European Union policies and strategies related to the use of coal

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The role of coal in the EU

- EU is the fourth largest consumer behind China, USA and India (303 Mt hard coal and 415 Mt lignite in 2010)

- Coal use accounts for 16% of EU-27 total energy consumption and 25% of EU-27 electricity generation in 2010

- Coal use accounts for 28% of global primary energy use and 40% of electricity output in 2010

- EU domestic coal production in 2010:
  - 412 Mt brown coal/lignite (99% of total EU lignite consumption) - Trend stable production
  - 130 Mt hard coal (42% of total EU hard coal consumption) - Trend decreasing production and increasing imports from Russia, Columbia, US, Australia

- Coal industry important for jobs with 260 000 direct employees and major component in a number of regional economies
Gross power generation, World vs. EU 27 - 2010

World: 21 325 TWh
- Oil: 4%
- Natural Gas: 17%
- Coal: 22%
- Nuclear: 41%
- Hydro: 13%
- Renewables: 3%

EU27: 3 346 TWh
- Oil: 3%
- Natural Gas: 23%
- Coal: 25%
- Nuclear: 28%
- Hydro: 12%
- Renewables: 9%

Source: IEA, BP, EURACOAL
Coal-fired power generation and its share in EU MSs' power mix in 2010

Share of coal in domestic power generation (%)

Amount of power generated from coal, (TWh, 2010)
Growth in global energy demand, 2000-2010

Source: IEA World Energy Outlook 2011
Global coal supply according to IEA's mid-term coal market outlook, 2011
Objectives of EU Energy Policy

• Goal: To ensure that European businesses and consumers obtain safe, secure and sustainable energy at competitive prices.

- Internal Market
- Networks and other Infrastructure
- Research & Innovation

Competitiveness
- Climate change control
- Environmentally friendly production and combustion

Sustainability
- International Dialogue
- Diversification
- Best use of indigenous fuels

Security of supply
Energy policy development

- Regulation on security of gas supply
- Energy Strategy 2020
- Third Internal Energy Market Package
- Energy Efficiency Directive
- Energy Infrastructure Legislative Proposal
- External Energy Policy Communication
- Communication Smart Grids
- Communication on Renewable Energy
- Energy Infrastructure Package
- Energy 2050 Roadmap

Year Timeline:
- 2009
- 2010
- 2011-12
Key policy drivers - energy security

Import dependency under current trends and decarbonisation (%)

- CPI
- low Nuclear
- Energy Efficiency
- Div. Supply Techn.
- delayed CCS
- RES

Source: European Commission Scenarios, Roadmap 2050
Key policy drivers - Climate challenge

Share of greenhouse gas emissions in 2008

- Energy: 79%
- Agriculture: 10%
- Industry Processes: 8%
- Waste: 3%
- Other: 0%

Source: European Commission & EEA 2010
Second Strategic Energy Review – Best Use of Indigenous Fossil Fuels

- It recognised the potential contribution of EU’s indigenous energy resources to energy security

- Role of coal in the domestic energy supply as an important complement to oil, gas as well as renewables

- Long-term use of coal requires:
  - Highly-efficient plants and wide availability of CCS
  - Competitive and environmental acceptable coal production
Energy Infrastructure Package – COM legislative proposal- 19 October 2011

Financial Regulation Connecting Europe Facility

- Budget of 50 bn EUR
- Energy – 9.1bn
- Transport – 31.7bn (incl 10bn cohesion)
- ICT – 9.2 bn
- Project Bond Pilot
Energy Roadmap 2050

- **Current situation:** 187 GW installed capacity
- **Current policy initiative projection until 2050:** 104 GW
- **Decarbonisation scenario (Diversified supplied scenario) projection until 2050:** 84 GW
- **Coal in the EU adds to a diversified energy portfolio and contributes to security of supply.** With the development of CCS and other emerging clean technologies, coal could continue to play an important role in a sustainable and secure supply in the future
- **The long-term future of coal use requires the utilisation of CCS**
Transition to low carbon and low emissions energy systems

- EU’s agenda set out steps in transition to high-efficiency and low carbon energy systems - integrated climate and energy policy
- Emission Trading System (EU ETS) – cap and trade system putting price on CO2 emissions and incentivising market players to invest in low carbon technologies
- Lowering emissions from coal power plants like SO2, NOx and particulates
- Two relevant legal acts - directives:
  - Integrated Pollution Prevention and Control (IPPC)
  - Large Combustion Plants (LCP)
  - Recasts seven directives in one act
  - Stricter limits on air, soil and water pollution
Policy Objectives

*Demonstrate CCS by 2015*

*Commercially viable CCS after 2020*
Investments in coal plants to 2050

- Diversified Supply Technologies scenario

Fossil fuel-fired capacity investments in power generation (GW)
COM Initiatives on CCS

• Legal Framework – CCS Directive (Capture ready requirements regulated)

• Successful demonstration - 2 funding instruments (EEPR / NER 300)

• Project Network – Knowledge sharing

• Innovation - European Industrial Initiative under the SET plan

• Public Acceptance
Where do we stand?

- 6 projects receive EU funding from EERP
  - 1 project has been terminated
  - none has taken FID yet
  - only 2 projects could be operational by 2016

- Under NER300, 2-3 projects may be funded (award decision end 2012)
CCS Perspectives

- Energy Roadmap 2050 shall help to develop a long term European energy policy while guaranteeing competitive markets and security of supply
- CCS is part of this policy. Decisive actions are needed to overcome current delays in demonstration and allow CCS to realise its potential

- Cross border cooperation is needed to develop integrated CCS concepts and Infrastructure Development (new Infrastructure Package)

- Business Case for CCS - Industry and Member States financial commitment- further investments in R&D
EU External Energy Policy Priorities


- Further developing the external dimension of the internal energy market;
- Working on partnerships for secure, safe, sustainable and competitive energy;
- Enhancing developing countries' sustainable energy access;
- Fostering the promotion of EU policies beyond its borders.
International cooperation on energy technologies

- **Guiding principles**
  - Common interest, mutual benefit and reciprocity

- **Three main categories of third countries**
  - Developed countries
  - Emerging economies
  - Developing regions

- **Strategic Energy Technology-Plan is the Framework in context with FP 7**

- **New approach on enhancing international Research and Innovation cooperation**
International Fora

- EC engaged in multilateral & bilateral international cooperation in the field of energy on policies, development and take up of clean energy technologies, in particular
  - Clean Coal technologies and CCS
  - Renewable Energies
  - Energy efficiency
  - Smart cities/grids and urbanisation
  - Methane emissions from coal mines, oil and gas operations

- Bilateral:
  - South Africa: EU SA WG on coal, CCT and CCS
  - EU- US Energy Council with three working groups
  - EU China Energy Dialogue (Coal value chain WG – NZEC)
  - India: EU India Energy Panel (Coal, CCT, Energy efficiency, urbanisation)

- International: Clean Energy Ministerial, IEA (e.g. IEA CCC), IRENA, Carbon Sequestration Leadership (CSLF), Global CCS Institute (CCS Network), Global Methane and Gas Flaring Reduction Initiatives (GMI-GGFR)