Coal at the crossroads in maturing energy markets?

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Coaltrans Vienna
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Europe – a maturing market undergoing considerable change

- Demand declining – imports growing slowly
- Environmental issues already being priced in
- Deregulation requires risk managed approach
- Emergence of spot and derivative markets
- Energy market convergence
  - power generation growth from gas
  - strong coal/gas competition

European market for coal has fundamentally changed
The cold facts behind energy supply to the EU power industry

- Fossil fuels comprise 51% of total EU power industry energy consumption
  - approximately half of these fossil fuels are imported
- 58% of fossil fuel supply to power generation is coal, 30% gas
- 55% of hard coal is imported; and share is increasing
- Natural gas from Russia and North Africa represents nearly 50% of EU consumption
- 22% of electricity must be produced from renewables by 2010

Source: IEA, EU
Regulators and vested interests threaten coal

- Local deregulation processes create variable regional growth rates
- Installed base of coal fired plants is ageing rapidly
- Global environmental pressure will increase future generation costs

What is the potential for substitution by gas or “green” fuels?
Where will the gas come from?

North America
8,310 bcm
(11 years)

Europe
7,420 bcm
(24 years)

Middle East
53,106 bcm
(292 years)

FSU
56,285 bcm
(82 years)

Asia
11,392 bcm
(59 years)

Latin America
6,507 bcm
(67 years)

Africa
10,411 bcm
(101 years)

Australia
3,310 bcm
(106 years)

Source: IEA Natural Gas Information

*billion cubic meters (bcm), reserve to production ratio (R/P)
Impact of legislation – not just a CO₂ issue

- Large Combustion Directive sets emissions limits for SOx, NOx and dust
- Non compliance could lead to plant closures

Effect will be to restrict coal burn or force capital investment
EU Emissions Trading Scheme – implications for coal

• Trading scheme for CO₂ emissions due to start Jan 2005
• Emissions allowance for Phase 1 (2005-07) now trading at ~ €10/t
• Cap and trade mechanism allows generators to purchase CO₂ shorts
• Market currently illiquid but expected to grow once national allowances are known
• Key issues
  – Russia signing Kyoto protocol
  – ability to import > 8% credits in Phase 2 (2008 to 2012)

Under all CO₂ pricing scenarios demand for imported coal is reduced
Coal has a legitimate commercial role in EU energy supply

- Competitive
- Low price volatility
- Abundant and geographically diverse
- Easy to store and transport
- Largest share of global generation

Imported coal’s contribution to fuel supply in the EU will remain relatively stable
Coal competitive even at the top of the cycle

Coal price history

FOB South Africa US$/t

$65

$40

$15

Jan-83 Jan-88 Jan-93 Jan-98 Jan-03

Typical European inter-fuel competition

24 September 2003 $/MWh

21 April 2003 $/MWh

Coal Gas

Source: McCloskey, Bloomberg

*Heat and efficiency adjusted
Currency affects both producers and consumers

Squeezed margins for producers

South Africa FOB Price

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Source: McCloskey, Bloomberg

Currency margin gain for generators

Europe Delivered Price

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Prospects for traditional Atlantic supply

### Europe
- **Domestic**
- **Imports**

1990 | 2000
---|---
400 | 0
200 | 0

### US
- **Domestic**
- **Imports**

1990 | 2000
---|---
1000 | 0
500 | 0

### Existing Atlantic Supply
- **Supply**
- **Demand**

1990 | 2000
---|---
200 | 0

### Atlantic Supply & Demand
- **Existing**
- **Asia**
- **Atlantic growth required**

2002 | 2006 | 2010
---|---|---
200 | 0 | 0

Source: IEA, McCloskey, BHP Billiton
Can the wild cards help Europe?

**CHINA:**
- rapid domestic growth
- rational economic behaviour
- deeper new mines

**INDONESIA:**
- short term production not profit focus
- decline in world class reserves
- no long term investments

**AUSTRALIA:**

Source: IEA, McCloskey
Need for combined initiative

- Environmental and “dirty” image pressures are growing
- Market mechanisms cannot be relied on to drive longer term EU energy needs
- Coal industry needs to play a proactive role
  - technology solutions
  - public policy influence
  - innovation in production and consumption
- The power industry needs to actively promote the coal option

*Coalition of industry participants needed to guarantee coal’s role in the future EU energy mix*
We are at the crossroads

**Proactive Coalition?**
- industry and government wins
- commercial solutions around CO$_2$ and GHG

**Status Quo?**
- terminal decline
- industry shrinks
- lose coal as a supply option forever

Consumers, generators and producers cannot and must not lose the optionality of coal supply in the EU long term energy mix.