

COAL IN POLAND – THE EUROPEAN AND WORLD CONTEXT

Key Problems of Mining in the European Union
Katowice 11th-12th October 2011

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www.recycoal.pl



RecyCoal produces coal from cleaning up mine waste

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- The RecyCoal Dual Density Natural Medium (DDNM) system cleans up contamination and generates employment by recovering waste coal profitably
- RecyCoal has 30 years experience of recovering coal from difficult feed materials and regenerating derelict land caused by mining despoliation
- RecyCoal makes the complete investment to design, build, finance and operate the plant producing cost competitive coal for the power generation market
- Poland is a key target market for RecyCoal – tips are now being explored and further opportunities sought
- <http://www.recycoal.pl>



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Coal in Poland – The European and World Context

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- World Coal
 - Demand – Supply – Trade
- Reserves and Resources
- World Outlook for Coal
- Coal in the EU
- EU Regulation
- Reflections and Conclusions



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World Coal

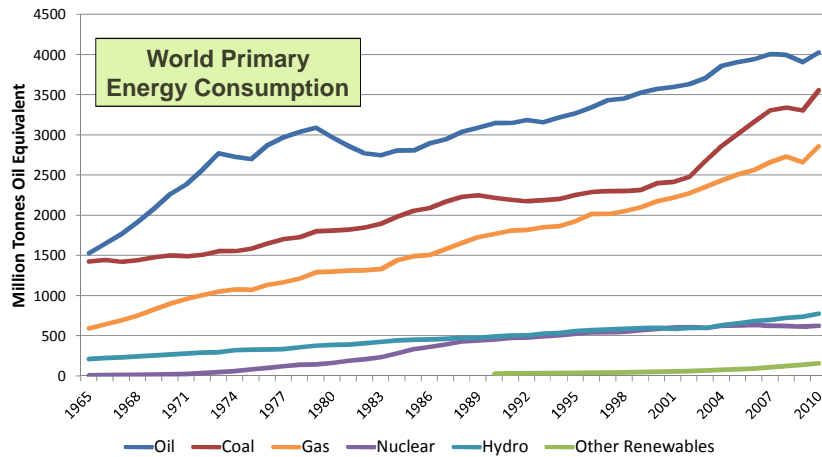
- Demand
- Supply
- Trade



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Coal – the world’s fastest growing energy source...

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Source: BP Statistical Review
 RecyCoal
 Waste Coal Solutions

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...with a market share of almost 30%

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- 2010 energy consumption rebounded strongly – OECD +3.5% rest +7.5%
 - Oil +3.1% (33.6% of total consumption)
 - Coal +7.6% (29.6% - highest since 1970)
 - Fastest growth since 2003
 - China +10.1% (48% of world consumption)
 - Gas +7.4%
 - LNG now 30% of world trade

Source: BP Statistical Review
 RecyCoal
 Waste Coal Solutions

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Coal consumption per capita in China is similar to Poland but less than USA

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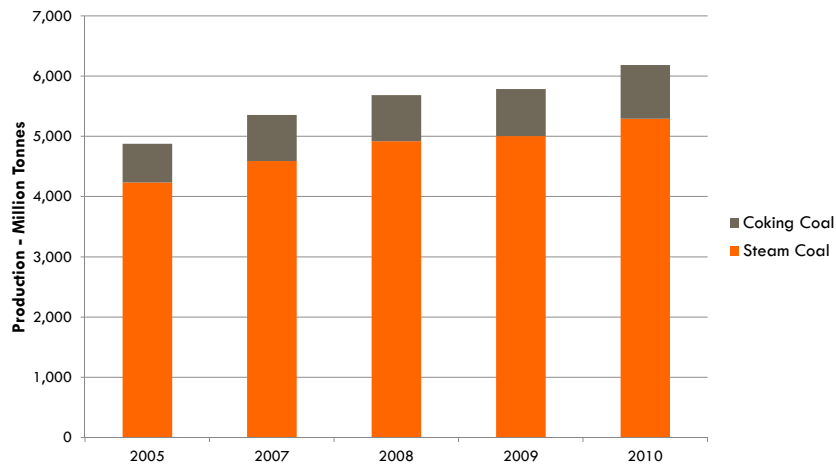
Consumption per capita 2010
Tonnes oil equivalent



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World hard coal production increased by 6.8% in 2010 to 6.2 billion tonnes

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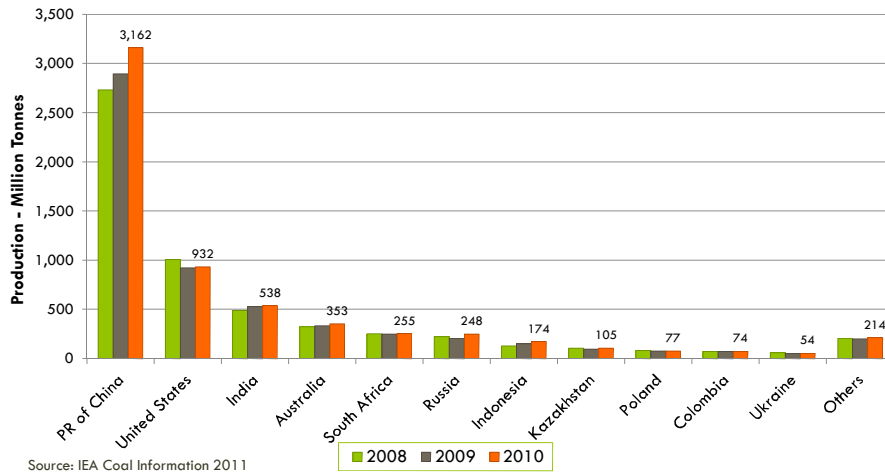
Source: IEA Coal Information 2011



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China dwarfs other producers...

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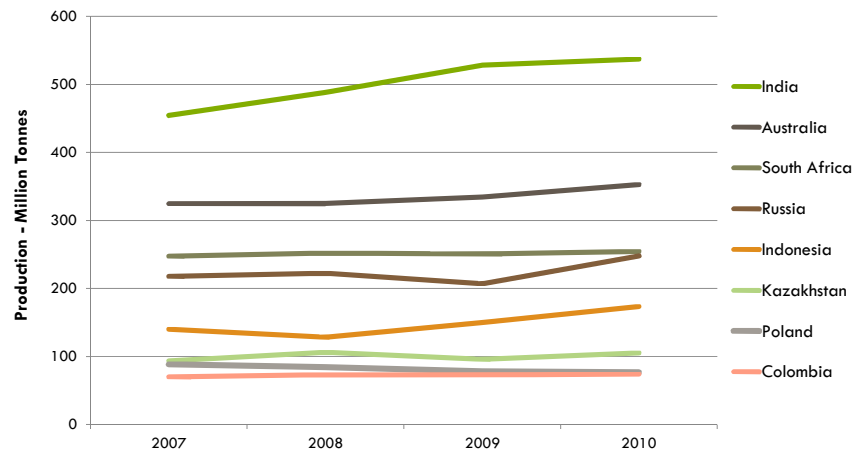
Source: IEA Coal Information 2011



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...but Poland remains in ninth place just ahead of Colombia

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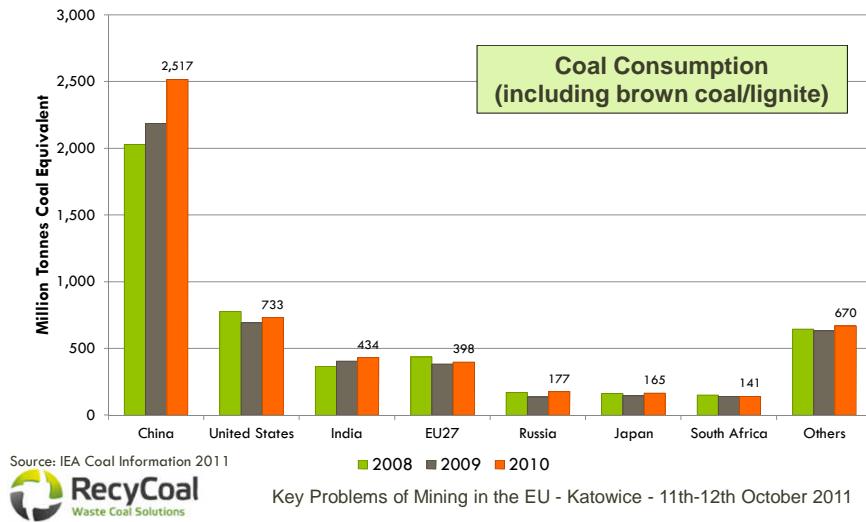
Source: IEA Coal Information 2011



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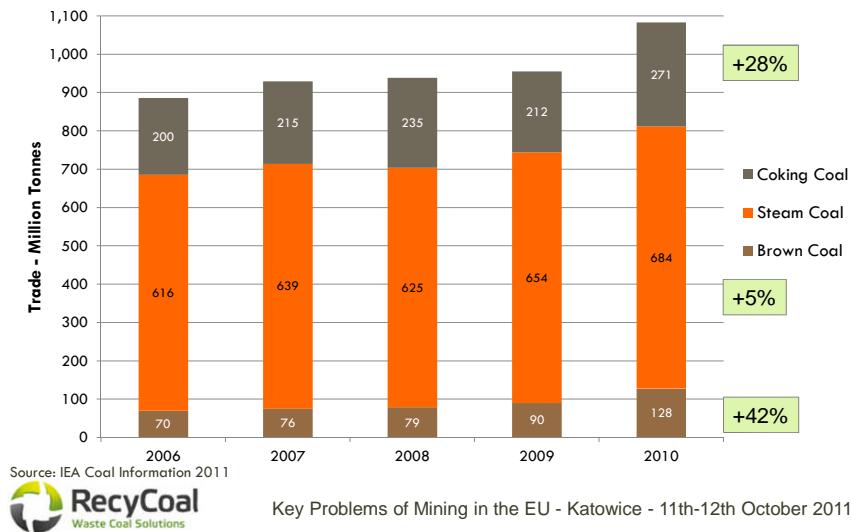
India's coal consumption overtook the EU in 2009

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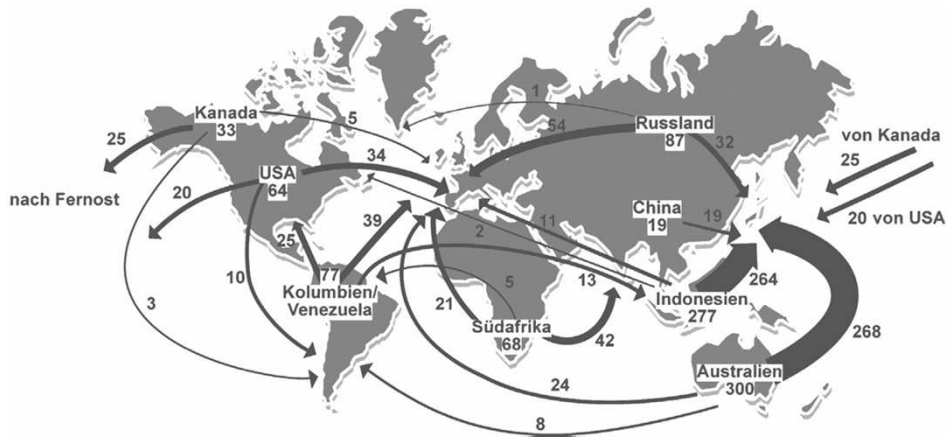
World coal trade also recovered strongly in 2010...

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...dominated by trade flows to the Asia/Pacific region

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Source: Verein der Kohlen Importeure



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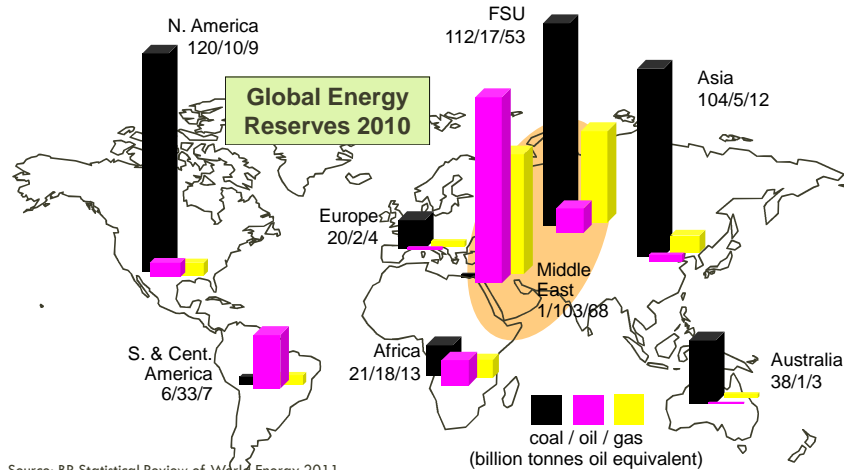
Reserves and Resources



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Reserves of coal are evenly distributed around the globe

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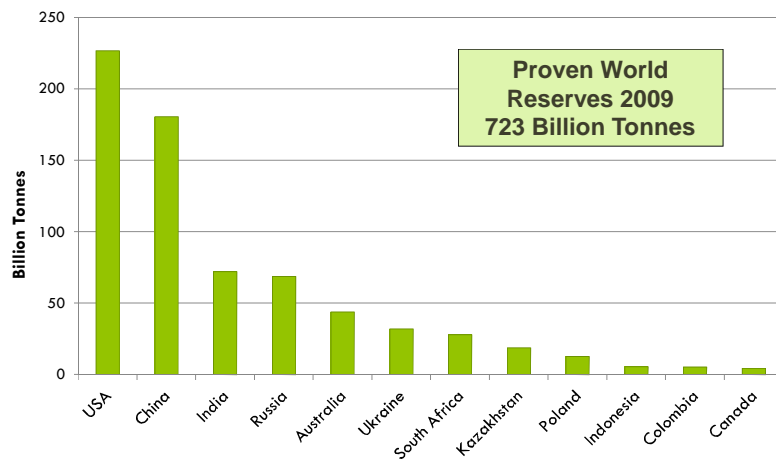
Source: BP Statistical Review of World Energy 2011



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The top five countries have over 80% of proven hard coal reserves...

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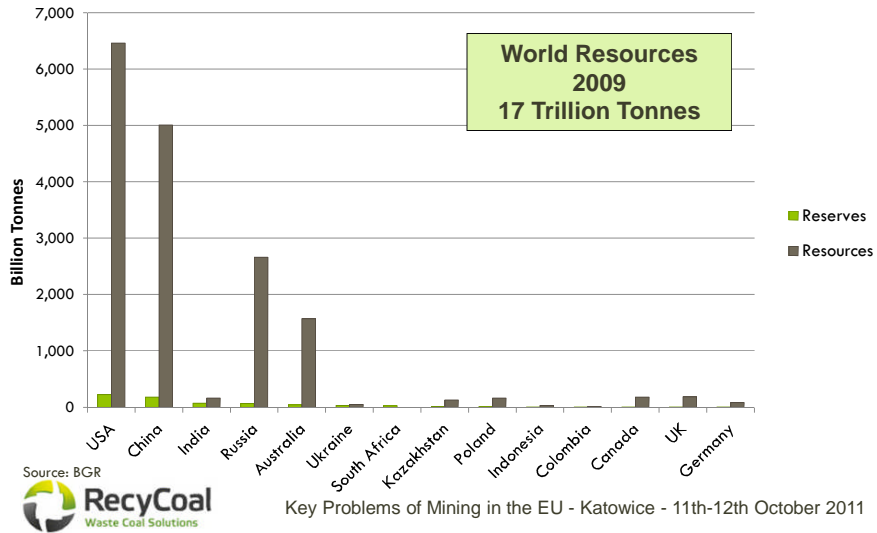
Source: BGR - Bundesanstalt für Geowissenschaften und Rohstoffe



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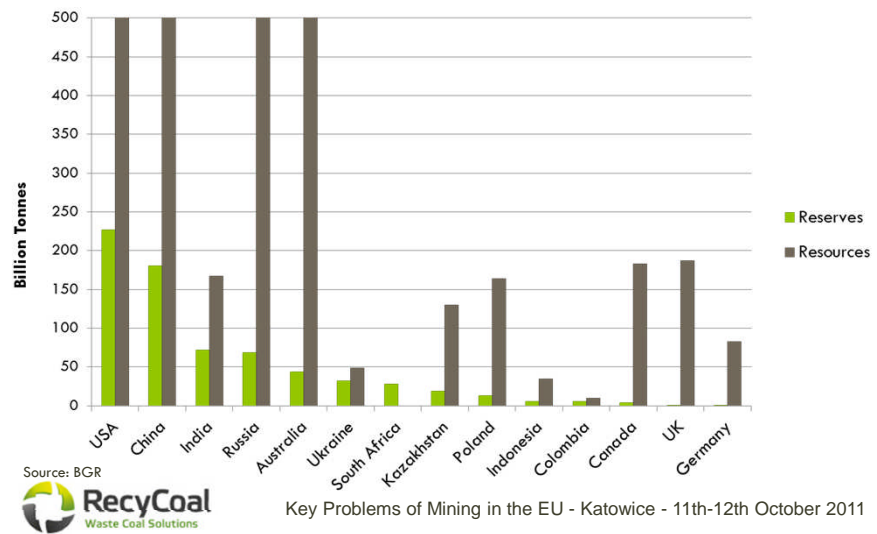
...and USA, China, Russia and Australia have over 90% of resources...

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...but changing the scale also highlights major resources in Europe

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IEA World Energy Outlook 2010 established 'new policies' scenario...

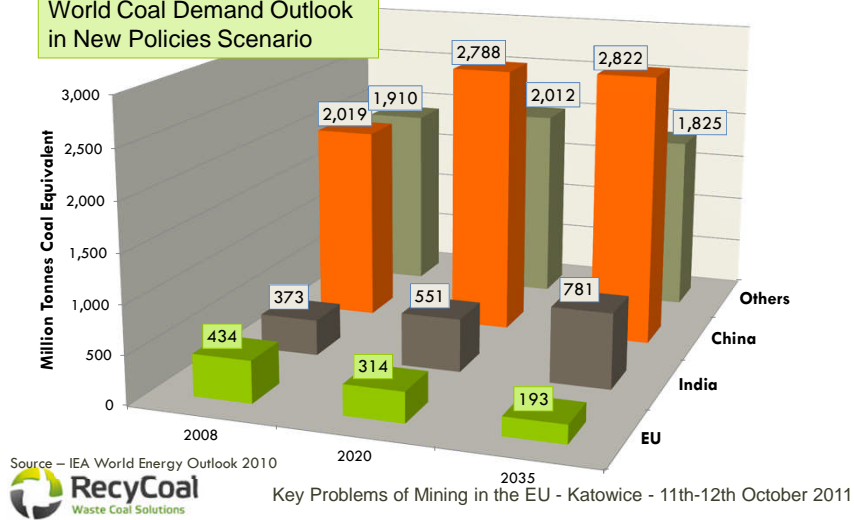
- New Policies Scenario
 - Includes all energy and climate change policies committed to by governments by mid-2010
 - Between 'business as usual' and '450' scenarios
- Coal demand growth
 - 60% by 2035 in 'business as usual'
 - 20% by 2035 in 'new policies'
 - All the growth is in non-OECD countries



...where Chinese coal use levels off after 2020 but India continues growing

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World Coal Demand Outlook in New Policies Scenario

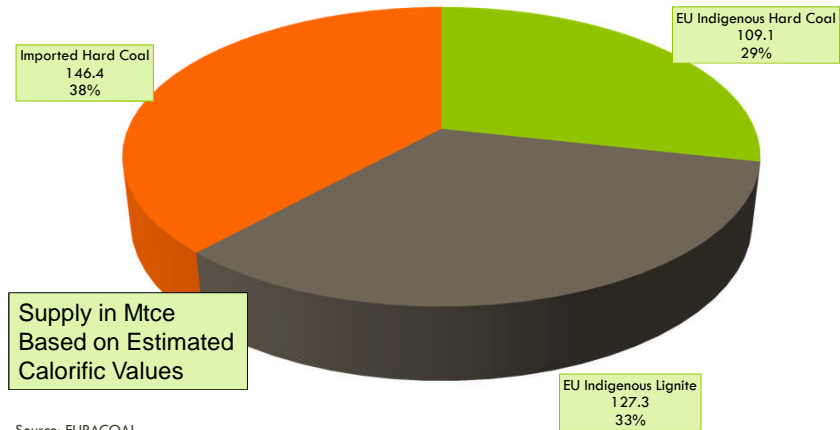


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Coal in the EU

62% of EU's solid fuel supply in 2010 was indigenous...

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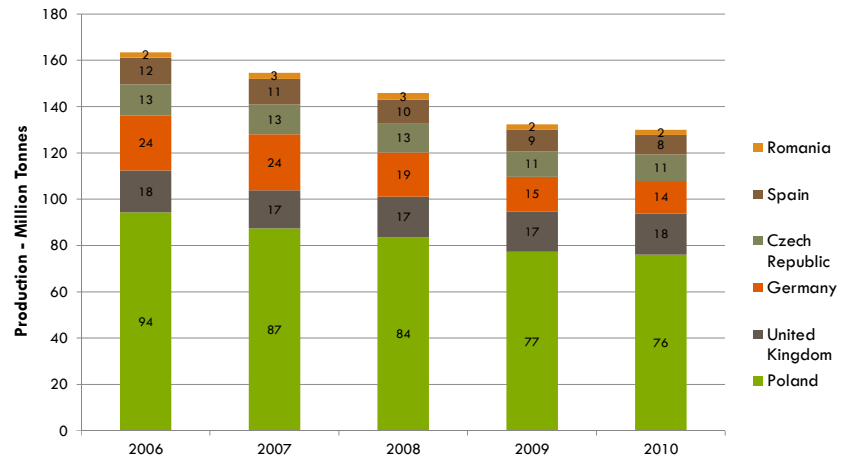
Source: EURACOAL



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...with Poland dominating hard coal production...

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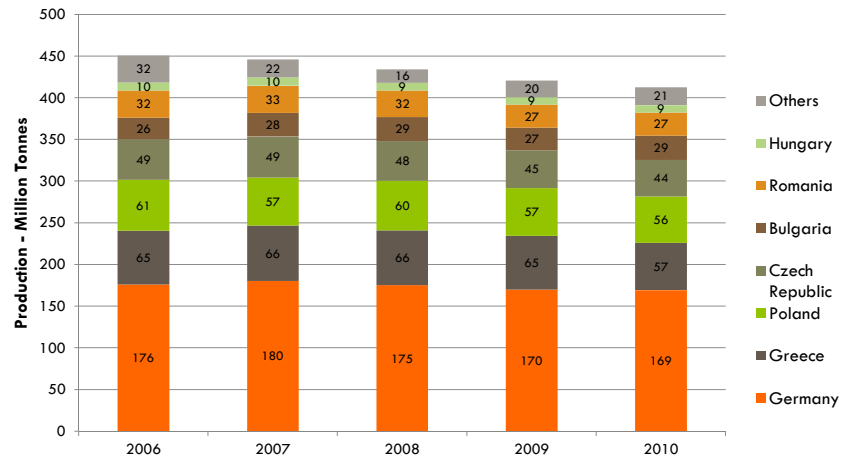
Source: EU Commission/EURACOAL



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...and Poland also EU's third largest lignite producer

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Source: EU Commission/EURACOAL



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2010 employment in the EU coal sector was 250,000 – over half in Poland

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	Lignite	Hard Coal	Total
Bulgaria	8,200	4,600	12,800
Czech Republic	10,200	13,700	23,900
Germany	16,700	24,200	40,900
Greece	5,200		5,200
Hungary	2,400		2,400
Poland	16,300	111,100	127,400
Romania	13,500	8,800	22,300
Slovak Republic	3,900		3,900
Slovenia	1,800		1,800
Spain		5,400	5,400
UK		6,000	6,000
Total	78,200	173,800	252,000

Source: EURACOAL

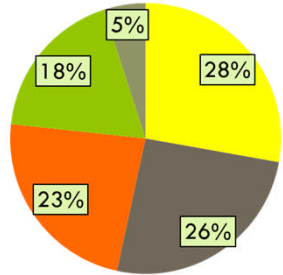


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Coal (including lignite) supplies 26% of EU's electricity

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EU Electricity Generation



■ Nuclear ■ Coal
■ Gas ■ Renewables
■ Others

□ Wide variation between EU Member States

Poland	88%
Greece/Czech	56%
Denmark/Bulgaria	49%
Germany	42%
UK	28%
France	5%
Six M.S.	<1%
Total	26%

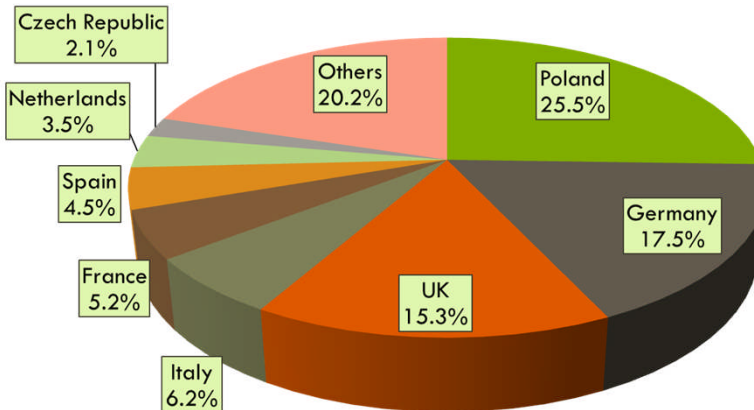
Source: European commission (2009 data)



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Almost 60% of EU hard coal demand is in three countries

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Source: IEA Coal Information 2011



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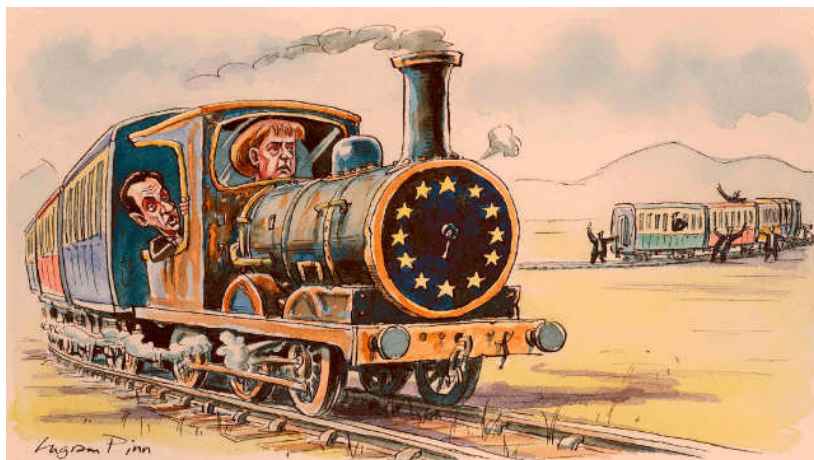
EU Regulation



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Is coal being left behind by EU regulation?

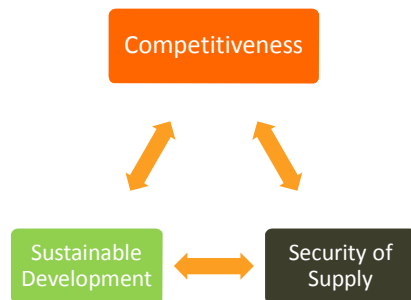
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EU policies are based around the energy 'trilemma'

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- Energy for a Changing World
 - 20-20-20 by 2020
- Policy challenges for coal
 - Carbon pricing
 - Phase 3 auctioning
 - CCS policies
 - New coal without CCS?
 - Renewables targets
 - Market foreclosure
 - Industrial Emissions Directive

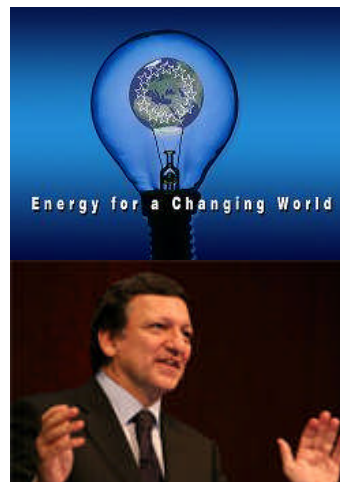


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Energy for a Changing World foresees '20-20-20' by 2020

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- 20% reduction in greenhouse gases on 1990 levels
- 20% improvement in energy efficiency
- 20% share of renewables in total energy
- 30% GHG target dependent on comparable international action



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Emissions trading was intended to be the key instrument for reducing CO₂

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- EU Emissions Trading System (EUETS) is a cap and trade scheme for CO₂ emissions
- Bad for coal
 - Emissions from coal typically twice the emissions from gas
 - Switching to gas one of the easiest short term options
- Prices have so far been insufficient to drive investment
- Key determinants of price
 - Level of cap
 - Level of Kyoto Instruments allowed
 - CDM/JI
 - Coal/gas price differential



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Will the third phase finally deliver what was intended?...

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- 2005: EUETS First Phase – launch and initial (over)allocation
- 2008: Second Phase – undermined by the recession
- 2013: Third Phase – 17.5% cap reduction 2012 to 2020
 - Consistent with 20% emissions reduction by 2020
 - 100% auctioning for power sector
 - NB derogation from full auctioning in some countries
 - Auctioning phased in for industry (carbon leakage)
 - Limitation on JI/CDM credits that can be used
- But fuel switching to gas remains a key emissions reduction tactic rather than investment in low-carbon generation
 - A new dash for gas may be triggered



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...when EU climate policy is out of step with the rest of the world

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- Coal is the fastest growing fuel with 30% market share
- CO₂ reductions can only be achieved with significant contribution of carbon capture and storage
- EU climate policies concentrate on emissions at the point of use
 - Insufficient consideration of methane emissions from gas production and transport (especially shale gas)
 - Emissions associated with consumption of imported goods are disregarded – Europe is exporting jobs to high-carbon economies – e.g China and India



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Does new UK policy show the direction for coal in Europe?...

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- No new coal without Carbon Capture and Storage
- Carbon price floor targeting €85 per tonne CO₂ by 2030
 - Starting at €18 in 2013
 - Increasing to €35 by 2020



- Emissions performance standard
 - Allows grandfathering of unabated gas
- Feed in tariffs for low-carbon generation
 - Based on contracts for differences



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...or can the Polish Presidency stem the tide of anti-coal regulation?

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- Poland has already vetoed strengthened carbon targets of 30% by 2020 at the June summit in Luxembourg
 - Proposed roadmap to 2050 entailed emission cuts compared to 1990 of 40% by 2030, 60% by 2040 and 80% by 2050

"It's a dark day for Europe's leading role in tackling climate change, but the UK together with its European colleagues will continue to make the economic case for tighter EU carbon targets so that we can make the most of the future green economy"

UK Energy and Climate Change Minister, Chris Huhne
- But Polish environment minister Andrzej Kraszewski called for understanding of the economic situation of Europe's poorer states

"Analysis should be widely discussed and reflect the economic consequences for each member state"



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Reflections and Conclusions



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Poland's situation is unique for hard coal in the EU...

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- Poland has 59% EU production and 64% EU employees with 78% EU proven reserves and 35% EU resources
 - UK mines are economic and coal resources are extensive
 - But planning constraints and inability to fund long-term investments limit their use and Government is hostile to coal
 - German mines are uneconomic and are on a path to closure by 2018
 - German demand will be met entirely by imports



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...but mines need investment to survive for the long term

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- Private capital is crucial but investment can only take place with a secure market
 - UK electricity and coal privatisation failed to provide the right framework for long-term investment
 - Lack of UK market certainty threatens remaining mines and prevents development of new mines
- Privatisation is a matter for National policy in Poland
- But EU regulation is of key importance in shaping the market



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Summary

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- Coal is the world's fastest growing energy source
 - Rapid growth in coal use will continue in China and India
- Coal reserves are evenly distributed around the globe
 - Poland has 80% EU reserves and 60% EU production
- Coal is threatened by EU regulation
 - Coal supplies 26% of EU electricity but 60% EU coal demand is in three countries – including UK which is hostile to coal
- Future of coal in Poland depends both on National and EU policies
 - Private capital and a secure market are essential



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THANK YOU

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