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: 3%
- Natural Gas: 22%
- Coal: 41%
- Nuclear: 17%
- Hydro: 13%
- Renewables: 4%

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)
Objectives of EU Energy Policy

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

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

- Sustainability
  - Climate change control
  - Environmentally friendly production and combustion

- Security of supply
  - International Dialogue
  - Diversification
  - Best use of indigenous fuels
Energy policy development

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

Third Internal Energy Market Package

EEPR

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
Key policy drivers - Climate challenge

Share of greenhouse gas emissions in 2008

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 coal 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
NEW ENERGY EFFICIENCY DIRECTIVE

- Services
- Sectoral measures
- Households
- Public sector
- Energy supply
- Industry

Indicative national EE targets

New EED

Monitoring & Reporting

General measures promoting EE
- Public sector to lead by example: Refurbishment of central government buildings
- Long-term strategies for general building stocks
- Energy efficiency obligation schemes for utilities or alternative energy efficiency programs
- Empowering consumers through accurate and frequent individual metering and billing
• Efficient generation of heat and electricity

• Energy efficiency in the grid

• Indicative targets
• Comprehensive national assessments to improve efficiency in heating and cooling
  ▪ based on country-wide economic analysis of the costs and benefits (heat mapping and planning)
  ▪ Using an integrated approach (looking at all supply options)
• Measures and strategies to implement efficient heating and cooling solutions based on CHP, district heating and cooling (DHC) and renewable energy sources
• Electric power generation and industrial installations above 20 MW capacities to prepare cost-benefit analysis on CHP and connecting to DHC networks
• CHP and DHC networks should be implemented when cost-effective
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
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), UNECE-Sustainable Energy*