Long-run Prices for Coal and Natural Gas

BSEC
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Anne Neumann
Agenda

1. The Issue

2. Resource Economics 101

3. Coal and Natural Gas

4. Conclusion

References
The Issue and Three Hypothesis

- Climate policy affects fossil fuel demand via leakage
- In markets, this should be represented in prices

Hypothesis:
- Evolution of prices for coal and natural gas reacts on shocks in the short run, but long-run prices remain stable
- Potential for productivity in coal mining can contribute to stabilize coal prices
- Given recent figures from IEA and POLES, ample reserves of coal and gas are available until 2030/2050
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Backstop Technology = Price Cap on Fossil Fuel Prices

Source: Erdmann, 1995
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Future rates of technology change and productivity gains are key for future reserve estimation.

Source: Prescott (1997)
Forecast Errors in Price Scenarios

Figure 91. Average annual delivered coal prices in four cases, 1990-2035 (2008 dollars per million Btu)

- High coal cost path obtained through different assumptions on productivity, labor and equipment costs.
- This in turn drives a scenario where there is a switch from coal to gas and a drop in coal consumption.
- Is this an example of a dangerous kind of wishful thinking when projecting future fossil fuel costs for climate scenarios?

Source: EIA, Annual Energy Outlook 2010
Very Long-term Coal Prices (USA, 1870-2008)

Source: Manthy, 1978 and EIA, 2010
Coal: Ample Supply at Reasonable Cost

Cumulated world coal consumption:

1990-2030 IEA reference scenario: 135.6 Gtoe

1990-2050 POLES reference scenario: 145.6 Gtoe

Source: Rogner, 1997
Crude Oil, Natural Gas and Steam Coal Import Costs
1985-2010

Source: IEA, 2010
Gas: Ample Supply at Reasonable Cost

Cumulated world gas consumption:

1990-2030 IEA reference scenario: 97.7 Gtoe

1990-2050 POLES reference scenario: 168.3 Gtoe

Source: Rogner, 1997
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Conclusions

• Evolution of prices for coal and natural gas stable in the long-run

• Potential for productivity in coal mining will stabilize coal prices

• Ample supplies of coal and natural gas at reasonable prices are available until 2030/2050
Thank you.