



The economic role of carbon price signals emerging from the EU ETS

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Questions

- Why do we need a carbon price signal?
- Can we reduce CO₂ emissions cost-effectively without a common signal?
- Is the price signal what (as low as) it could be?



Why do we need a carbon price signal?

- Basic point: internalise the social cost of CO₂ – and optimise choices on that basis
- Consumers of CO₂-intensive products must adjust demand accordingly
- Illustration: should steel makers continue producing blast-furnace slag, an input that reduces cement CO₂ emissions?
 - ◆ Only relative prices, including CO₂ cost, can answer this question



Is the carbon price signal working?

- In electricity: CO₂ is (at least partly) reflected in observed market prices
- What if it were not, other things being equal?
 - ◆ Lower electricity demand is part of the mitigation potential to be triggered by the EU ETS
 - ◆ Energy efficiency improvements are major “cost-cutters” for CO₂ mitigation
- Higher electricity prices have generated new business models for power purchase
 - ◆ TVO (Finland)
 - ◆ Exeltium (France)
 - Securing cheaper (incl. low-CO₂) supply sources

Source: Reinaud J. (2007): CO₂ allowance and electricity price interaction. IEA, Paris.

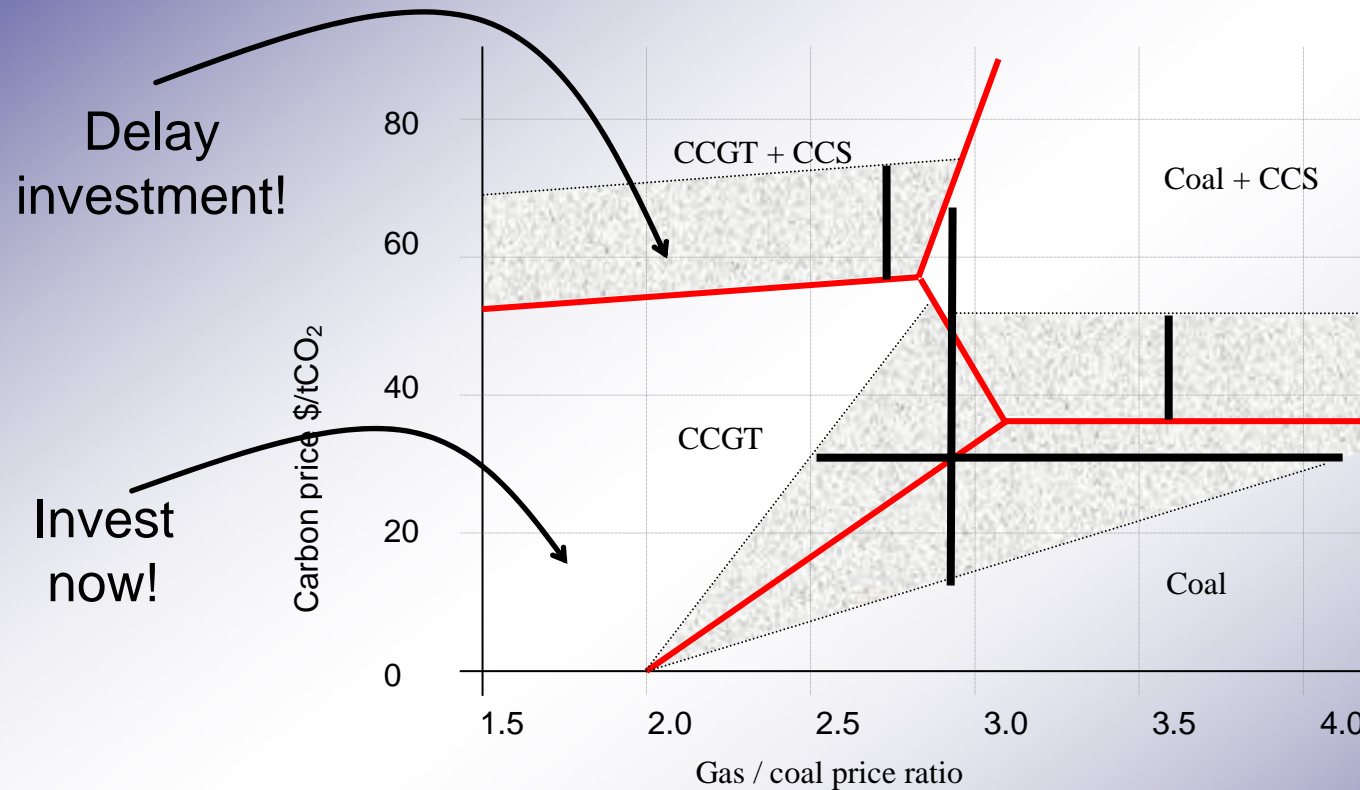


Is the carbon price where it should be?

- Emissions trading as a cost-minimising policy instrument
 - ◆ Could the same environmental outcome be delivered at lower cost?
 - ◆ Yes, if incentives to lower emissions are unequivocal
 - New entrants, closure rules: avoid subsidising old, less efficient plants
 - ◆ Yes, if uncertainty can be lowered
 - Commitment periods, visibility to investors

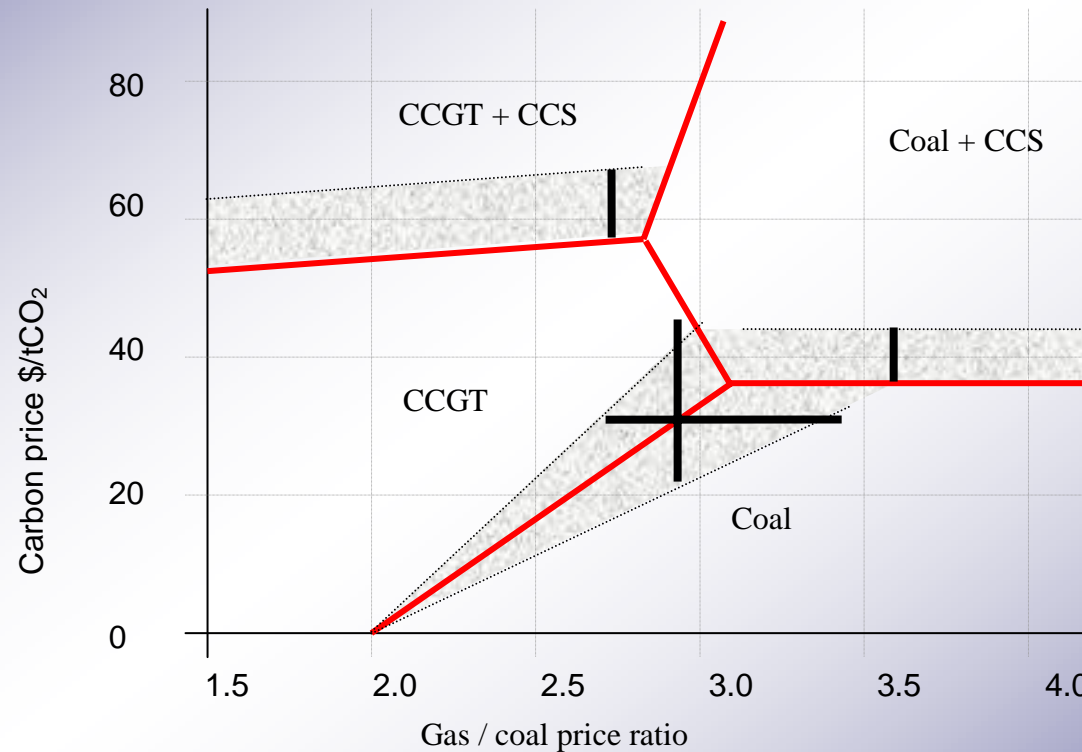
Source: IEA (2007): Climate Policy Uncertainty and Investment Risk. IEA, Paris.

Effect of carbon price uncertainty – CO₂ price jump after 5 years



Source: IEA (2007): Climate Policy Uncertainty and Investment Risk. IEA, Paris.

Effect of carbon price uncertainty – CO₂ price jump after 10 years



*The longer the time period,
the faster investment occurs*



CO₂ price to trigger investment in carbon capture and storage (ccs)

USD /tCO ₂	Under full price certainty (discounted cash-flow)	With CO ₂ price jump expected in 11 years	With CO ₂ price jump expected in 6 years
CCS retrofit to coal	38	44	52
CCS retrofit to CCGT	57	67	77

The longer the time period, the lower price of CO₂ required to trigger investment in mitigation

Source: IEA (2007): Climate Policy Uncertainty and Investment Risk. IEA, Paris.



CO₂ cost and competitiveness with outside the EU

- Priority: seek least-cost reductions through ET
 - ◆ In companies' hands (optimise for energy *and* CO₂ costs), if and when faced with a CO₂ price
 - ◆ Is the price as low as it could be?
Probably not. For the review, new rules to:
 - Lower uncertainty to encourage prompt mitigation investment, hence lowering the price of CO₂ to meet any given target – and minimising competitiveness effects



Issues ahead

- IPCC and others: no major reductions without incurring a CO₂ cost – minimizing this cost is a legitimate priority
- The market base of our economies makes CO₂ pricing a central coordination tool
 - ◆ Yet other policy instruments needed to overcome market barriers (e.g. end-use efficiency)
 - ◆ Distribution issues must be addressed
- The constraint is, for now, uneven:
 EU vs. other Kyoto Parties vs. non-Annex I
 - ◆ Challenge: how can the ETS trigger the needed reductions in sectors' CO₂ intensity at an acceptable cost (i.e. without triggering leakage)?
 - ◆ Can targeted policies handle most acute sectoral concerns (i.e. sectoral approaches)?