



# An assessment of the EU ETS 2005-2007

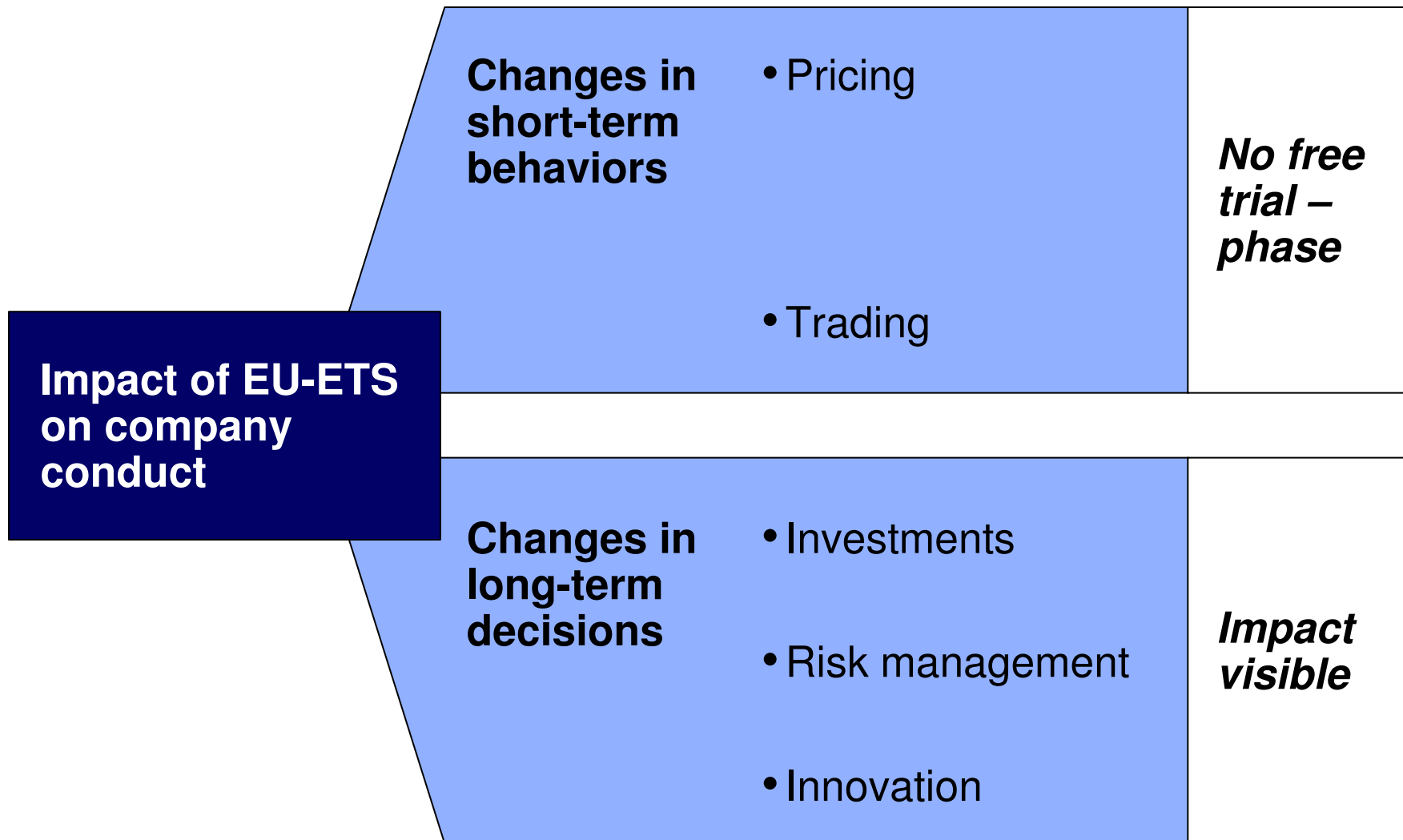
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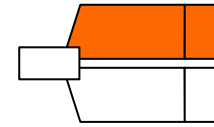
**Antonio Volpin**  
**Rome, May 15, 2006**

McKinsey&Company



# Impact of EU-ETS on company behaviors on two horizons





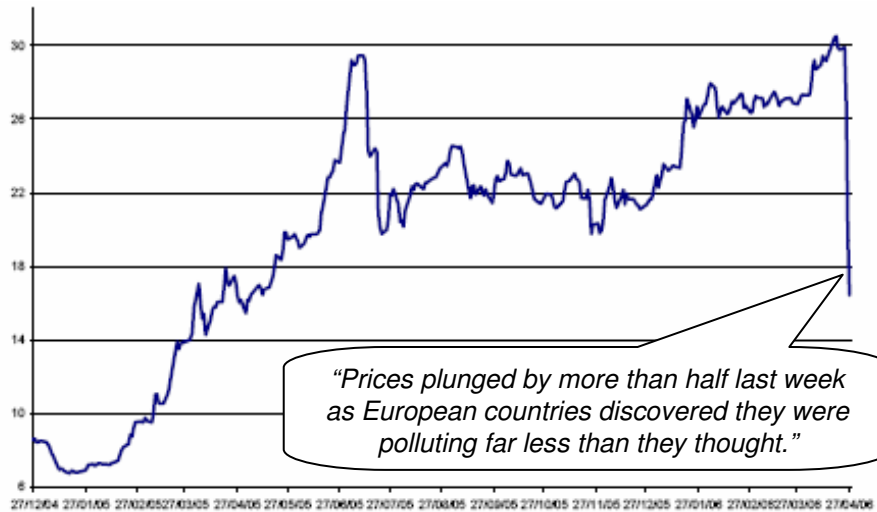
# Significant changes already in short term behavior

## Changes in short term behavior

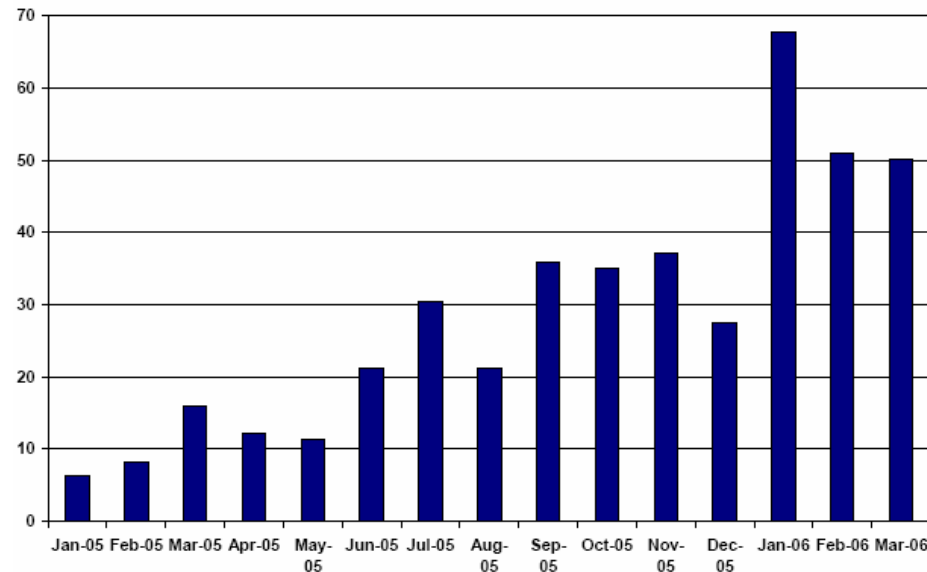
- Industries, especially, power, already pricing in the value of CO<sub>2</sub> (exception: Italy)
- All industries trying to increase share of pricing in CO<sub>2</sub> going forward
- Correlation of trading markets across Europe

# CO<sub>2</sub> has a price in an increasingly liquid market ...

CO<sub>2</sub> prices, EUR/ton



Monthly volumes, Mt CO<sub>2</sub>



**Implications for current period**

- 1st period NAPs may have been overly generous

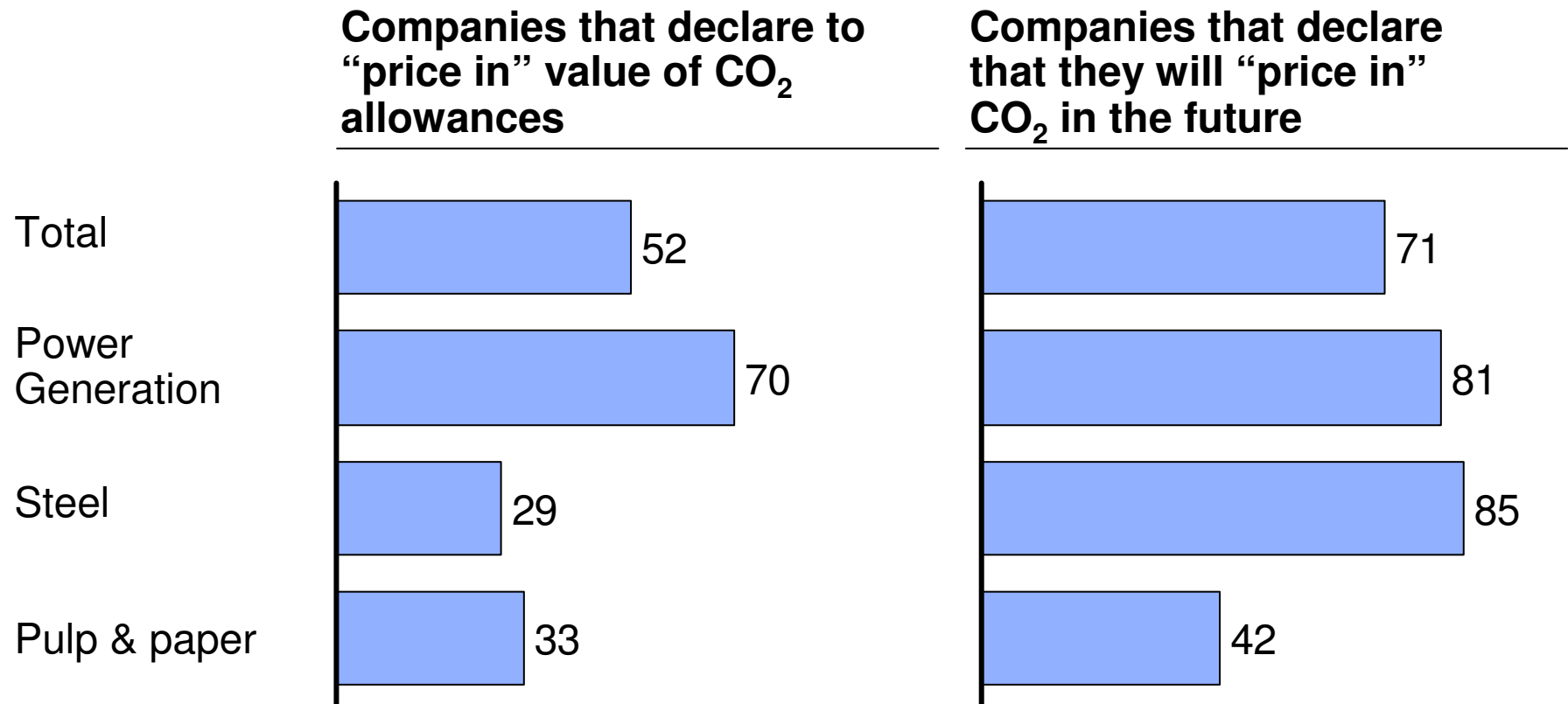
**Implication for period 2**

- The period 1 price collapse is likely to lead to a lower CO<sub>2</sub> prices in the next period

Source: Point Carbon April, 2006; McKinsey Analysis.

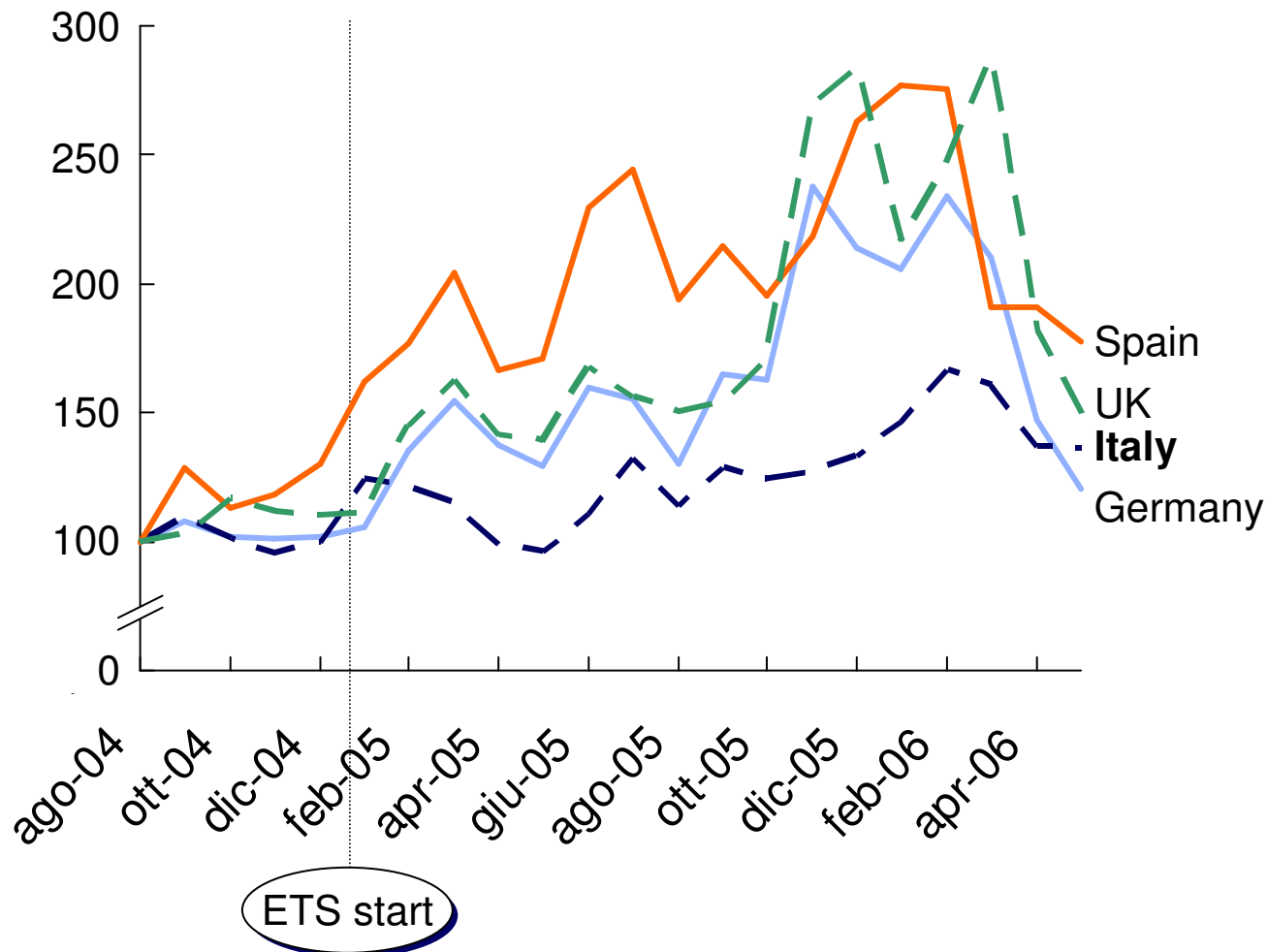
# ... and this CO<sub>2</sub> price is meaningful

Percent



# Lack of “pricing in” CO<sub>2</sub> in Italy

European power prices in Europe  
Index, 100=aug 2004



No Italian player has declared to “price in” CO<sub>2</sub> at the moment.

Possible reasons:

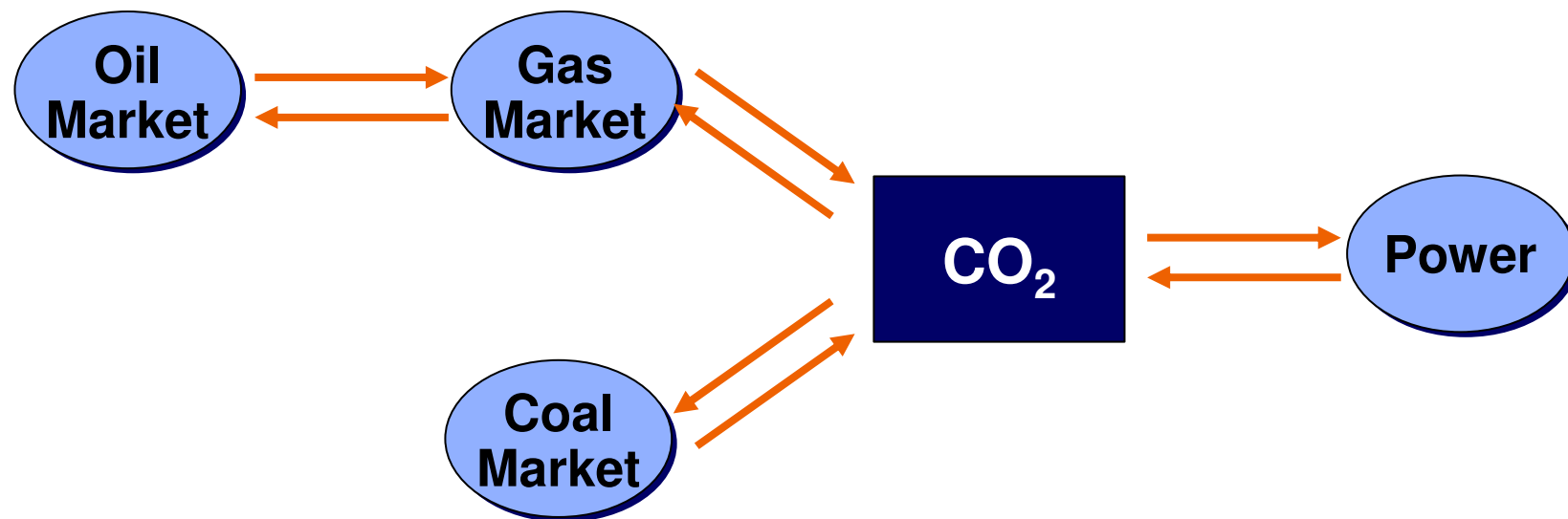
- Regulatory uncertainty
- Conscious decision
- Competitive pressure (eg. Power)

## Fundamental changes in correlation among commodities due to emission trading

Before 2005 correlations between commodity markets within European power were weak

Gas and coal prices determined marginal cost but were not linked with each other

Because of emission trading we have now trading markets that link power with commodity markets

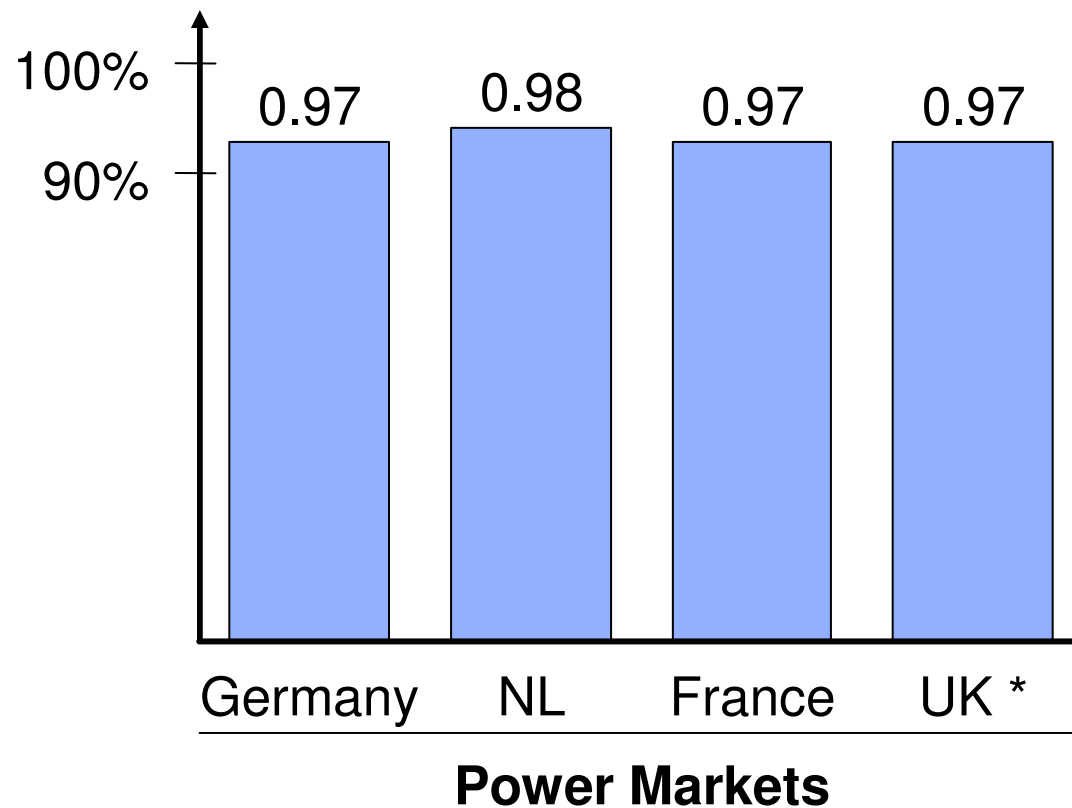


As a result companies (particularly utilities) are now exposed to volatile commodity markets like never before



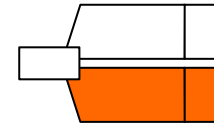
# Correlations of power markets with natural gas prices

## Summer 05



**CO<sub>2</sub> is the virtual link between power markets**

\* UK NBP  
Source: McKinsey



# Long term impact often underestimated

## Changes in long term behavior

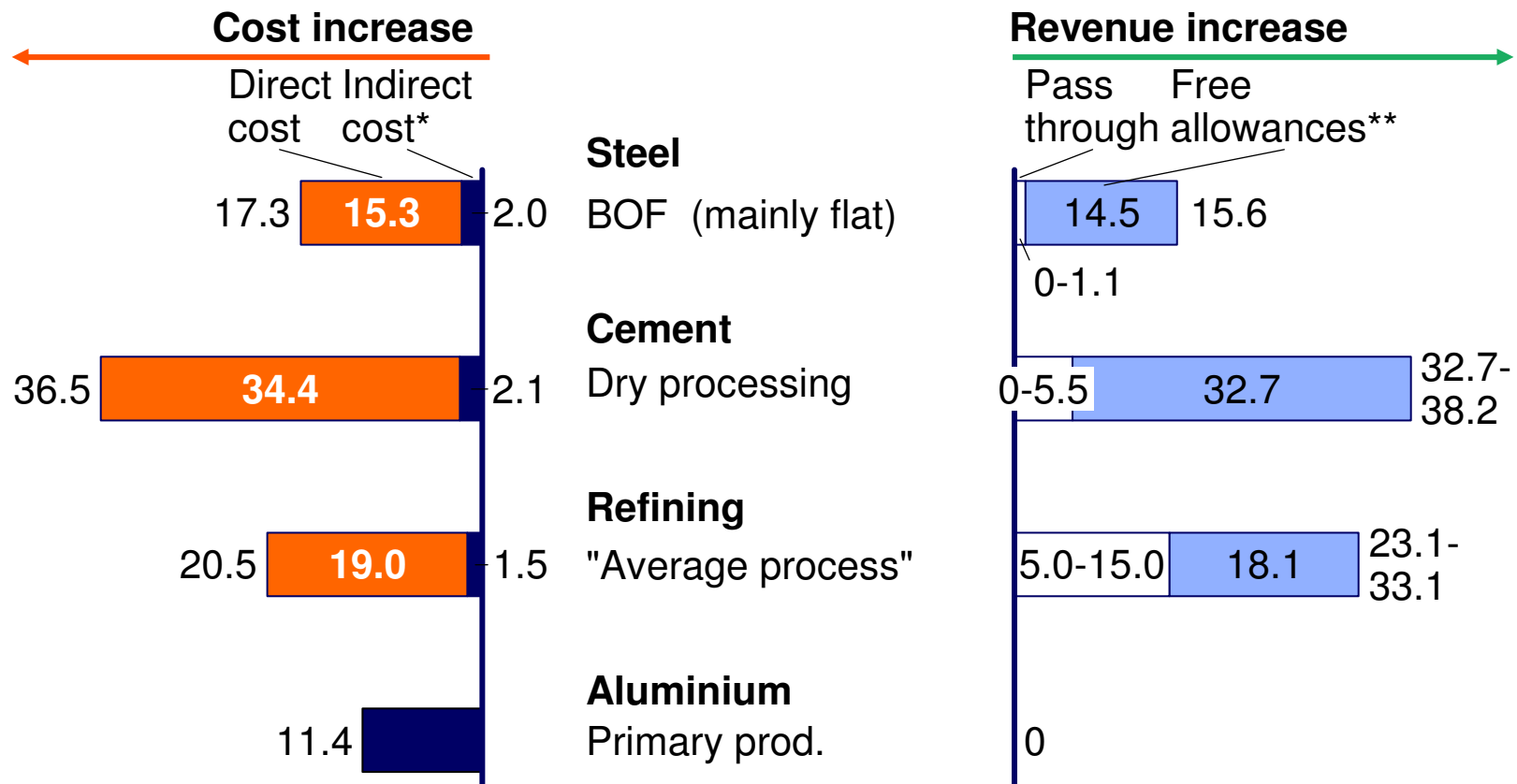
- Changes in relative profitability (positive and negative)
- Increasing exposure to commodities (need for new risk management strategies)
- Increased uncertainty due to regulation: deferral of investment where possible but also heavy investment where incentivized (e.g. Germany)
- Opening up of new opportunities

# Change in relative profitability

## Average short- and mid-term impact of EU ETS on selected industry sectors

% of total costs

AVERAGE OUTSIDE-IN ESTIMATES



\* Assuming short- and mid-term electricity price increase of 10 EUR/MWh for CO2 price of 20 EUR/t

\*\* At 95% free allocation relative to desired amount

# Commodity exposures can be substantial

## Exposure to natural gas and oil prices

ESTIMATES  
BEFORE  
CONTRACTS

### Impact of 1 std deviation gas & oil price drop on EBIT Percent

Average of top 4  
European generators

-40

Oil major

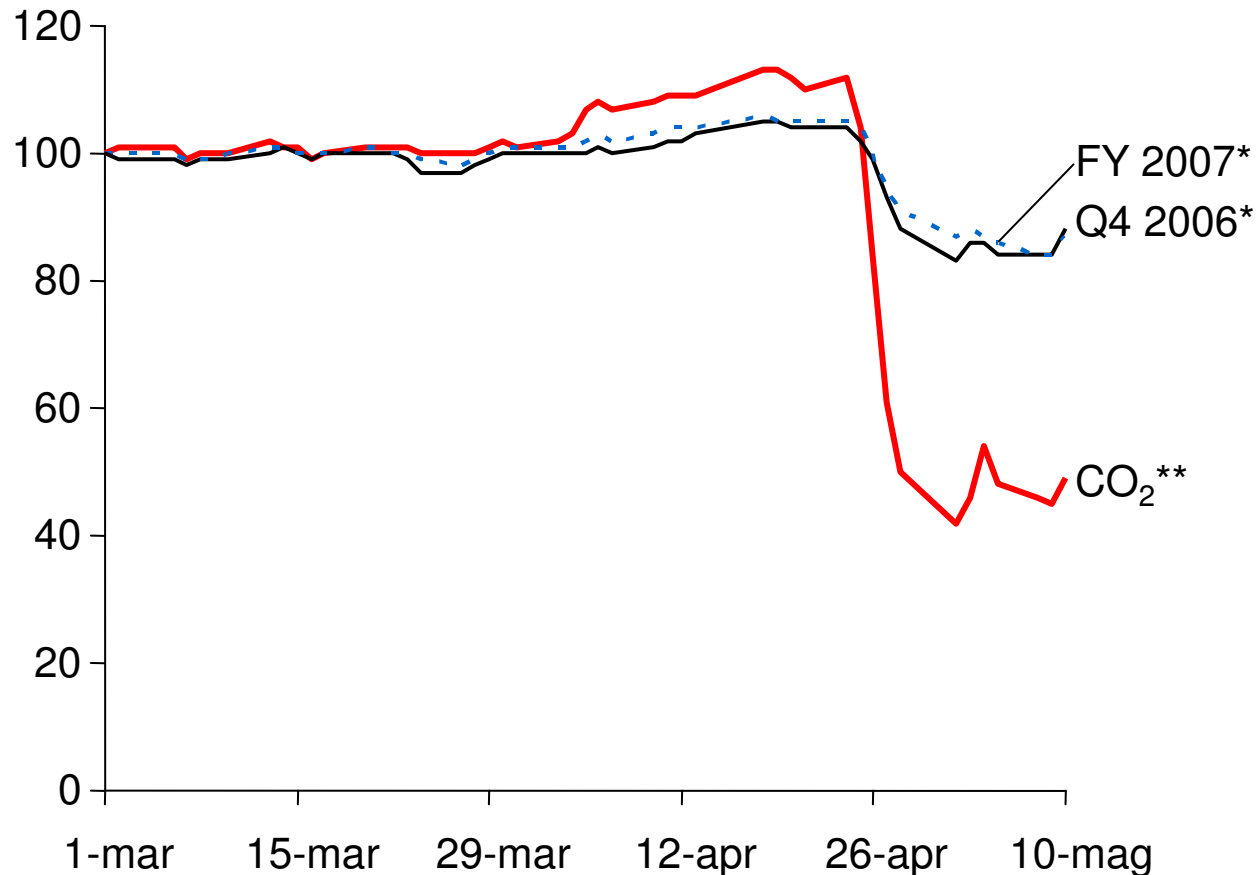
-15

Includes CO<sub>2</sub>  
price impact

\* Contractual offsets would include PPAs, other long term agreements, and financial hedges

# Strong correlation between CO<sub>2</sub> and power prices

March-May 2006, Settlement price, Index, 100% = 1st March 2006



**Recent short-term extreme volatility highlights the need for a step-up in risk management**

\* Average of EEX and PowerNext forward prices for base load supply (respectively for 4th Quarter 2006, full year 2007, full year 2008)

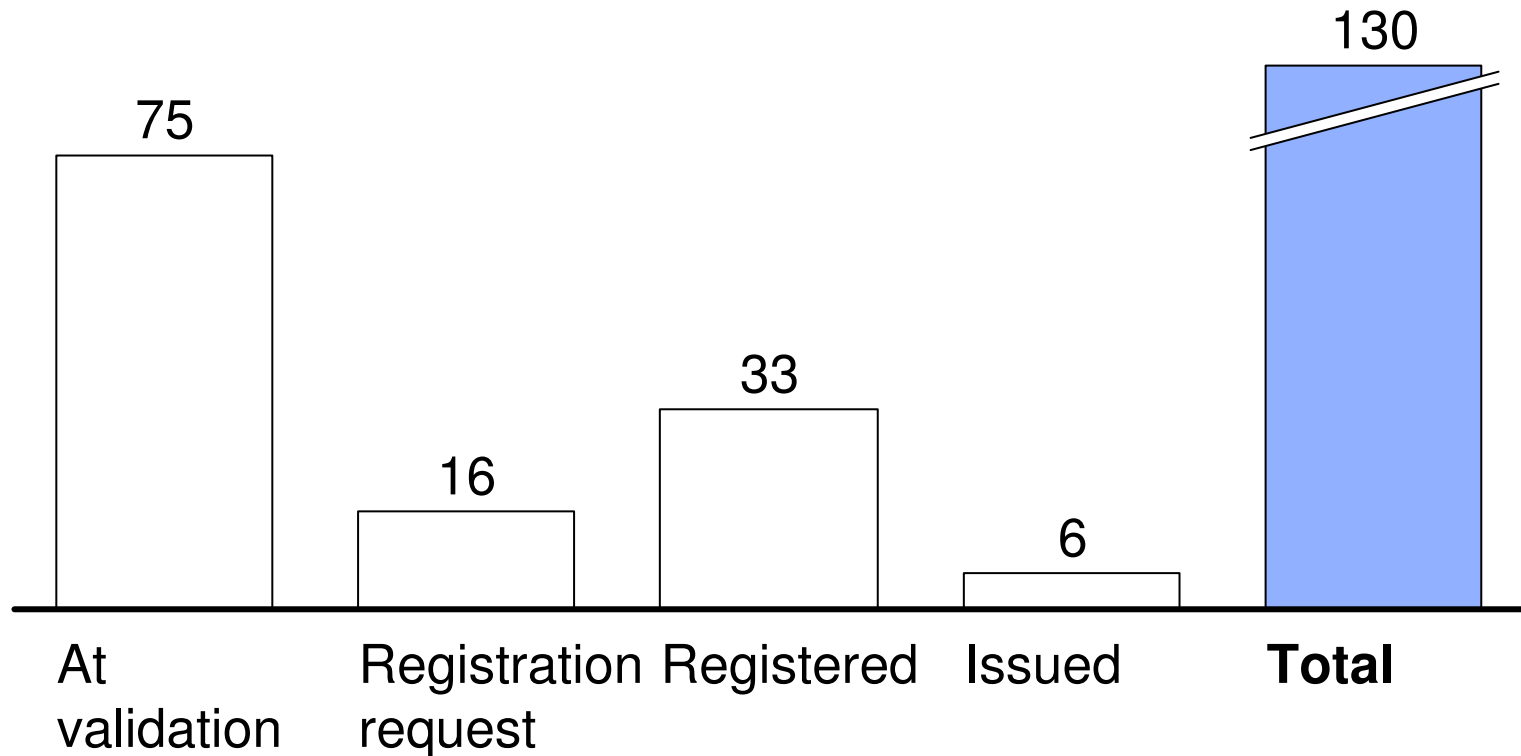
\*\* Average of EEX and PowerNext settlement prices

Source: EEX, PowerNext,

# New opportunities, example: JI/CDM projects

AS OF MARCH 21, 2006

Millions of tCO<sub>2</sub>e per year



Number of projects

$$596 + 23 + 130 + 6 = 755$$

## Summary – the ETS is having impact

- The EU-ETS has put a price on CO<sub>2</sub>
- Thus, it has changed short-term **and** long-term company behavior, which was the intention
- More scrutiny is needed to ensure the right investment conditions (e.g. Power Germany) which will lead to falling power prices again
- Innovation will not be able to have an impact before 2020 – so think careful about this time period