. e. 80 – 95 % with 1990 as base year
- Fairness at ≈ 2 t GHG emissions per capita per year

Slide 14

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Climate Protection in the EU two phases – two speeds



Conclusion: For the EU, this means that GHG emissions of 5,8 billion t/a in 1990 must be limited to ca. 4,6 billion t in 2020 and ca. 1 billion t/a in 2050.

Slide 15

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The minus 80/95% CO_2 - case

- All fossil fuels to be used industrial installations with CCS only; CCS becomes a general obligation for industry in Europe
- Operators of installations must pay for capture, transport and storage, independent of the fossil fuel type used
- The CCS infrastructure (transport and storage) is needed at around 2020 and becomes an issue of secure energy later
 - It creates planning security
 - It secures industrial activity in Europe and may become a production factor for Europe
 - Its construction is therefore of general interest; a single user cannot afford it; a common effort is needed

Slide 16

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**BEST USE OF
EU'S INDIGENOUS
COAL**

**DR. MARION WILDE
EUROPEAN COMMISSION
DIRECTORATE GENERAL
ENERGY AND TRANSPORT
UNIT C.3 COAL & OIL**

● 2nd Strategic Energy Review – Securing our energy future (SER II)

- Political agenda for energy for the short/medium term
- Main theme of SER II:

EU Energy Security and Solidarity Action Plan

- » External relations
- » Emergency oil stocks, gas crises mechanisms
- » Energy efficiency
- » Indigenous energy sources



● Making the best use of the EU's indigenous energy resources

- Clear objective for renewables, the EU's greatest potential source of indigenous energy
- Role of coal in the domestic energy supply as an important alternative to oil and gas
- Technology is crucial; next step in the Strategic Energy Technology Plan to be a Communication on Financing Low Carbon Technologies; including ways to support large scale demonstrations at EU level like CCS
- Long-term use of coal requires highly-efficient plants and wide availability of CCS
- **COM calls to promote the environmentally-compatible development of the EU's fossil fuel resources and to encourage the Berlin Fossil Fuel Forum to develop a set of recommendations regarding the actions necessary.**



● The role of coal for energy supply

- Coal is a large contributor to EU energy supply with a share of around 18 % in the EU-27 total energy consumption
- One third of power generation in the EU is based on coal – 30 % of hard coal is used for steel production and other industrial processes
- EU is the third biggest consumer of coal worldwide – rapid increase in global demand for coal
- EU coal production 155 Mt hard coal and 438 Mt lignite in 2007
- 60 % of EU coal consumption is derived from indigenous production
- Increasing dependence on imports of hard coal coming from Russia, South Africa, Colombia and other countries.



● Role of coal for the economical and social development

- Contribution of coal to the “Lisbon Strategy” towards more competitiveness and employment
- EU coal mining sector accounts for more than 280 000 employees – in the whole coal-value chain and coal-related suppliers and businesses the employment is much higher
- Coal is a major component of many regional economies and regional policies



● Advantages and problems of coal

- + coal is a domestic fuel at a significant share
- + coal is an abundant energy source which is globally available
- + coal price is comparably stable and affordable for electricity production
- + can be stored easily in large quantities
- + well understood conversion process
- + can provide flexibility in the management of electricity systems

— coal is the most carbon intensive fuel
— other environmental concerns



● Main factors affecting the availability and affordability of coal resources

- Transparency of Europe's coal inventory
- Regulatory framework related to access to land and environmental impacts
- Public Acceptance
- Research and Innovation
- Availability of skilled workforce



● Transparent and coherent EU coal inventory

- Lack of harmonized rules for assessing coal reserves and resources across MS reduces EU wide transparency and knowledge
- Undermines efforts to develop projects aiming at reducing the external dependence of coal supply

Possible solutions may include

- Analysing differences in reserve and resource classification in the MS to obtain an EU-wide compatible system taking into account all characteristics of coal
- Exploring the possibilities of establishing an EU map of important coal basins
- Encouraging further exchange and sharing of experience and better networking between geological surveys or related institutions



8

● Regulatory framework related to access to land and environmental impacts

- Access to land is a key requirement and is crucial for securing the coal supply and to replace depleted mines

Important framework conditions for access to land are

- Land use planning
 - Permission procedures
 - Natura 2000
- Impacts on the availability and affordability of coal resources



9

● Possible actions to improve the regulatory framework related to access to land by

- “Better regulation” with less administrative burdens in environmental approval procedures
- Developing a guidance document that provides clarity on how to reconcile mining activities in or near Natura 2000 areas and species with environmental protection



10

● Possible actions to improve acceptance by

- Improving public awareness for the importance of coal mining and utilisation in order to secure the energy supply and to meet economic and social needs in Europe
- Promoting more effective dialogue between public, authorities, local communities, NGO's and industry
- Encouraging information and communication campaigns on the implications and questions of new projects and technologies
- Taking into account who conveys the message and which different audiences are interested



11

● Possible actions to improve Research and Innovation by

- Promoting R&D on innovative and environmentally friendly exploration, mining and conversion technologies including unconventional uses of coal through MS and Community instruments such as RFCS
- Encouraging further exchange and sharing of information and experience on coal-related R&D and cooperation between governments, universities and research institutes and industry
- Promoting activities for EU clusters and competence centres on mineral resources and their utilisation



12

● Possible actions to improve the availability of skilled workforce

- Encouraging more collaboration on mining related-educational programmes between universities, geological surveys and industry
- Improving the teaching and research capacities for mining-related engineering at European universities and research institutes
- Promoting skills in innovative mining and processing technologies and resources efficiency
- Attracting students to mining-related degrees and making the coal industry more promising for graduates and skilled workforce



13





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DIRECTORATE C - Conventional Energies

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European Association for Coal and Lignite

**CCS DEMONSTRATION
LATEST DEVELOPMENTS
IN THE EU**

**CHRIS BOLESTA
EUROPEAN COMMISSION
DIRECTORATE GENERAL
ENERGY AND TRANSPORT
UNIT C.3 COAL & OIL**



Directorate-General
for Energy
and Transport

● CCS Demonstration

Latest developments in the EU

Chris Bolesta
Policy Officer - Coal and Oil
European Commission

08/05/2009 - Brussels



Policy goal

● CCS commercially viable by 2020

Delay of demonstration
means more CO₂ emitted !!!



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for Energy
and Transport

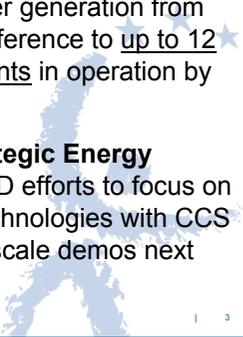


The CCS Story

● **2007 Spring European Council** calls for enabling low-CO₂ power generation from fossil fuels by 2020. Reference to up to 12 CCS demonstration plants in operation by 2015;

● **November 2007: Strategic Energy Technology Plan** - R&D efforts to focus on strategic low carbon technologies with CCS as one of them. Large-scale demos next priority;

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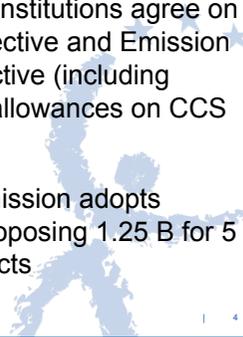



CCS New Year's Revolution

● **December 2008** EU institutions agree on the CCS enabling Directive and Emission Trading Scheme Directive (including famous 300 M pot of allowances on CCS projects)

● **January 2009** Commission adopts Recovery Package proposing 1.25 B for 5 large scale CCS projects

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Follow up

● **Legislation**

- » CCS Directive (ENV)
- » Revised ETS (ENV)
- » Recovery Package (TREN)

● **Non-legislative actions (TREN)**

- » Network of CCS demo projects
- » Deployment of CO₂ Infrastructure

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CCS Directive

● **Enabling Framework**

- » Member States determine whether and where CCS will happen
- » Companies decide whether to use CCS on the basis of conditions in the carbon market

● **Objectives and Principles**

- » Legislative Framework for managing environmental risks
- » Overcame existing legal barriers
- » Use existing frameworks where possible

● **Focus on Storage**

- » Capture regulated under IPPC Directive
- » Transport regulated as for natural gas transport (by Environmental Impact Assessment and at Member state Level)

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● How we want to achieve it?

- I. Analyse results of previous/ongoing projects on CO2 emission points, potential storage sites and infrastructure transport needs
- II. Identify gaps and problems
- III. Fill-in the gaps and solve/propose solutions of remaining problems
- IV. Enable access for interested parties to database
- V. Identify main characteristics of core European CO2 transport infrastructure

● Timeframe

- » Call for tender (study) published: March 2009
- » Deadline for submissions: May 2009
- » Project execution 2009/2010

Also...

- » 2009 - Revision of TEN-E guidelines to include CO2 infrastructure (?)

● Conclusions

- To prove CCS economically viable by 2020 we need demonstration plants asap
- Commission identified financing sources. Now clear commitment of MS and companies needed
- Involvement of coal producers - crucial
- Financial crisis to be used as opportunity





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DIRECTORATE C - Industrial Emissions & Protection of the ozone layer

EURACOAL
European Association for Coal and Lignite

**TOWARDS AN IMPROVED POLICY
ON INDUSTRIAL EMISSIONS -
IMPACT OF THE IPPC RECAST
PROPOSAL ON LARGE
COMBUSTION PLANTS (LCPs)**

MARIANNE WENNING
EUROPEAN COMMISSION
DIRECTORATE GENERAL
ENVIRONMENT
UNIT C.4 INDUSTRIAL EMISSIONS
& PROTECTION OF THE OZONE
LAYER

Current legal situation – IPPC and LCP Directives

IPPC Directive – 2008/1/EC

- Installations must operate according to an **integrated permit**
- Permits should contain **ELVs based on BAT** with the possibility to take into account certain local conditions
- **BAT information exchange** leads to the **BAT Reference Documents (BREFs)**, adopted by the Commission

LCP Directive – 2001/80/EC

- regulates emissions of **SO₂, NO_x and dust** from combustion plants > 50 MW rated thermal input
- sets **minimum standards** without prejudice to IPPC Directive



2

Review of current framework (2005-2007) Main concerns with the status quo

- **Insufficient implementation of BAT (BREFs)**
- **LCP: significant emission reductions needed to achieve TSAP objectives**

- LCPs = main source of SO₂ and NO_x emissions (2005)
 - 74% (SO₂), 49% (NO_x) of NECD **industrial** emissions
 - 60% (SO₂), 19% (NO_x) of NECD **total** emissions
- BAT implementation is lagging behind: large gap between current emissions and BAT AELs
- LCP Dir "minimum" ELVs are generally much higher than BAT AELs
- BAU MS policy will not achieve TSAP objectives
 - **BAT will close gap by 38% for NO_x and 65% for SO₂**



3

COM Proposal for an Industrial Emissions Directive

Recast Proposal - COM(2007) 844 final, 21.12.2007

- The Commission's proposal for a Directive on industrial emissions **recast into one single act the IPPC and LCP Directives** (and 5 other 'sectoral' Directives)
- **Key elements**
 - strengthening of BAT and the role of the BREFs
 - new minimum emission limit values for LCPs



4

BAT: strengthening the role of the BREFs

BREFs shall be the reference for setting the permit conditions (Article 15(3))

BREFs contain emission levels associated with the use of BAT (**BAT-AELs**)

Permits must contain **emission limit values (ELVs)** set by the competent authority that do not exceed BAT-AELs (Article 16(2))

Derogation from BAT AELs is allowed in **specific cases** as long as it is **justified** (Article 16(3))



5

New minimum ELVs for LCPs

- **tightening of minimum ELVs for LCPs from 2016 on**
 - aligned with current BAT as set out in the LCP BREF 2006 (upper end of the range of BAT AELs)
 - differentiation pre / post 2016 plants
- **no more NERP option for existing plants**
 - emission trading is being considered as an option
- **no "opt outs"**



6

Co-decision: state of play in EU institutions

- **EP:** 1st reading - vote in plenary was on 10 March 2009
- **Council:** political agreement foreseen under CZ Presidency in June 2009
 - **key points of discussion in WPE**
 - role of BAT/BREF
 - application date / flexibilities for ELVs for LCPs
- The proposal may be subject to a **second reading**
- **End of co-decision** foreseen in 2010

Thank you



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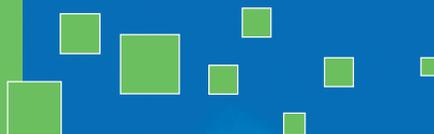
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**CURRENT DEVELOPMENTS
ON GLOBAL COAL MARKETS**

DR. ING. WOLFGANG RITSCHEL
VICE-PRESIDENT
EURACOAL



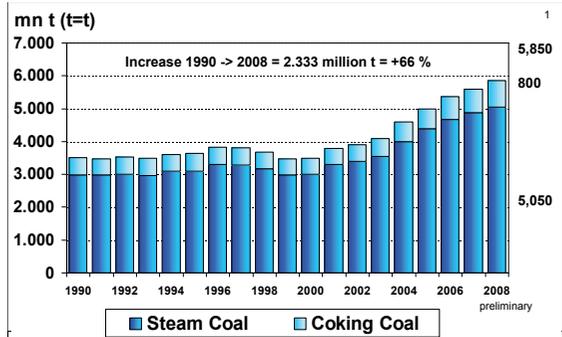
Fifth Coal Dialogue EU / Euracoal

08 May 2009, Brussels

Report on current developments on global coal markets

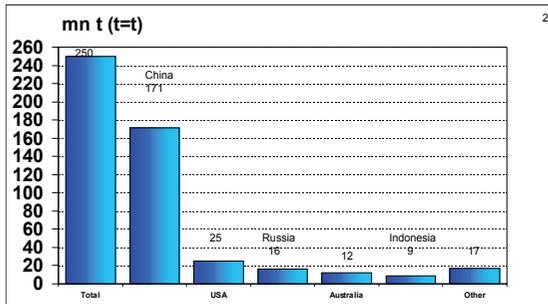
Dr. Ing. Wolfgang Ritschel

Vice President Euracoal



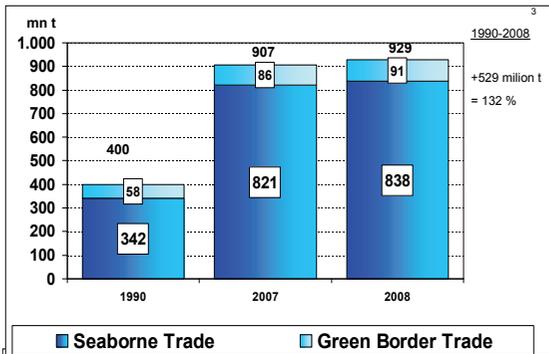
Development World Coal Production
1990 - 2008

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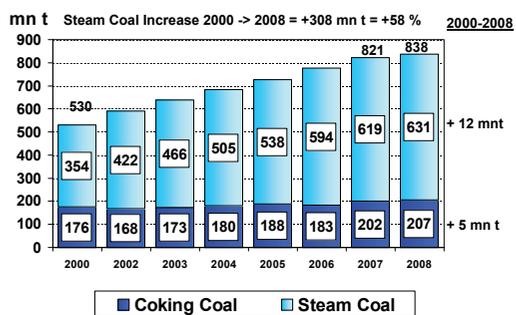
Increase of World Coal Production
in 2008

EURACOAL



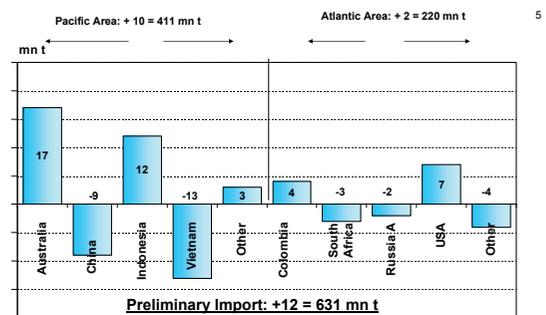
International Hard Coal Trade

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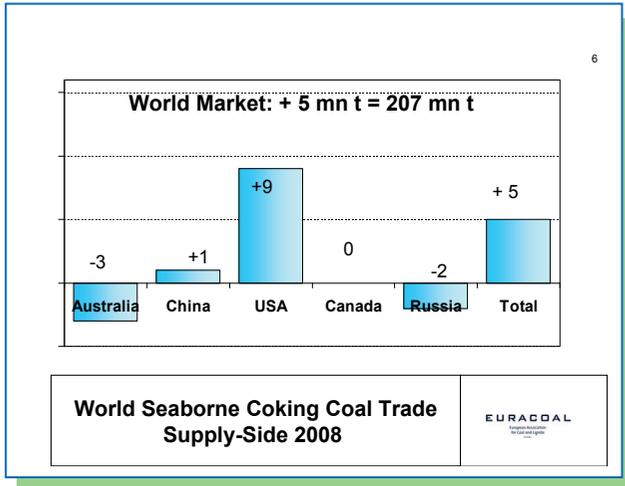
Preliminary World - Hard Coal
Seaborne Trade

EURACOAL



World Seaborne Steam Coal Trade
Supply Side 2008

EURACOAL



7

Supply of Steam Coal 1-3/09 in Million t			
	1-3/2008	1-3/2009	Change
Atlantic			
South-Africa	13,3	14,6	+ 1,3
Colombia	16,4	15,3	- 1,1
USA	6,6	3,3	-3,3
Russia	21,0	20,9	- 0,1
Venezuela	1,5	1,0	-0,5
Other	1,0	1,0	-
Preliminary	59,8	56,1	- 3,7

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8

Supply of Steam Coal 1-3/09 in Million t			
	1-3/2008	1-3/2009	Change
Pacific			
Australia	29,4	36,1	+ 6,7
China	9,7	7,1	-2,6
Indonesia	37,0	35,0	- 2,0
Vietnam	3,1	3,4	+ 0,3
Other	1,5	2,0	+ 0,5
Total	80,7	83,6	+ 2,9

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9

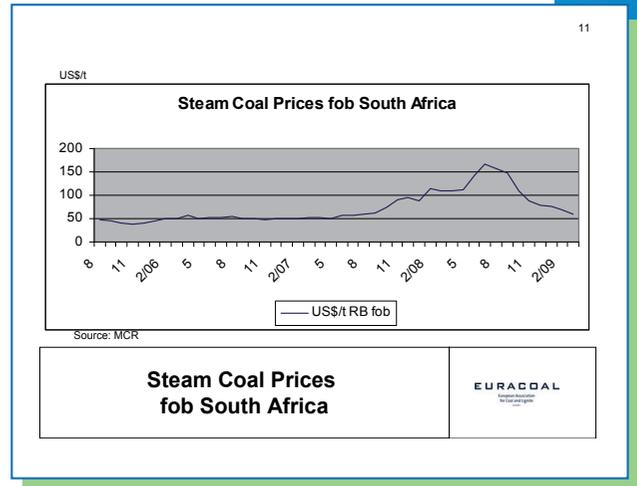
Supply of Coking Coal 1-3/09 in Million t			
	1-3/2008	1-3/2009	Change
Australia	29,6	21,5	- 8,1
China	0,5	0,2	- 0,3
USA	4,0	5,5	+1,5
Canada	4,4	2,3	- 2,1
Russia	1,0	0,5	- 0,5
Total	39,5	30,0	-9,5 (-24 %)

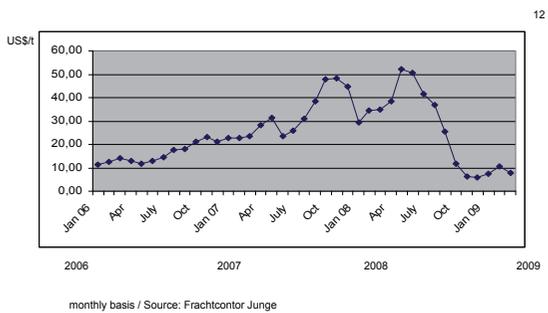
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10

Supply 01-3/09 in Million t			
	1-3/2008	1-3/2009	Change
Steam Coal	140,5	139,7	- 0,8
Coking Coal	39,5	30,0	- 9,5
Total	180,0	169,7	-10,3 (- 6 %)

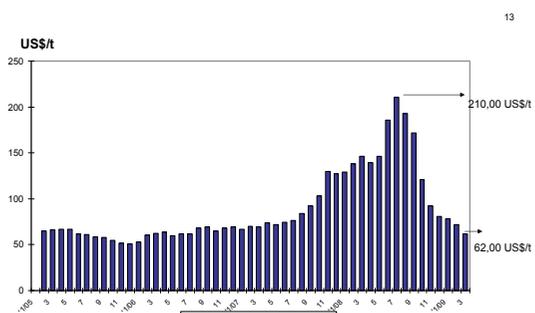
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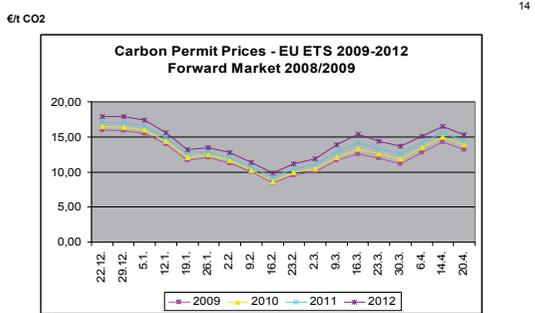
Development International Freight Rates (Richards Bay - ARA) spot

EURACDAL



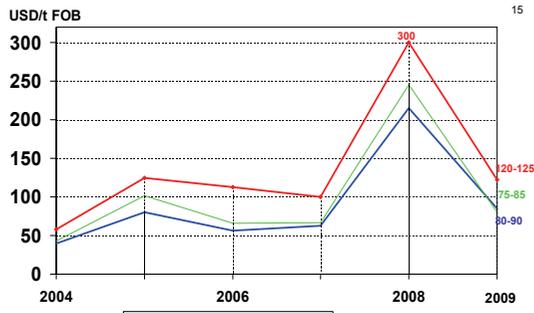
Development Steam Coal Prices MCIS cif NWE-ARA (spot)

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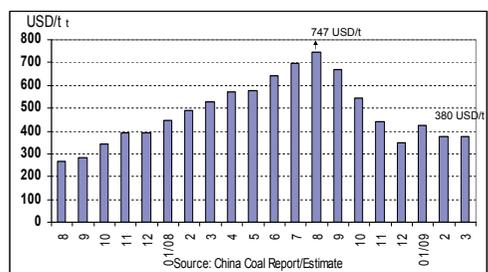
EU Carbon Futures Forward Market 2008/2009

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Metcoal - Contract fob Prices Forecast for 2009

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April 09: Coke Prices spot cif NWE for Quality 10,5 - 11,5 % Ash = 220 USD/t

Price Development Chinese Coke fob, -spot, 12-12,5 % Ash-

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European Association for Coal and Lignite



CLEANER COAL IN CHINA

BRIAN RICKETTS
INTERNATIONAL ENERGY AGENCY



FIFTH COAL DIALOGUE
 European Commission
 DG TREN / EURACOAL
 8 May 2009, Brussels



Brian Ricketts
 布莱恩瑞克持
 Energy Analyst – Coal 能源分析师 – 煤炭行业
 International Energy Agency 国际能源署

The book and contributors

- Forewords (IEA & NDRC)
- I. Executive Summary
- II. Introduction
- III. Coal in China Today
- IV. Alternatives to Coal
- V. Technologies & Policy
- VI. Markets & Institutions
- VII. Experience in Other Countries
- VIII. Domestic & International Studies
- IX. International Collaboration
- X. Recommendations
- Annexes

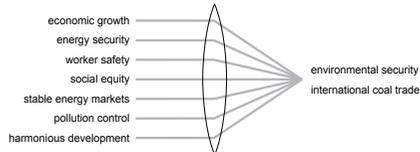
National Development and Reform Commission

China Coal Information Institute
 China Coal Research Institute
 China National Coal Association
 Energy Foundation

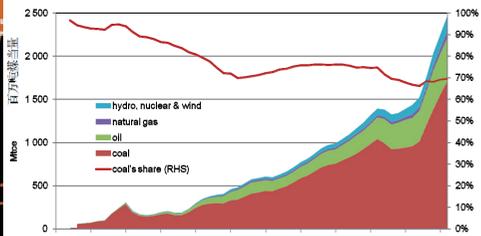
Consultants:
 Prof. Nobuhiro Horii
 Dr. Andrew Minchener
 Mr. Simon Walker

IEA Committees and Secretariat
 IEA Coal Industry Advisory Board

Objective: bring China's concerns into focus and so progress international agendas
 目标: 世界把中国所关注的事情纳入重点, 从而促进国际议程进展

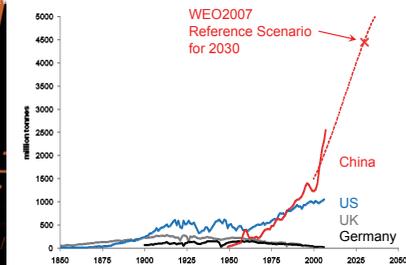


Coal in China today 中国煤炭工业现状

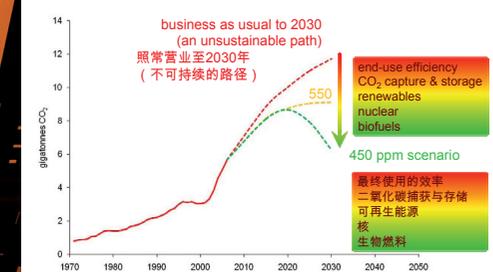


	TPES	coal's share	elec. gen.	coal's share
World	11 741 Mtoe	26.0%	18 930 TWh	41.0%
OECD	5 537 Mtoe	20.6%	10 449 TWh	37.5%
USA	2 321 Mtoe	23.7%	4 274 TWh	49.8%
China	1 879 Mtoe	64.0%	2 864 TWh	80.3%
India	566 Mtoe	39.4%	744 TWh	68.3%

China's coal production and use could rise enormously



Reducing China's CO₂ emissions from fossil fuel use
 减少中国使用矿物燃料排放的二氧化碳



Sources: IEA databases and IEA World Energy Outlook 2008

Coal technology achievements in China
洁净煤技术在中国取得的成就

- >50% of China's coal-fired power plant capacity is fitted with flue gas desulphurisation (FGD).
中国大于50%的燃煤电厂装有烟气脱硫(FGD)
- 4 000 MW Yuhuan power plant sets a new global benchmark for efficiency.
400万千瓦玉环电厂在效率上树立了一个新的全球标准
- One of the world's first pilot demonstrations of CO₂ capture from a coal-fired power plant is in Beijing.
世界上第一个从燃煤电厂捕获二氧化碳的试验示范项目位于北京
- CO₂ capture and storage project at the world's first commercial-scale direct coal liquefaction plant.
世界上第一个商业规模的煤直接液化工厂的二氧化碳捕获和储存项目



Shenhua CTL plant near Erdos, Inner Mongolia: 25,000 bpd (1.1 Mtpa)

Recommendation 建议 2:
 Greater accountability when implementing environmental laws at provincial level and below.
省级以下机构在执行环保法时承担更多责任

Recommendation 建议 6:
 Well-proven technologies, management practices and policies for immediate and sustainable improvements.
采取迅速并可持续地改善整个供应环节的成熟技术，管理实践和政策

Recommendation 建议 8:
 Train and empower coal mine workers & strengthen mines inspectorate.
培训矿工，让其亲自承担更多的人身安全责任，以及加强煤矿监督



Datang Group Xiaoyu state-owned coal mine

China as a power equipment importer and exporter
中国电力设备进口及出口

Recommendation 建议 10:
 Promote technology transfer through Joint Ventures and Foreign Direct Investments.
鼓励合资和独资行为，以促进技术引进和出口

Recommendation 建议 5:
 Common technical standards for coal-fired plants to make clean plants universally available and affordable.
为燃煤电厂制定统一的技术标准，可使洁净煤技术更为经济合理



Xishan Coal Electricity Tunlan coal mine (6 Mtpa) and Gujiao power plant (600 MWe – planned to reach 3,000 MWe)

Recommendation 建议 1:
 Market-based, energy and resource pricing.
基于市场的能源和资源定价

Recommendation 建议 7:
 Coal industry restructuring should promote competing companies of varying sizes from small to large.
煤炭工业重组应促进不同规模公司的竞争

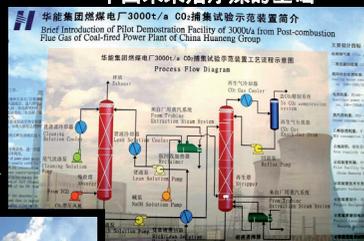
Recommendations 建议 3 & 4:
 "Polluter pays principle", including market-based mechanisms, such as carbon trading.
"污染者付费原则”，包括基于市场的机制，比如碳交易



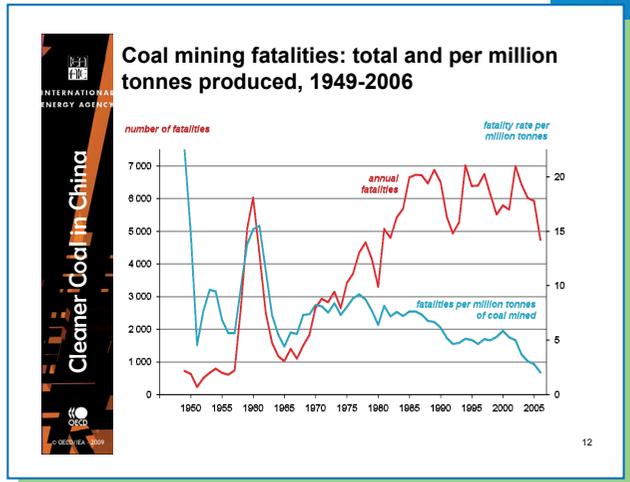
Tong Mei Datang Tashan coal mine: 15 Mtpa, 4 x 60 MWe + 2 x 600 MWe

Foundations of a cleaner future for coal in China
中国未来洁净煤的基础

Pilot-scale CO₂ capture plant (3,000 tCO₂/year) at China Huamei's Beijing CHP plant.
 © Jacques de Steurs 2008



Recommendation 建议 9:
 International and national RD&D partnerships to stimulate new technologies prior to commercialisation.
在商业化之前，应为国际和国内研发和示范合作提供支撑，以推动新技术的发展

PANEL DISCUSSION

During the Panel Discussion, participants focused on the following issues:

- **Jean-Arnold VINOIS** referred to DG Energy and Transport's work within the framework of the New Energy Policy since 2006. This included the third internal market package that is also an underlying pillar of the second important item, the climate protection policies and objectives. With the Energy Security and Solidarity Action Plan (as a part of the Strategic Energy Review II / November 2008), the Commission, particularly DG Energy and Transport, now further focuses on security of supply issues. The revision of the TEN-E guidelines currently being prepared could serve as a hook to implement energy guidelines within that scheme. This could also include carbon capture and storage as one of the strategic energy developments. Mr. VINOIS called upon industry, particularly the coal industry, to contribute to the Commission's work both on the Energy Security and Solidarity Action Plan and on energy infrastructure issues.
- **Sven-Olof ERICSSON**, Swedish Ministry of Enterprise, confirmed that in addition to the preparatory work for the Copenhagen Climate Conference, the Industrial Emissions Directive and the principles for the allocation of EU ETS allowances would be major topics of the forthcoming Swedish Council Presidency.

The Swedish government remains generally in favour of CCS and geological storage as one of the solutions for addressing the CO₂ challenges of coal utilisation. Efficiency in

power plants as well as the mitigation of mercury emissions are seen as additional challenges. He also added that the IPCC Directive is not very clear on mercury emissions.

- **Brian RICKETTS**, International Energy Agency (IEA), reported on the development of cleaner coal in China. A recently published IEA Report presents an overview of coal in China that has a 64 % share in the country's primary energy consumption and an 80 % share in its electricity generation.

The IEA acknowledged coal technology achievements such as flue-gas desulphurisation in the majority of Chinese power plants, efficiency developments and CCS pilot projects. At the same time, the IEA recommended ways how China might improve the sustainability of its coal use, including:

- o greater accountability when implementing environmental laws and stronger mines inspectorates
 - o well proven technologies, management practices and policies for immediate and sustainable improvements
 - o promotion of technology transfer and national / international R&D partnerships
 - o better implementation of the polluter pays principle as well as market-based resource-pricing.
- On behalf of EURACOAL, the Association's Environment Committee Chairman, **David BREWER** explained why flexibility is needed in the future Industrial Emissions Directive. With regard to technologies implemented,

the average age of the power plant portfolio and retrofit activities, situations differ from Member State to Member State. Also, as coal is a raw material, the nature and qualities of coals differ widely. Some indigenous coals with relatively high sulphur content needed the alternative to follow an achievable desulphurisation rate instead of an emissions limit value.

Operators should also be able to opt for indigenous coals for commercial reasons, rather than being forced by the Directive to choose lower-emitting imported coals as an alternative where these were available; this would help to maintain competitive indigenous mines in operation; if these mines could be saved, this would also lead to a contribution to security of energy supply in Europe. Mr. BREWER referred to the Council's discussion of National Emissions Reduction Plans that could be prolonged for a number of years and therefore serve as a bridge to a new generation of capture-ready power plants in many EU Member States. He stressed that if these adjustments are not made to the directive, it will lead to premature closure of power plants and a dependency on imports.

- **Mrs. WENNING** stressed that it will be necessary to reduce emissions from large power plants already in the years 2016 to 2020. On the other hand, she admitted that investment cycles and the natural qualities of coal must be taken into account when deciding about the Directive. The Commission is in discussions with the Council on these issues trying to find solu-

tions and improving the existing version of the draft. She added that there is a good cooperation with China on permitting processes and pointed to the Sevilla conference of the Institute of Prospective Technological Studies (IPTS), where China is invited.

During the discussion, the following topics were covered:

- **Mr. RICKETTS** raised the issue of implementing mercury emissions trading in the current legislation. On behalf of the Commission, **Mrs. WENNING** stressed the fact that mercury emissions trading are new in Europe and that there is not enough information yet. DG ENV is engaged in a study to understand the issues around this area.
- On behalf of Greece, **Mr. CHRISTOPOULOS** raised two concerns; firstly, how could Climate Change be tackled without contribution from the developing countries, and secondly the need for tailor made solutions for the emissions directive on Large Combustion Plants. **Mr. VINOIS** stressed that countries like China and India are already among the world's largest greenhouse gas emitters. A Copenhagen Protocol would have to link global climate protection objectives and measures that best include contributions to climate protection from all major emitting countries.
- **Mr. ANDRIEU** of DG RTD recalled that every year the Research Fund for Coal and Steel makes about € 15 million available specifically for coal-related research activities within EU. Third countries are also entitled to apply together with European partners

without research funding from the EC. The Commission invites industry and institutions to present 2010 proposals by 15th September 2009 and also to nominate experts to assist the Commission in the examination of the proposals.

- **Mrs. MARTIN GONZALEZ** mentioned that the European legal framework for state aid expires at the end of 2010, and that from the Spanish coal industries' view a follow-up regulation would be necessary. **Mr. PANEK** made reference to the upcoming Commission consultation that will give stakeholders an opportunity to present their views.

- **Mr. PANEK** stated that the issue of the best use of indigenous coal within the EU could be dealt with by the Fossil Fuels Forum Working Groups and later the Forum's Plenary. Within that framework, measures to be taken could be discussed. If an agreement has been reached by the plenary session of the Berlin Forum in October, the new Commission will be in a well informed position to make decisions quickly and decide on further steps as early as beginning of 2010.

In his summary of the discussion, **Mr. PUDIL** emphasised that:

- the CCS demo projects should operate by 2015 to make sure that remaining technical questions are addressed,
- a CCS infrastructure is a societal demand if deep cuts in CO₂ emissions resulting from the use of fossil fuels are necessary

- participants welcomed the CCS demonstration project network planned by the Commission

- in the meantime, continuous modernisation, leading to new capture-ready coal-fired power generation, is necessary,

- the Fossil Fuels Forum should further develop potential measures related to the role of indigenous coals, and

- Council and Parliament should be able to achieve a compromise on the Draft Industrial Emissions Directive acceptable to all.

Mr. PANEK and **Mr. PUDIL** thanked the speakers and all those who had contributed to the discussion. They both stressed that an open discussion on coal-related issues between Member States, the Commission, the European Parliament and industry is essential to arrive at an appropriate outlook on the contribution of coal to Europe's energy challenges.





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