

Effect of price controls on investment incentives



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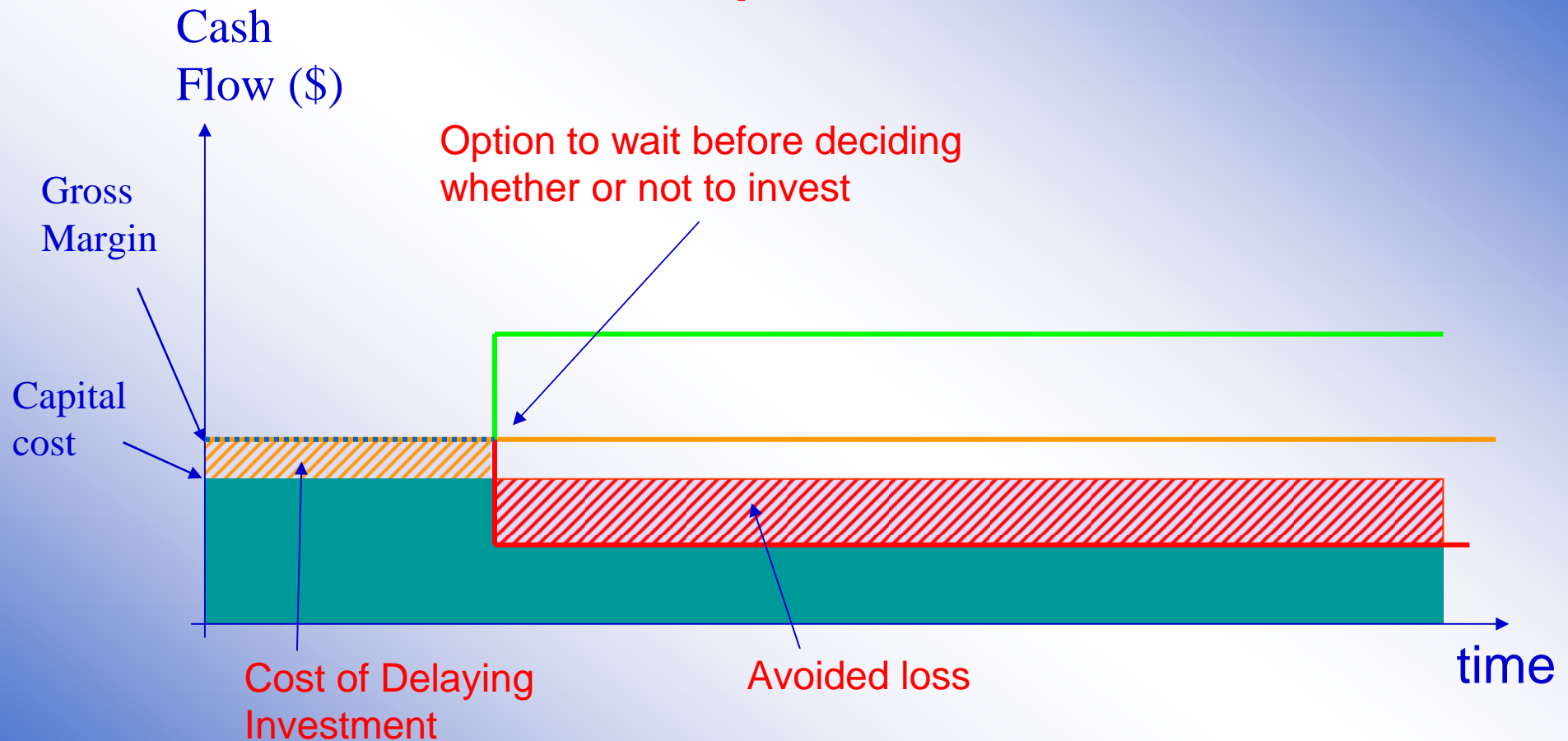


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Who is involved?

- Main project team - IEA, Chatham House, London Business School
- Project sponsors
 - Canadian Gov't
 - Netherlands Gov't
 - UK Gov't
 - Electric Power Research Institute
 - Enel
 - Eon (UK)
 - RWE npower
- Other research institutes – IIASA, Dev. Bank of Japan

Analysing the decision to invest under uncertainty – the 'real option' method

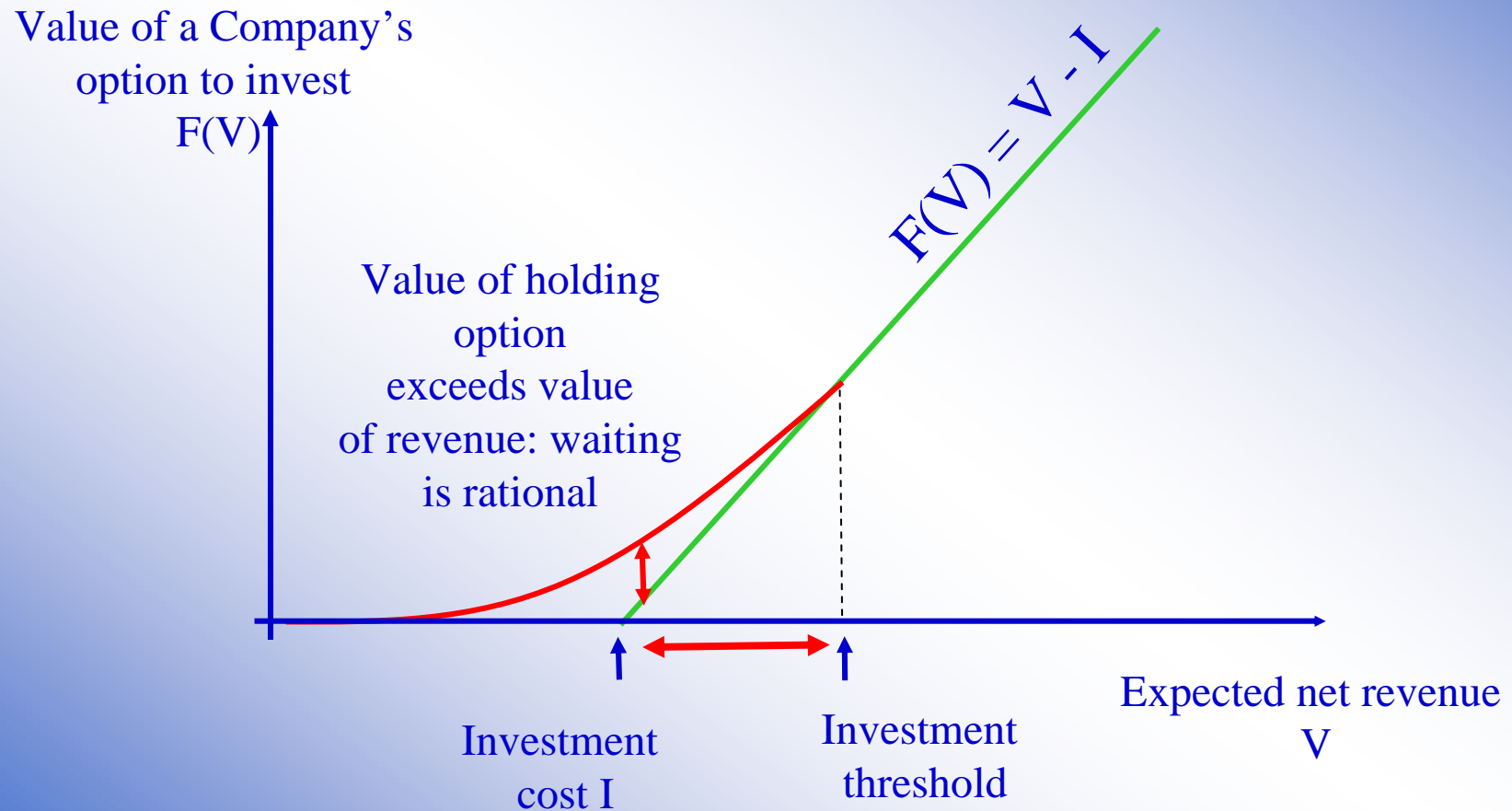


New investment rule:

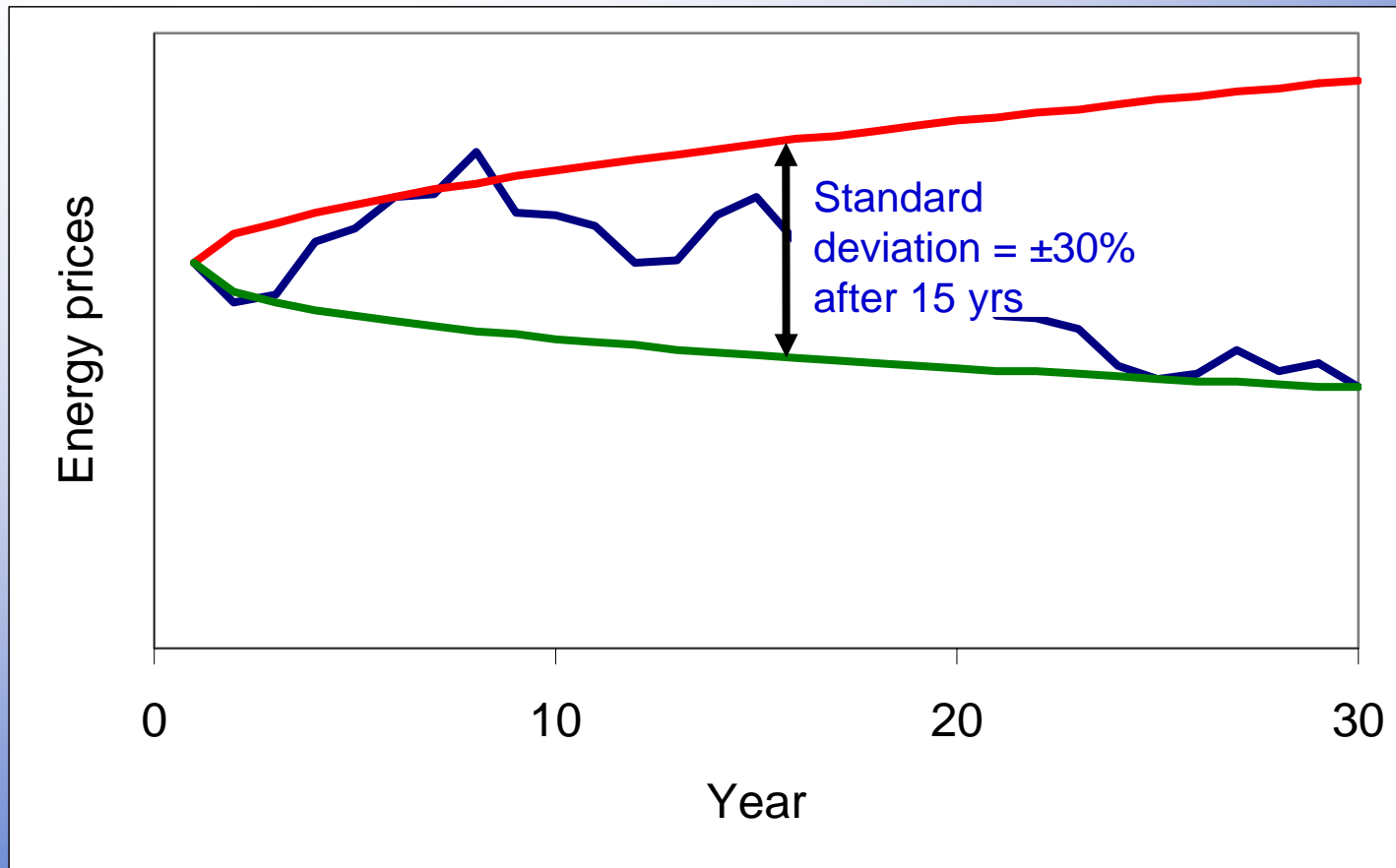
Invest **NOW** if:

cost of delaying > value of delaying

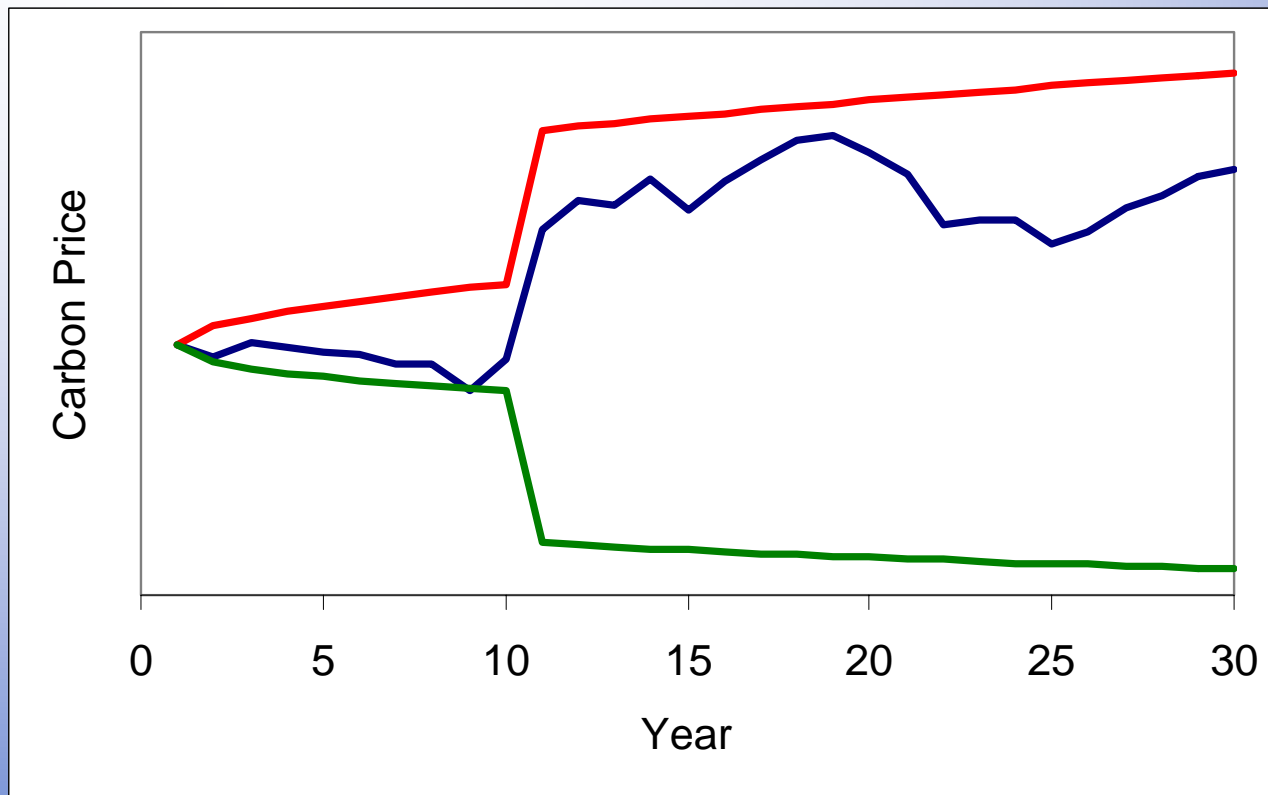
Option value of waiting



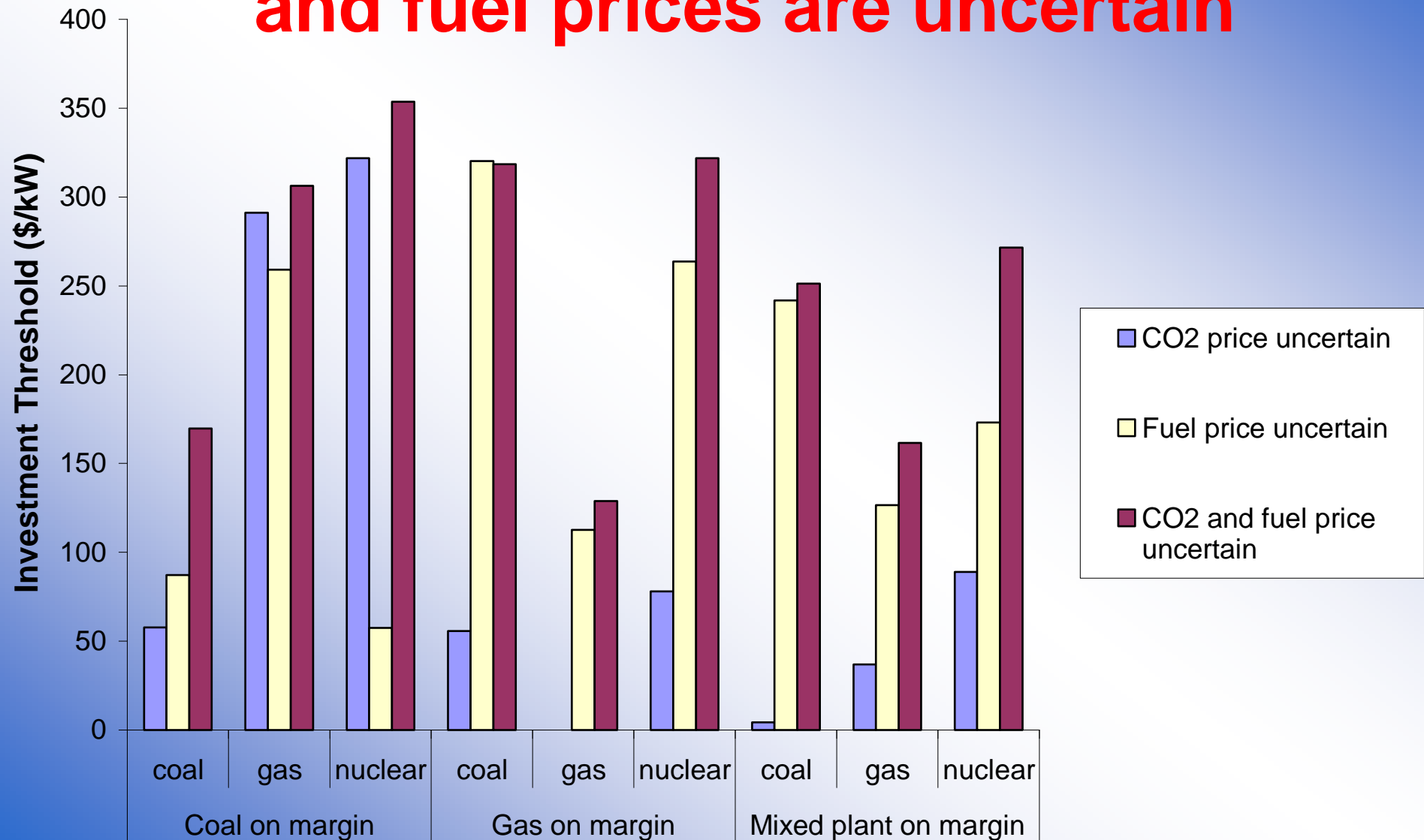
Modeling uncertain fuel prices



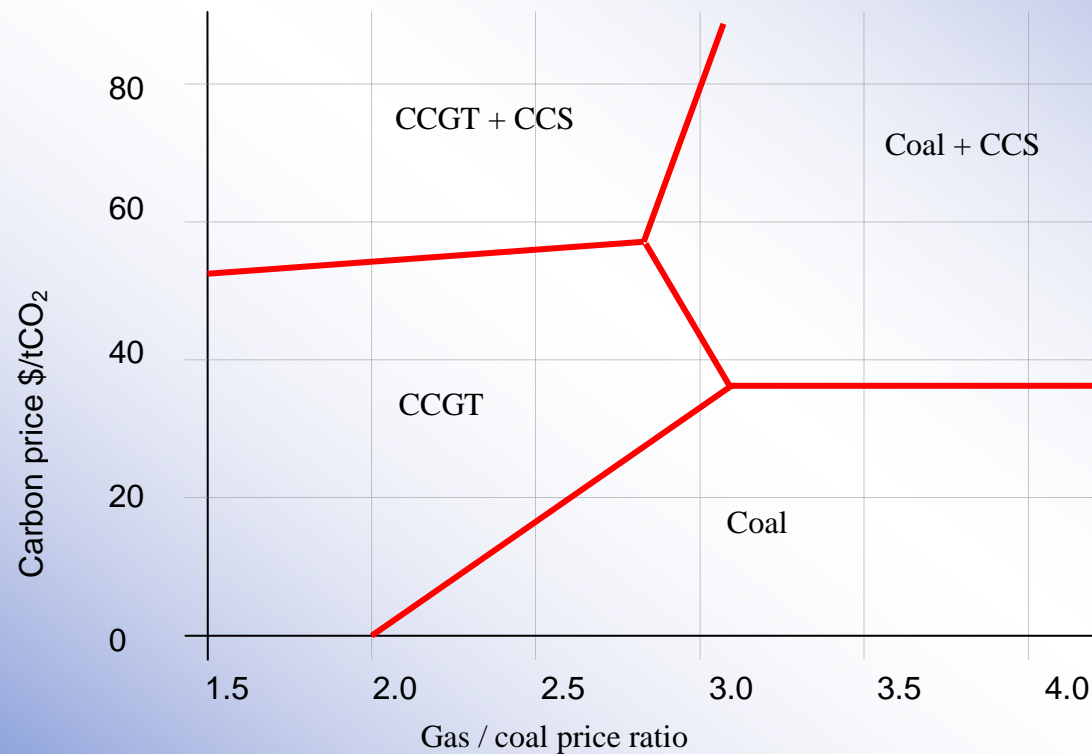
CO₂ price uncertainty



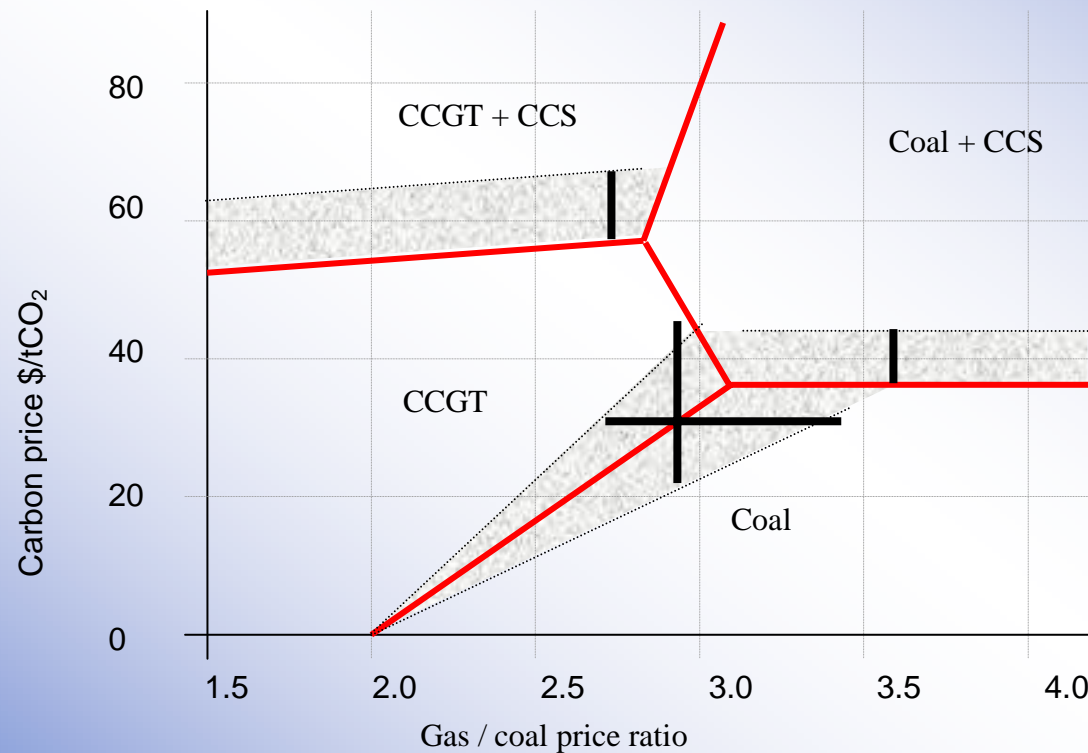
Investment thresholds when CO₂ and fuel prices are uncertain



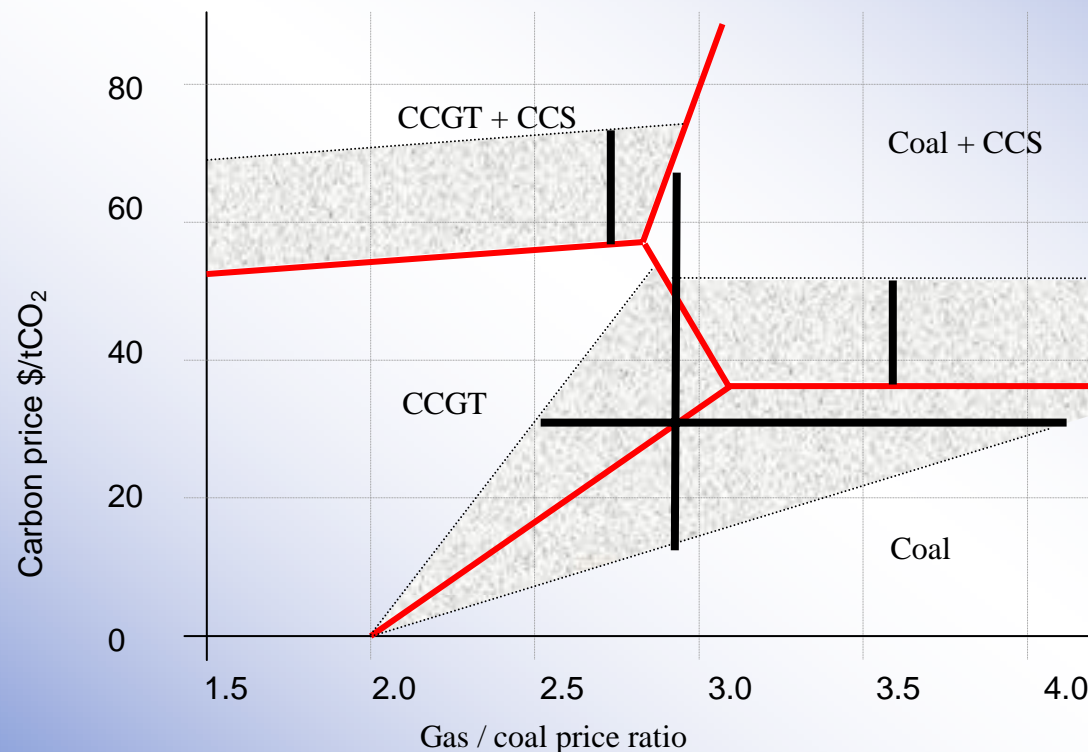
Carbon Capture and Storage



Effect of carbon price uncertainty – jump after 10 years



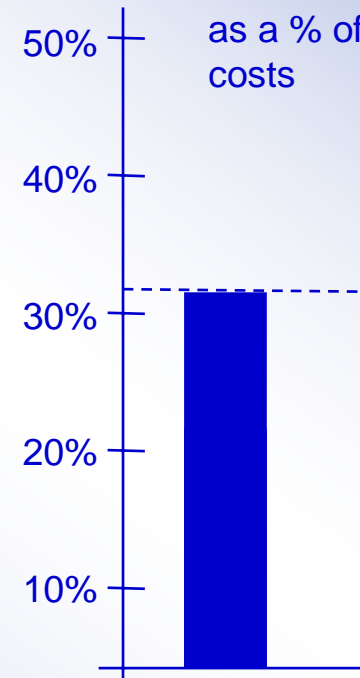
Effect of carbon price uncertainty – jump after 5 years



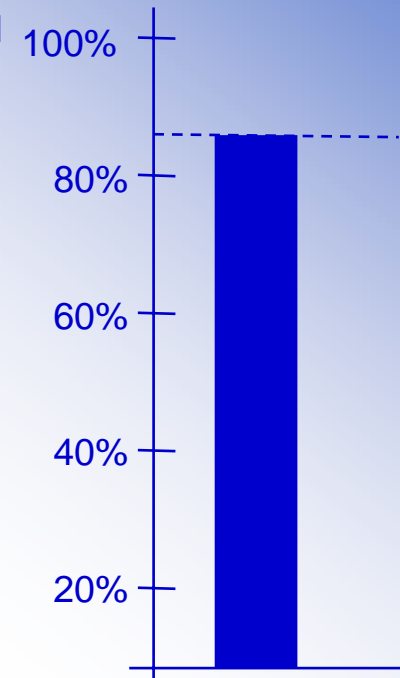
Effect of CO₂ price uncertainty on investment threshold



Additional net revenue required as a % of capital costs

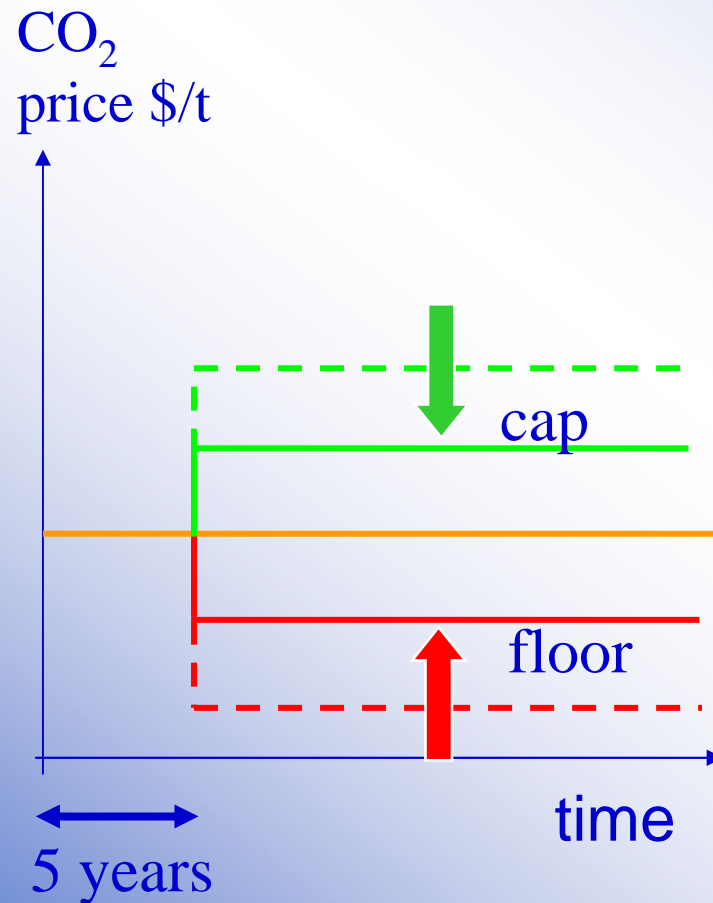


1. Nuclear

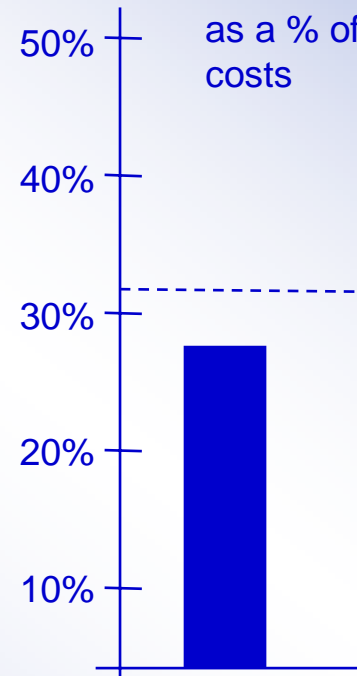


2. CCS

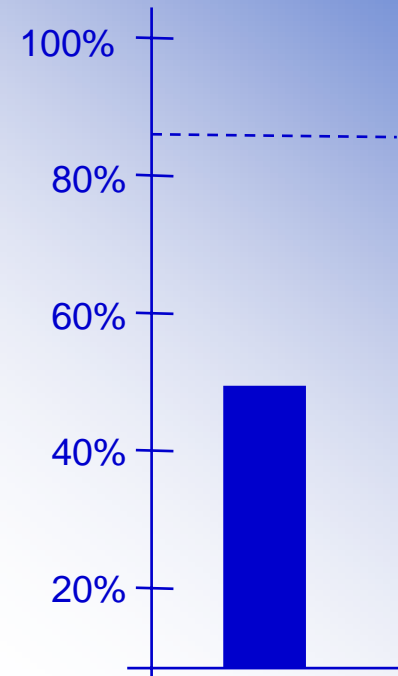
Effect of CO₂ price uncertainty on investment threshold



Additional net revenue required as a % of capital costs

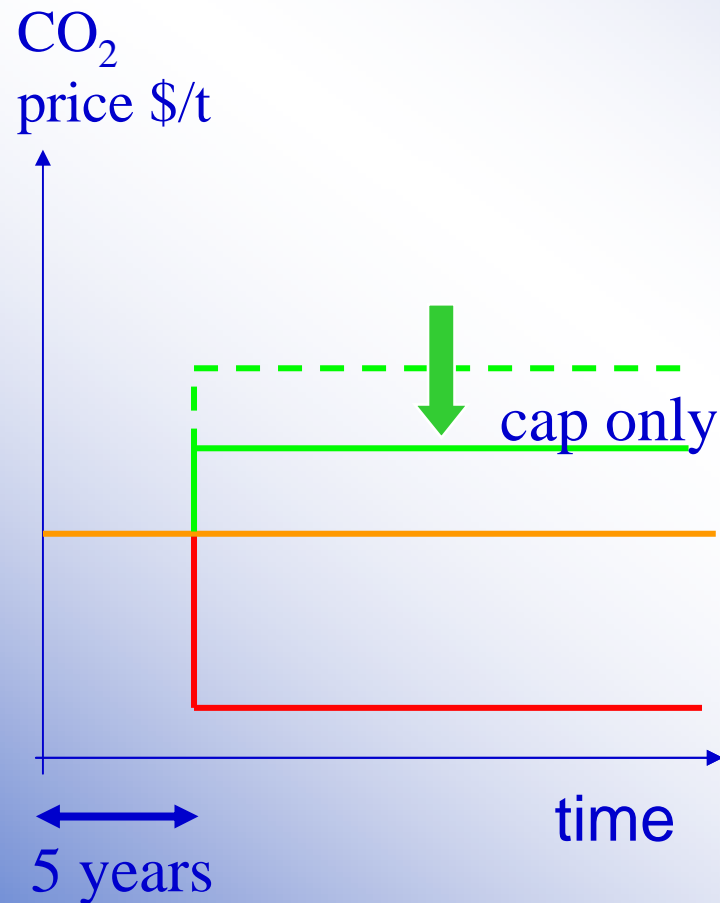


1. Nuclear

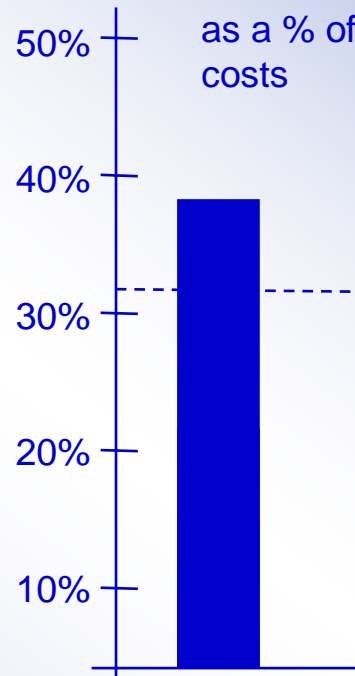


2. CCS

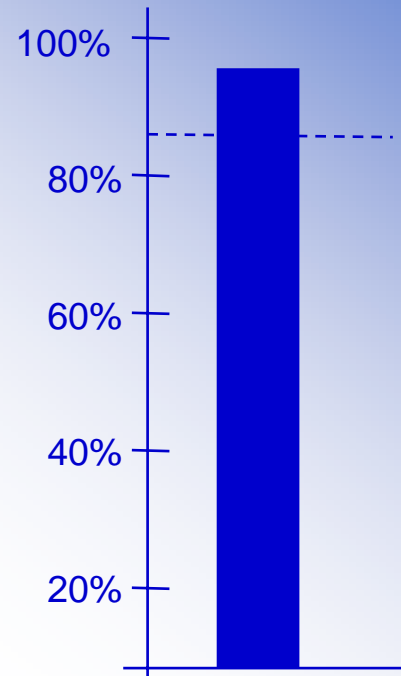
Effect of CO₂ price uncertainty on investment threshold



Additional net revenue required as a % of capital costs



1. Nuclear

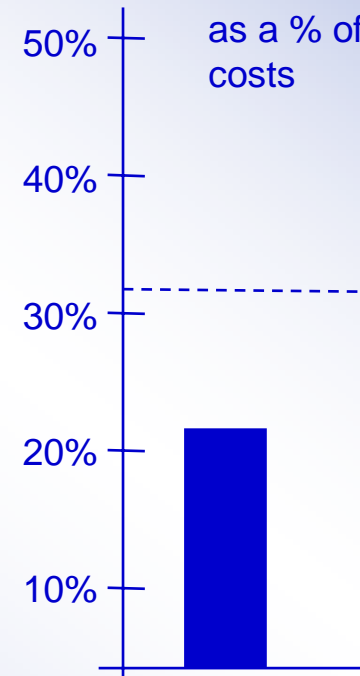


2. CCS

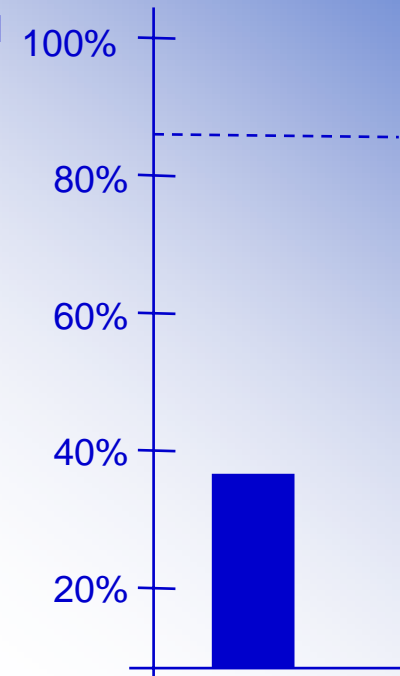
Effect of CO₂ price uncertainty on investment threshold



Additional net revenue required as a % of capital costs



1. Nuclear



2. CCS

Conclusions

- CO₂ price uncertainty matters for some technologies in some types of market
- CO₂ price caps decrease the expected average income for low-C technologies
- Price caps and floors can reduce effects of uncertainty, if:
 - Caps and floors themselves are certain
 - They are 'tight' – i.e. expected to be exercised for a significant amount of time
- Extending the period of 'stable' prices from 5 to 10 years has the strongest effect in reducing the investment threshold

Contacts

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