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Options to address EU ETS induced increases in power prices and windfall profits

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Introduction

- CO2 Price Dynamics project
- Debate on EU ETS induced increases in power prices and generators' profits
- Focus of presentation: Background and options to address EU ETS induced increases in power prices and profits

Contents

- Impact EU ETS on power prices
- Impact EU ETS on generators' profits
- What's the problem?
- Options to address the problem
- Conclusions

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Impact EU ETS on power prices

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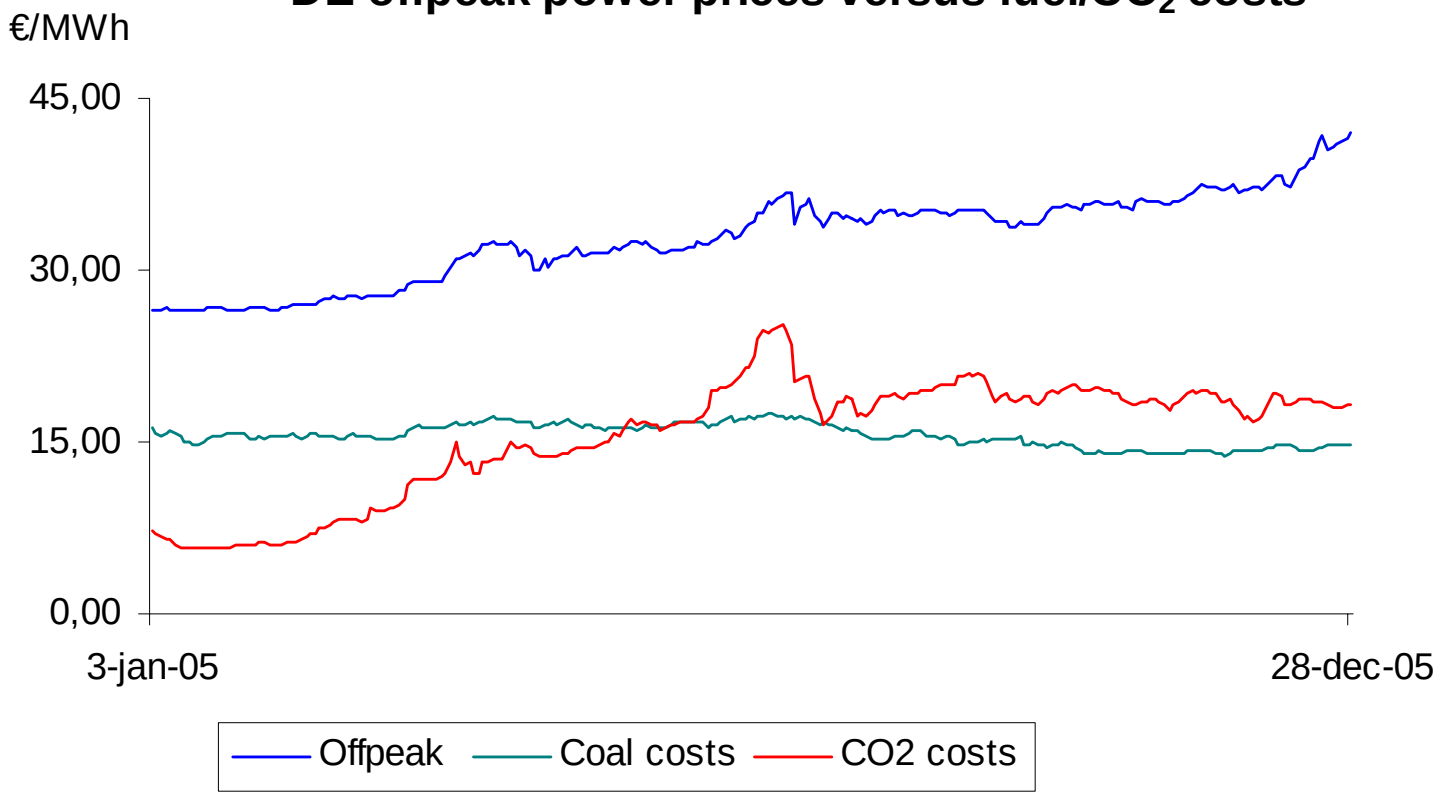
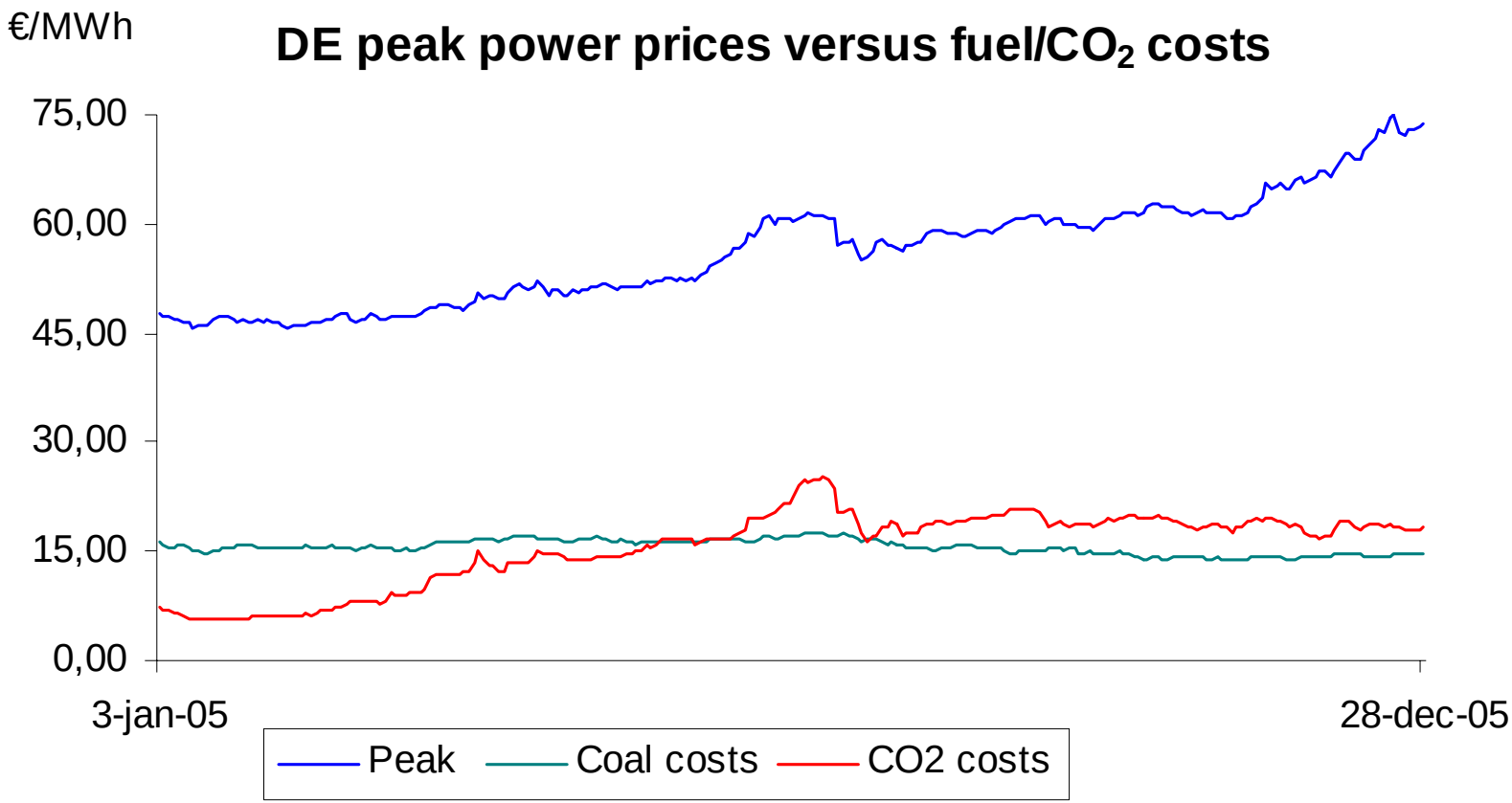
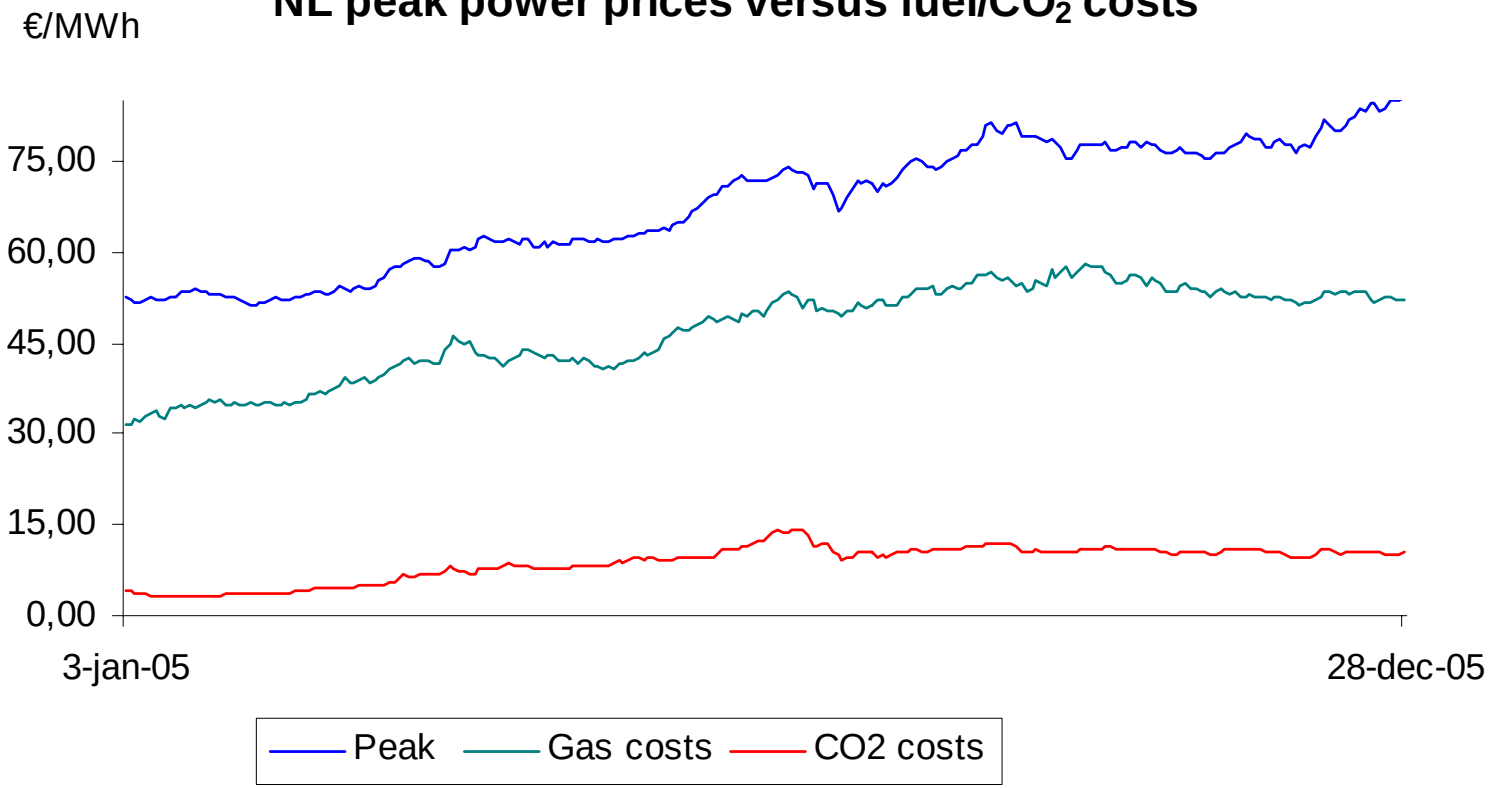
DE offpeak power prices versus fuel/CO_2 costs



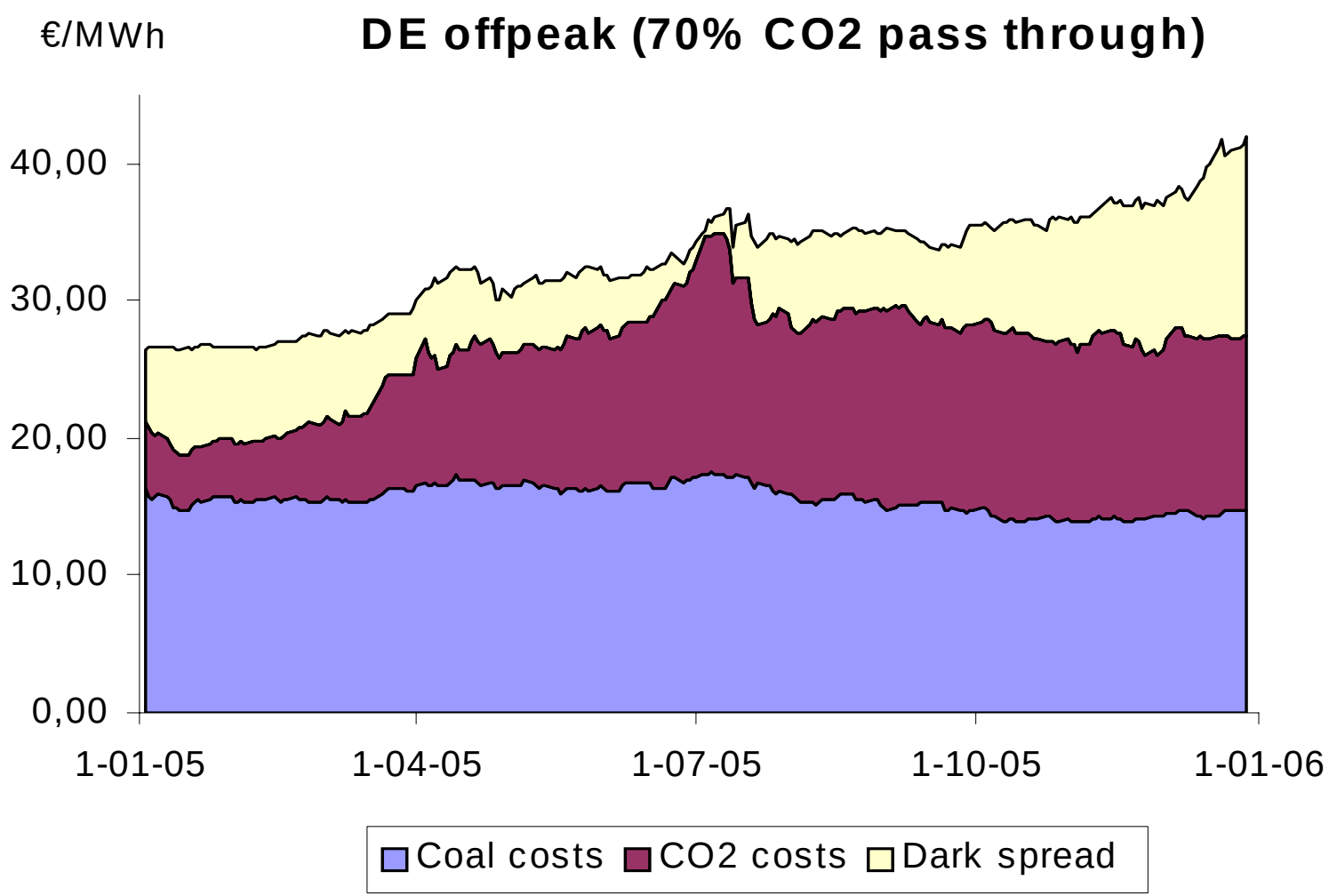

€/MWh
DE peak power prices versus fuel/CO2 costs
75,00
60,00
45,00
30,00
15,00
0,00
3-jan-05
28-dec-05
Peak
Coal costs
CO2 costs

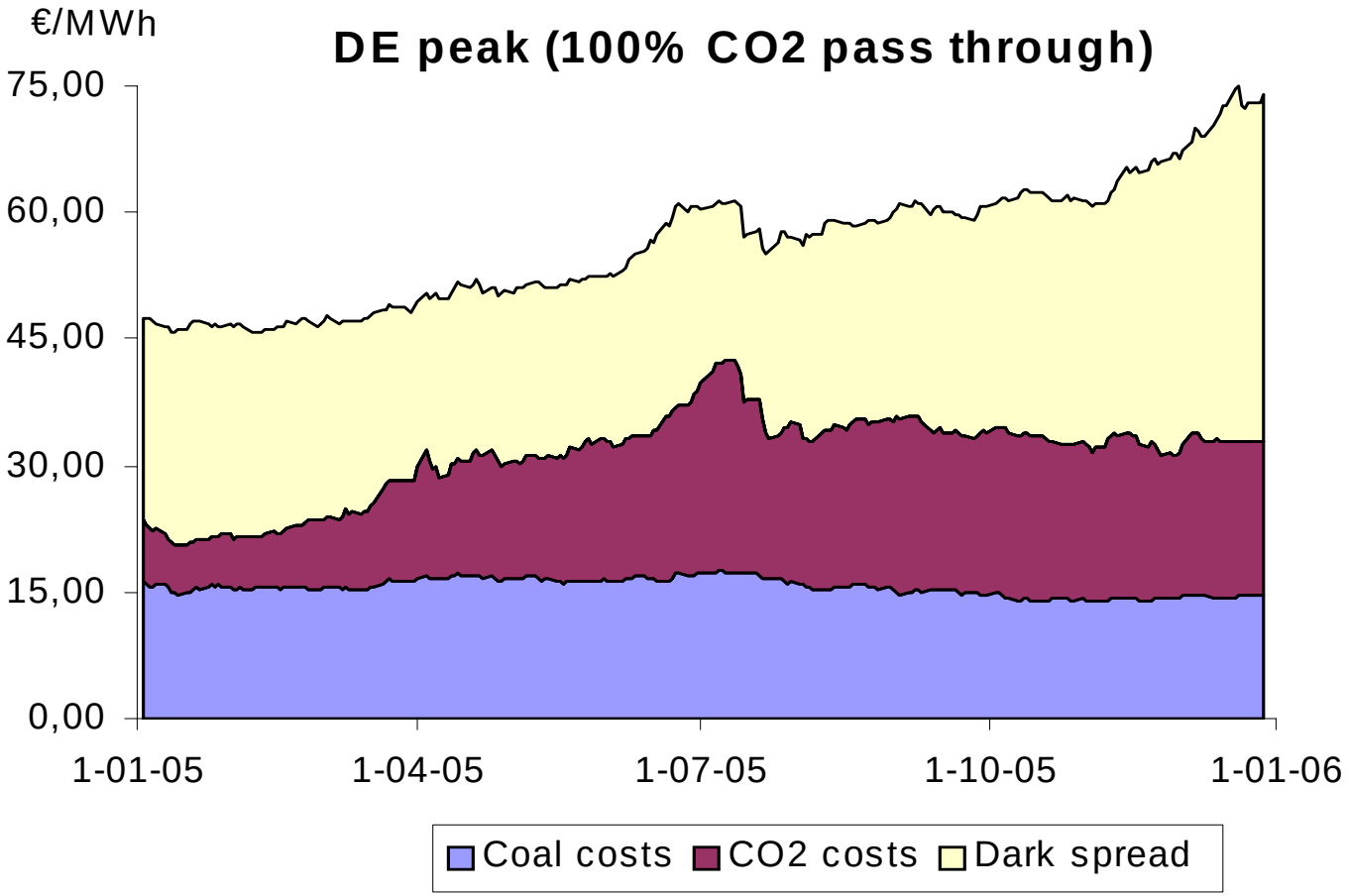
NL peak power prices versus fuel/CO_2 costs

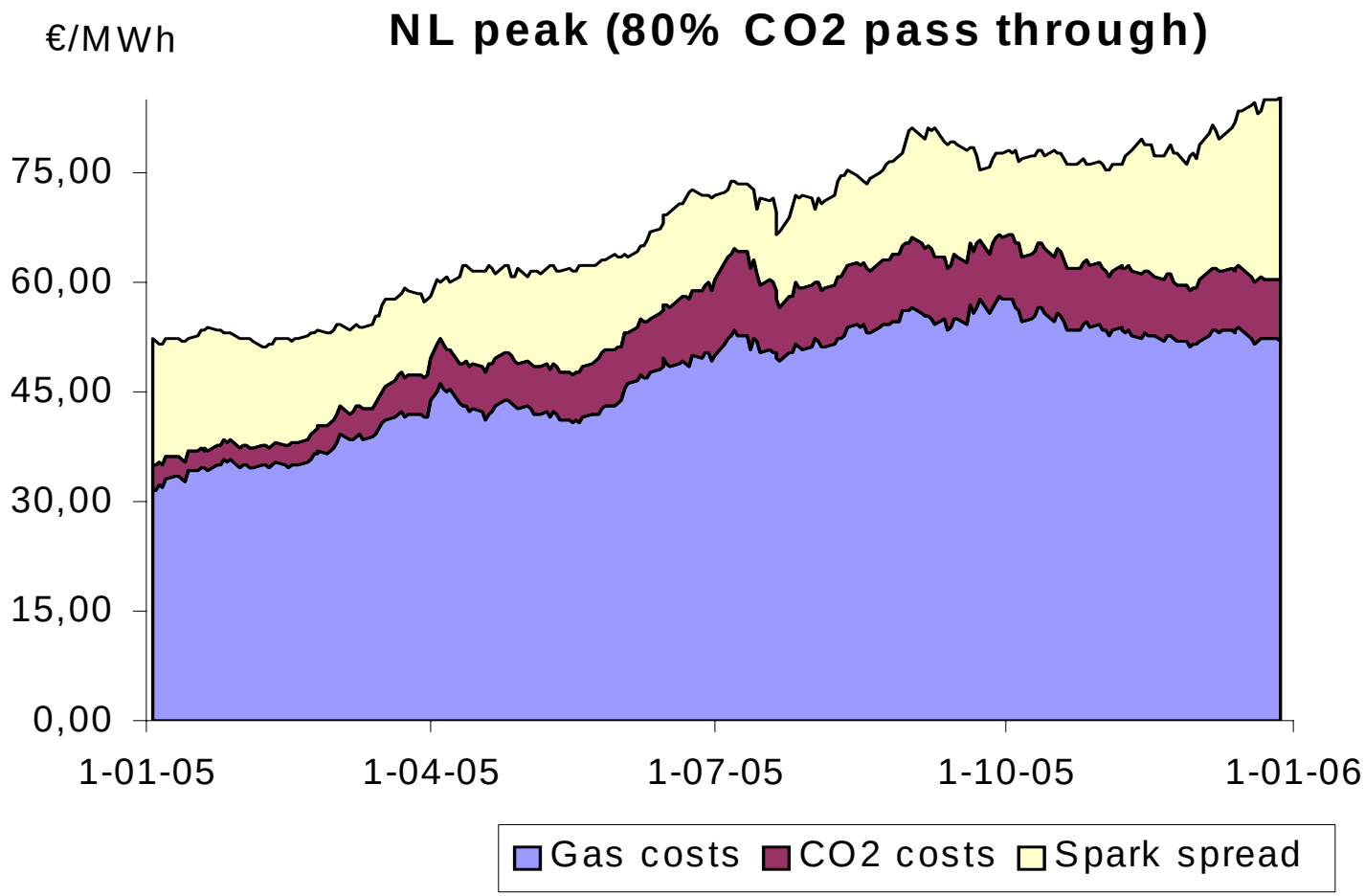


Changes in wholesale power prices by underlying factors (in €/MWh)

	Power price		Increase in:			
	Early 2005	Late 2005	Power price	Fuel costs	Carbon costs (% pass through)	Other (scarcity)
DE off-peak (coal)	27	41	14	-1	8 (70%)	7
DE peak (coal)	46	73	27	-1	12 (100%)	16
NL peak (gas)	52	84	32	20	5 (80%)	7


€/MWh
DE offpeak (70% CO2 pass through)
40,00
30,00
20,00
10,00
0,00
1-01-05
1-04-05
1-07-05
1-10-05
1-01-06
Coal costs
CO2 costs
Dark spread


€/MWh
DE peak (100% CO2 pass through)
75,00
60,00
45,00
30,00
15,00
0,00
1-01-05
1-04-05
1-07-05
1-10-05
1-01-06
Coal costs
CO2 costs
Dark spread


€/MWh
NL peak (80% CO2 pass through)
75,00
60,00
45,00
30,00
15,00
0,00
1-01-05
1-04-05
1-07-05
1-10-05
1-01-06
Gas costs
CO2 costs
Spark spread

Major findings

- Power prices increased substantially over 2005
- Three causes:
  - Higher fuel costs (NL peak/gas)
  - CO2 cost pass through (DE off-peak/coal)
  - Other/growing scarcities (DE peak/coal)
- Share of CO2 cost pass through in power price increase varies from 16% (NL peak/gas) to 57% (DE off-peak/coal)

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EU ETS impact on generators' profits

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Changes in generators' profits

- Distinction in profit changes due to:
  A. ETS induced changes in production costs, power prices and sales volumes (assumption: buy all allowances)
     - Depends on marginal (price-setting) unit versus inframarginal unit
  B. Free allocation
     – Depends on % of allowances received for free

- Distinction is important because of:
  1. Different causes
  2. Different effects/incentives for new investments
  3. Different policy implications

Estimates of windfall profits

- Model scenario estimates (in % of baseline profits):
  - Windfall A: -1.6% / 42%
  - Windfall B: 9.6% / 46%
  - Total: 8.0% / 88%
  - Depending on scenario assumptions (market structure, demand elasticity and carbon price)

- Empirical estimates:
  - NL (ECN): €300-400 mln/a (35 MtCO2 free allowances)
  - UK (IPA): €1200-1300 mln/a (134 MtCO2 free allowances)
  - Qualifications: rough estimates, major differences between countries and installations; time lags; static analyses

What's the problem?

- Increase in power price:
  - Intended, rational effect, but:
    - Affects competitiveness of energy-intensive industries (EIIs)
    - Affects small end-users (equity, double taxation)

- Windfall profits:
  - Windfall A: inherent to carbon pricing (intended for newcomers, but unintended for incumbents)
  - Windfall B: inherent to free allocation (unintended, adverse equity effect, socio-political hard to accept)

- How to address these (unintended) effects?

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Policy options

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Policy option	Intended effect		Other effects/comments	Feasibility
	Power price	Windfall profits (A/B)		
1. Indirect (free) allocation	No	No (A) Yes (B)	•Compensates (only) covered EIIs •Double compensation •Perverse power use effects	•Questionable
2. Auctioning + recycling	No	No (A) Yes (B)	•Most efficient price signal •Recycling: compensation + other benefits •(Adverse) effects on industrial competitiveness	•Sheltered sectors: feasible •Other sectors: questionable
3. Relative benchmarking / output-based allocation	Yes	Yes (A/B)	•Less environmental certainty •Less efficient •Administrative demanding	•Sheltered sectors: questionable •Other sectors: feasible
4. Taxation + recycling	No	Yes (A/B)	•Recycling: compensation + other benefits •Hard to determine exact windfall profits •Tax both categories of windfall profits?	•Hard to implement

Policy option	Intended effect		Other effects/comments	Feasibility
	Power price	Windfall profits (A/B)		
5. Price regulation: - wholesale - retail - carbon	 Yes Yes Yes	 Yes (A) No (B) Yes (A) No (B) Yes (A/B)	•Against market liberalisation •Risks of market disruption •Less environmental effectiveness	•Questionable
6. Reducing CO_2 price - lower cap - more JI/CDM	 Yes Yes	 Yes (A/B) Yes (A/B)	•Less (domestic) emission reductions •Less dynamic efficiency (?)	•Feasible
7. Encouraging power sector competition	No	No	•Paradox: more competition may reduce oligopolistic pricing/profits, but increase CO_2 cost pass through and ETS induced windfall profits	•Difficult, feasible, but not effective to address EU ETS adverse effects

Policy option	Intended effect		Other effects/comments	Feasibility
	Power price	Windfall profits (A/B)		
8. providing state aid to Energy Intensive Industries (EIIs)	No	No	•May violate EU state aid rules •Adverse competitive effects •Adverse fiscal effects	•Questionable
9. Promoting EII strategies: - Energy saving - Self generation - long term contracts	 No No No	 No No No	•Lack of cost-effective options •Several constraints •Only temporary solution (‘hedging’)	•Limited feasibility •Limited feasibility •Feasible
10. Border tax adjustments	No	No	•Trade conflicts? •Compatible with WTO rules (only when auctioning)?	•Perhaps feasible (more study/discussion needed)
11. Long-term options: - global climate policy regime - technological innovations	 No Yes	 No Yes (A/B)	•Avoids leakage and adverse competitive effects •Enhances dynamic efficiency	•Difficult, but maybe feasible in the long run • Feasible in the long run

Conclusions (1)

- Power prices have increased substantially during 2005, but only part (16-57%) is due to CO2 cost pass through.

- A distinction should be made between windfall profits due to:
  - ETS induced changes in power prices, sales volumes and costs
  - free allocations

  Since they have different causes, effects and policy implications.

Conclusions (2)

- To some extent, EU ETS induced higher power prices and windfall profits (A) are intended, rational and/or inherent effects of climate policy. However, free allocations and resulting windfall profits (B) have unintended/averse effects that should be addressed.

- There are hardly any policy options that address both EU ETS induced increases in power prices and windfall profits without adverse, socio-economic effects. Feasible options include auctioning (sheltered sectors), relative benchmarking (other sectors) controlling CO2 prices (more JI/CDM) and encouraging technological innovations.

More information

- ECN Report (Sijm et al. 2005):
  - http://www.ecn.nl/docs/library/report/2005/c05081.pdf
- Article Climate Policy (Sijm et al. 2006):
  - http://www.electricitypolicy.org.uk/pubs/tsec/sijm.pdf
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