

EU ETS Auction workshop

Cambridge, January 12th, 2006

Karsten Neuhoff
Cambridge University

Welcome to a day of discussion

- under Chatham House Rules:
Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed
- we will ask presenters whether we can put their presentation online

Approach I

- Inspirations from other markets
 - US power market auctions – Mary Sharpe Hayes
 - Treasury bond auctions – Andreas Pick
- Feedback from CO₂ auctions (Paul Klemperer)
 - Hungary - Peter Kaderjak
 - The US RGGI program - Dallas Burtraw
 - The UK ETS - Stephen Smith
 - Ireland - Ken Macken

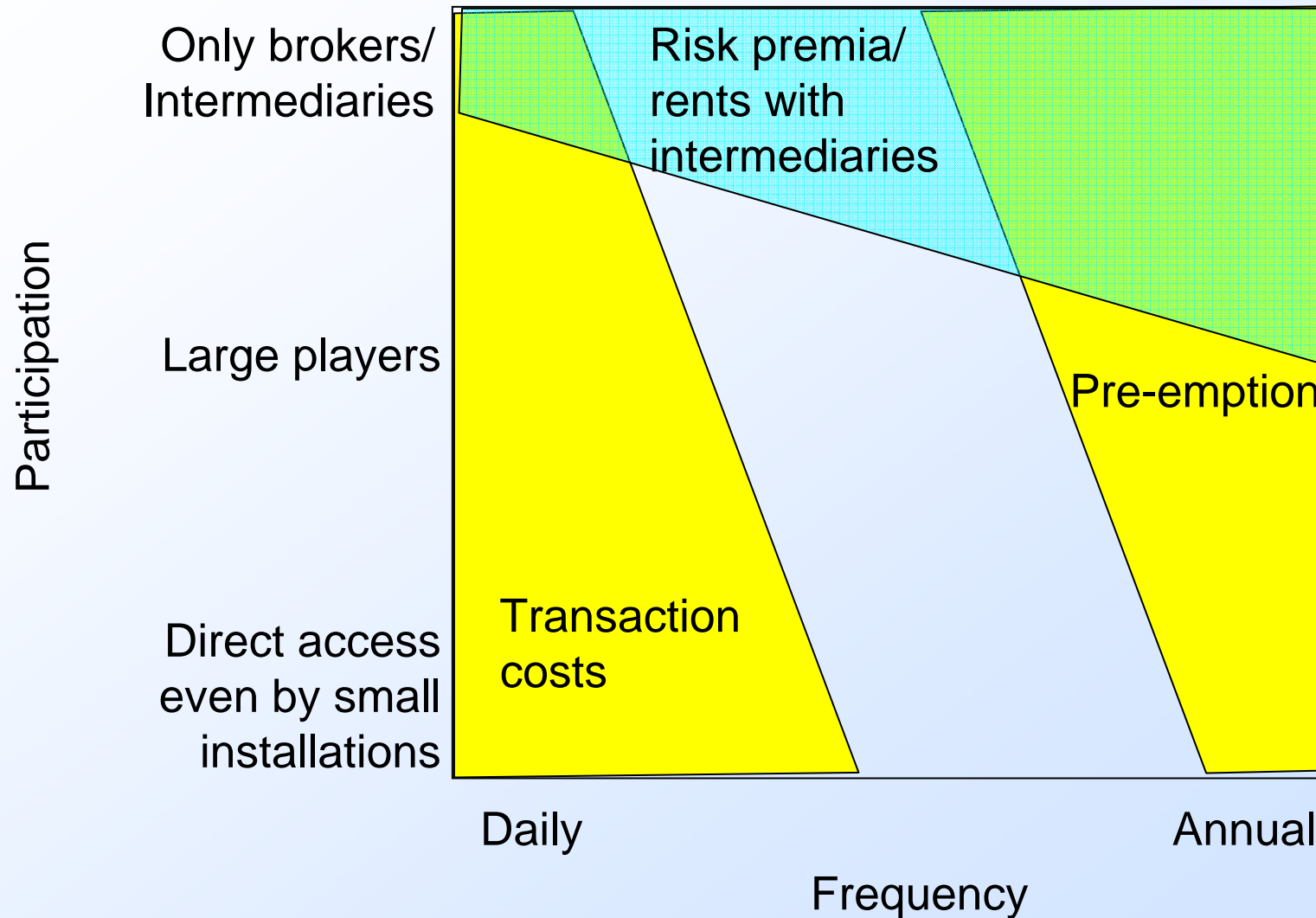
Approach II

- Market requirements (Kate Hampton)
 - Cash flow requirements – Jonathan Mirrlees-Black
 - Institutional options – Stefan Teis
 - Trader's perspective – Rupert Edwards
- Revenue recycling (Michael Grubb)
 - Criteria and objectives - Martina Priebe
 - State aid and other constraints - Angus Johnston
- Linking it all up (Felix Matthes)

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

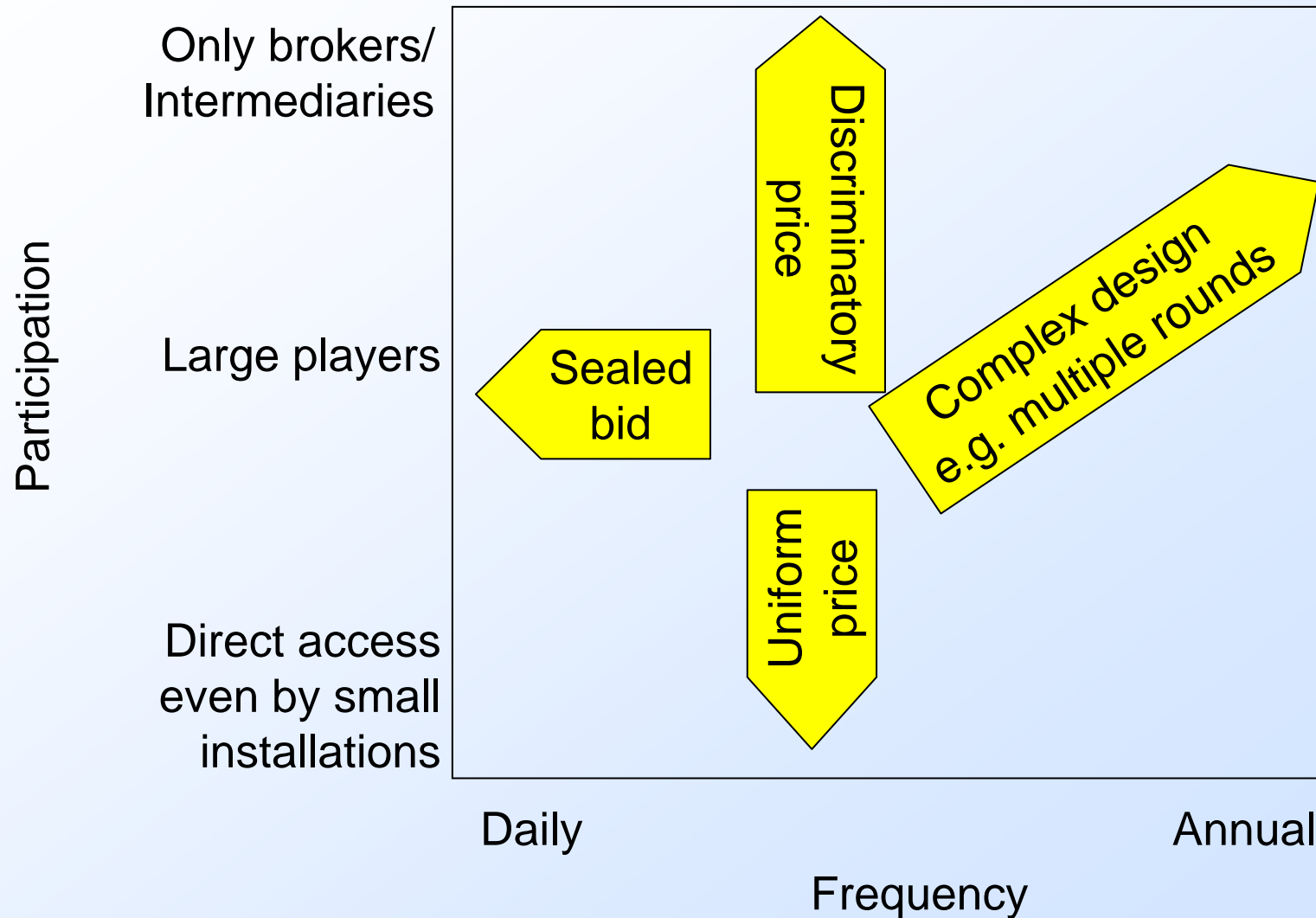
Auction format – concerns to address



Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

Auction format – preferred options



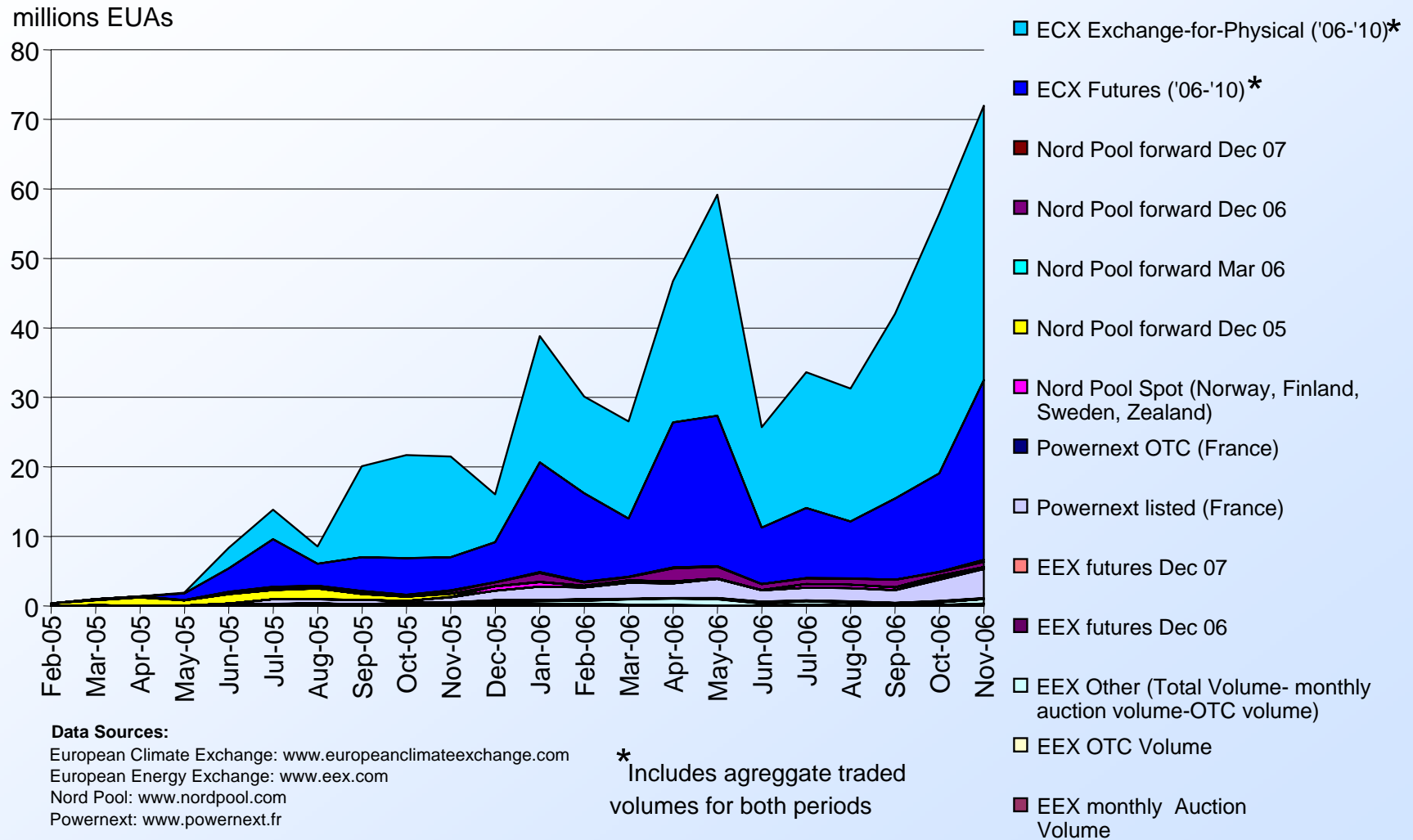
Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

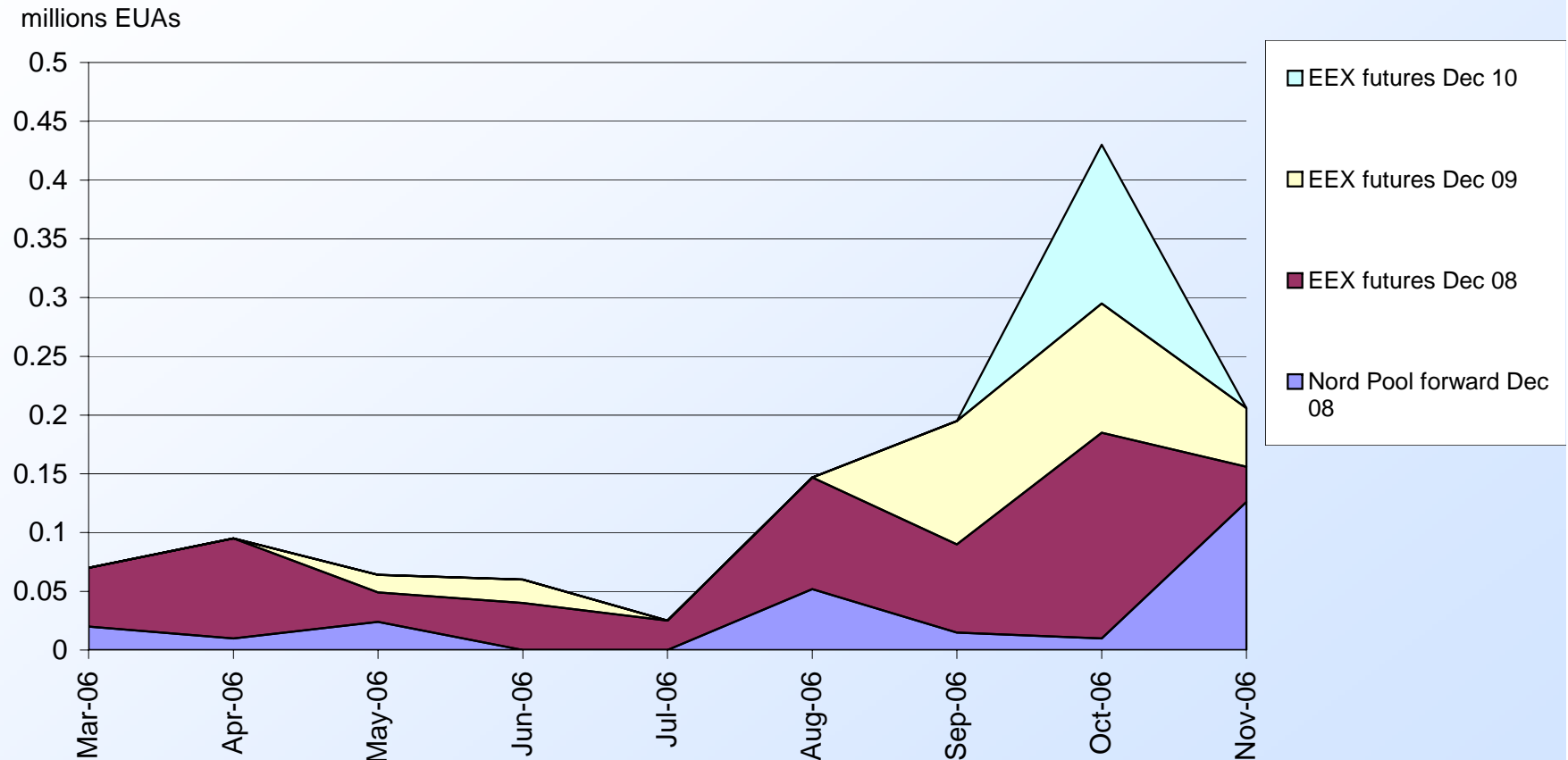
EUA prices (blue) and forward prices for 2nd period (red)



Monthly trading volumes of Phase I allowances



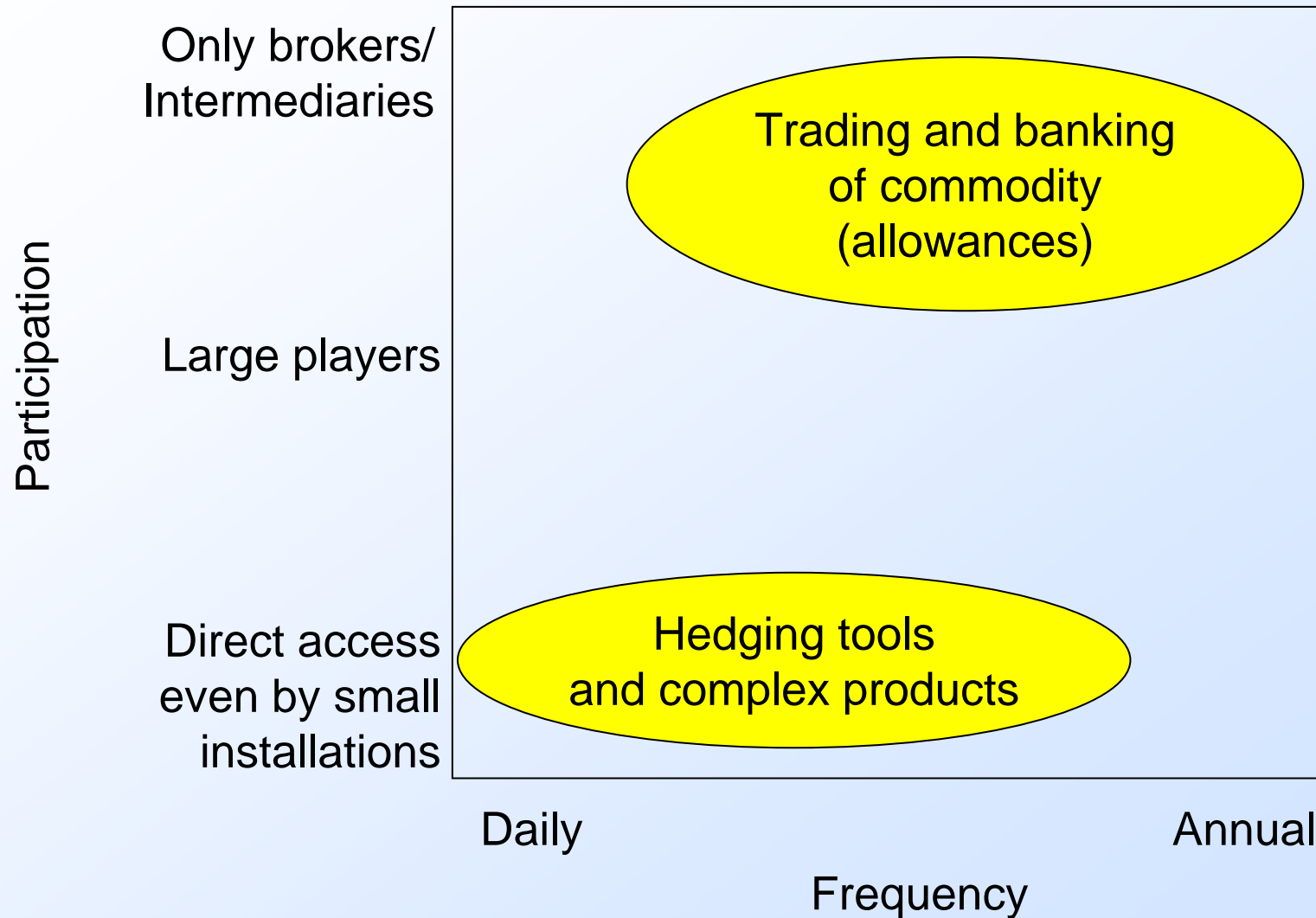
Monthly trading volumes of Phase II allowances



Data Sources:
 European Energy Exchange: www.eex.com
 Nord Pool: www.nordpool.com

NB: Does not include ECX traded volumes as only aggregate data is available.

The role of the market



Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

Host/participation at auction

- Example - hosted by European Energy Exchange (?)
- Different designs for T-bonds across Europe
- Participation requirements, costs etc.

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- **Impact of auctions on cash flow**
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

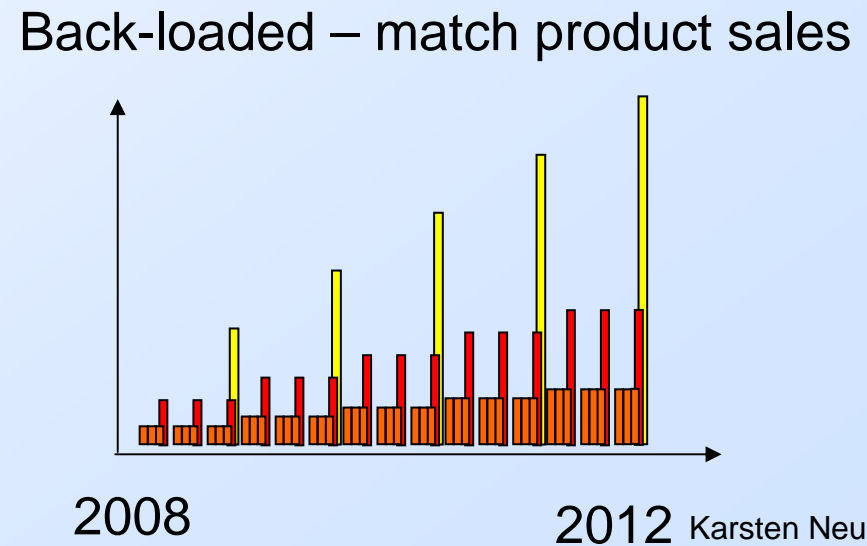
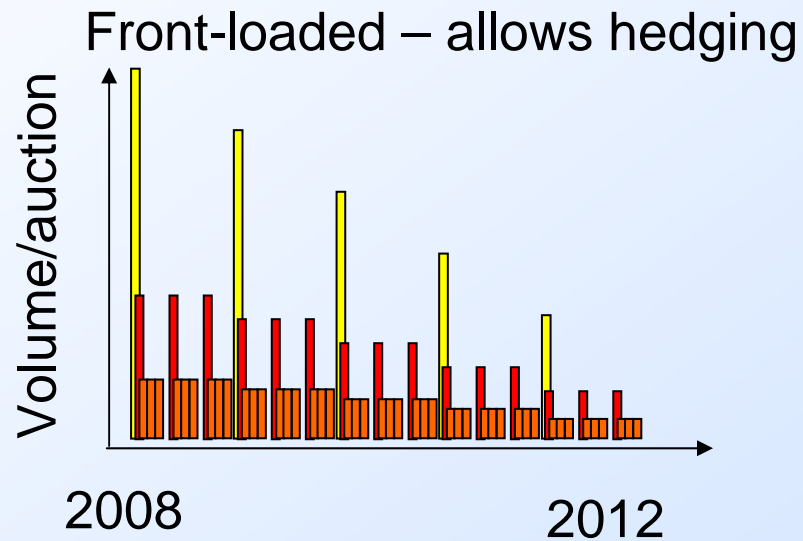
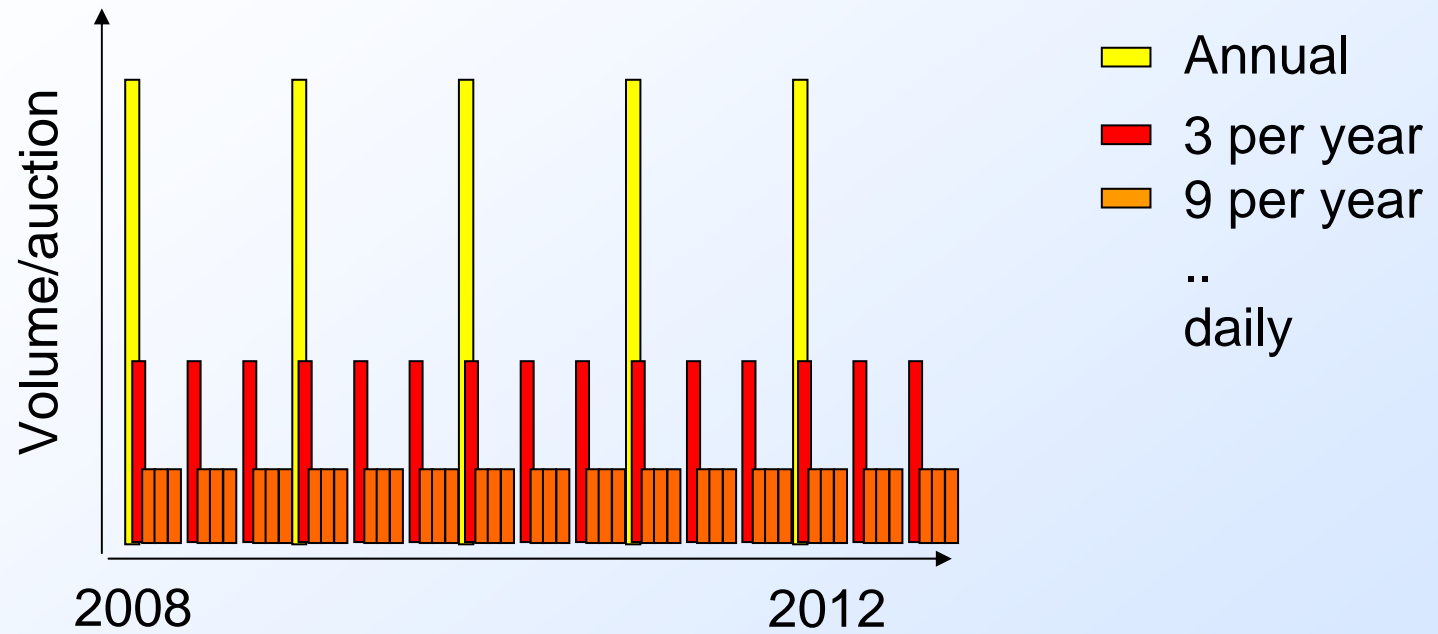
Industry perspectives

- Mickey Mouse econ model would suggest:
 - Buy allowance close to product sales
 - Credit posting at auction
 - If product price reflects allowance cost no exposure
- To what extent does it not apply?
- What is the implication for frequency and timing?

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- **Distribution of allowances across auctions**
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

The distribution of allowances across auctions



Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- **Coordination across Europe**
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

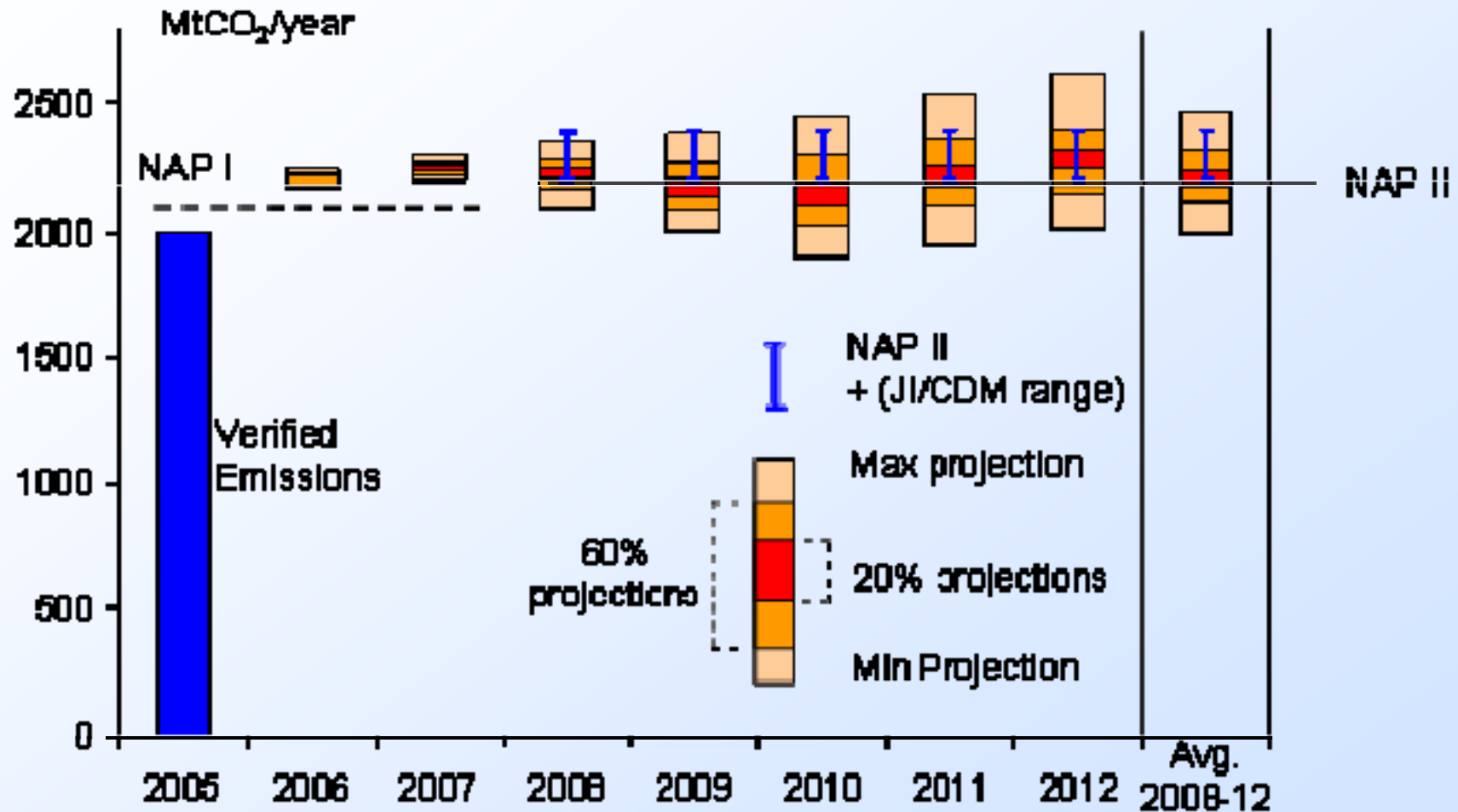
Coordination across Europe

- Are auctions open across member states?
- Does voluntary cooperation create disadvantages?
- Options to cooperate – revenue sharing?
- Cooperation required with price floor

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- **Minimum price auction**
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

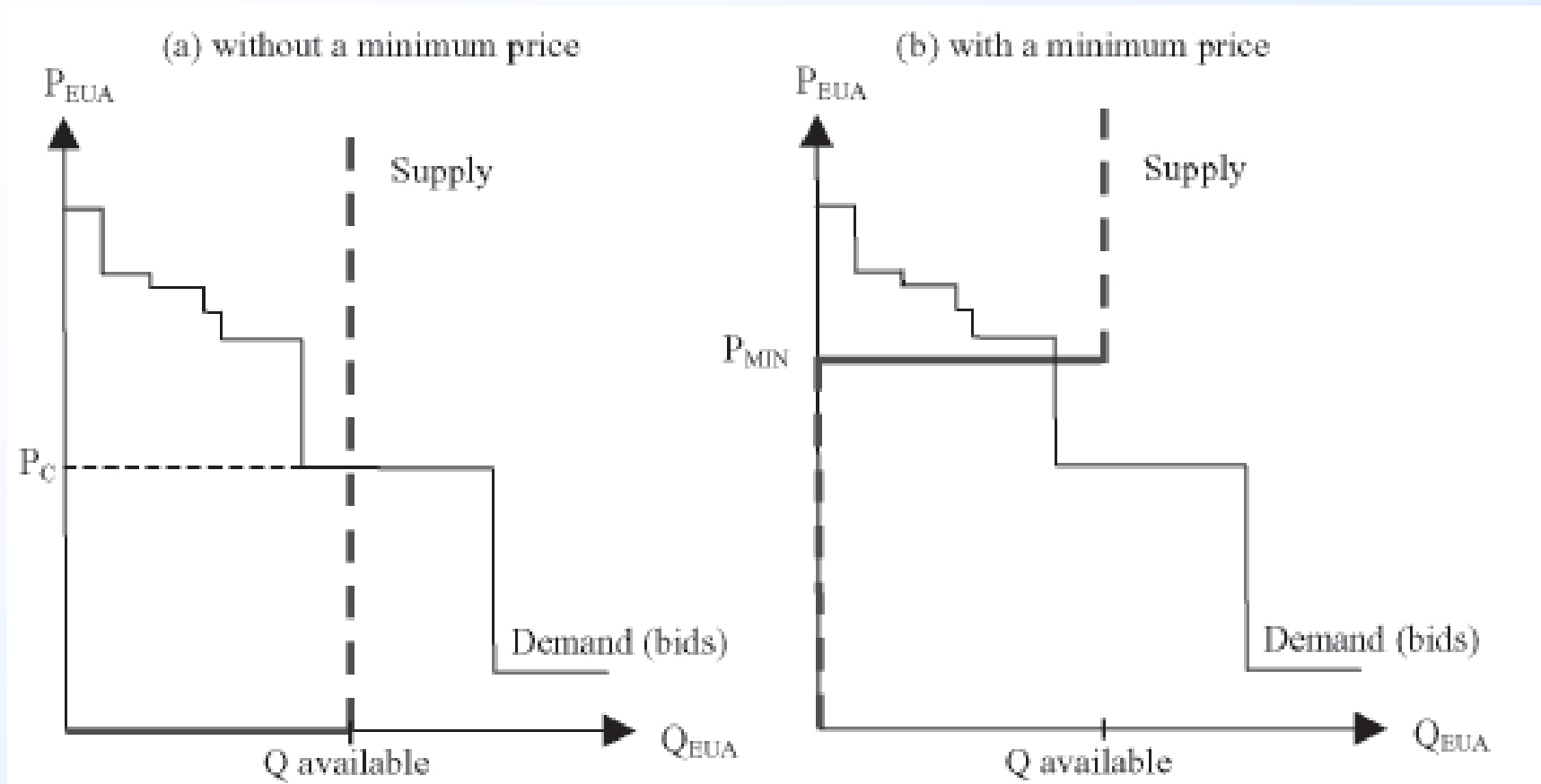
Numerical evidence – projection uncertainty Phase II



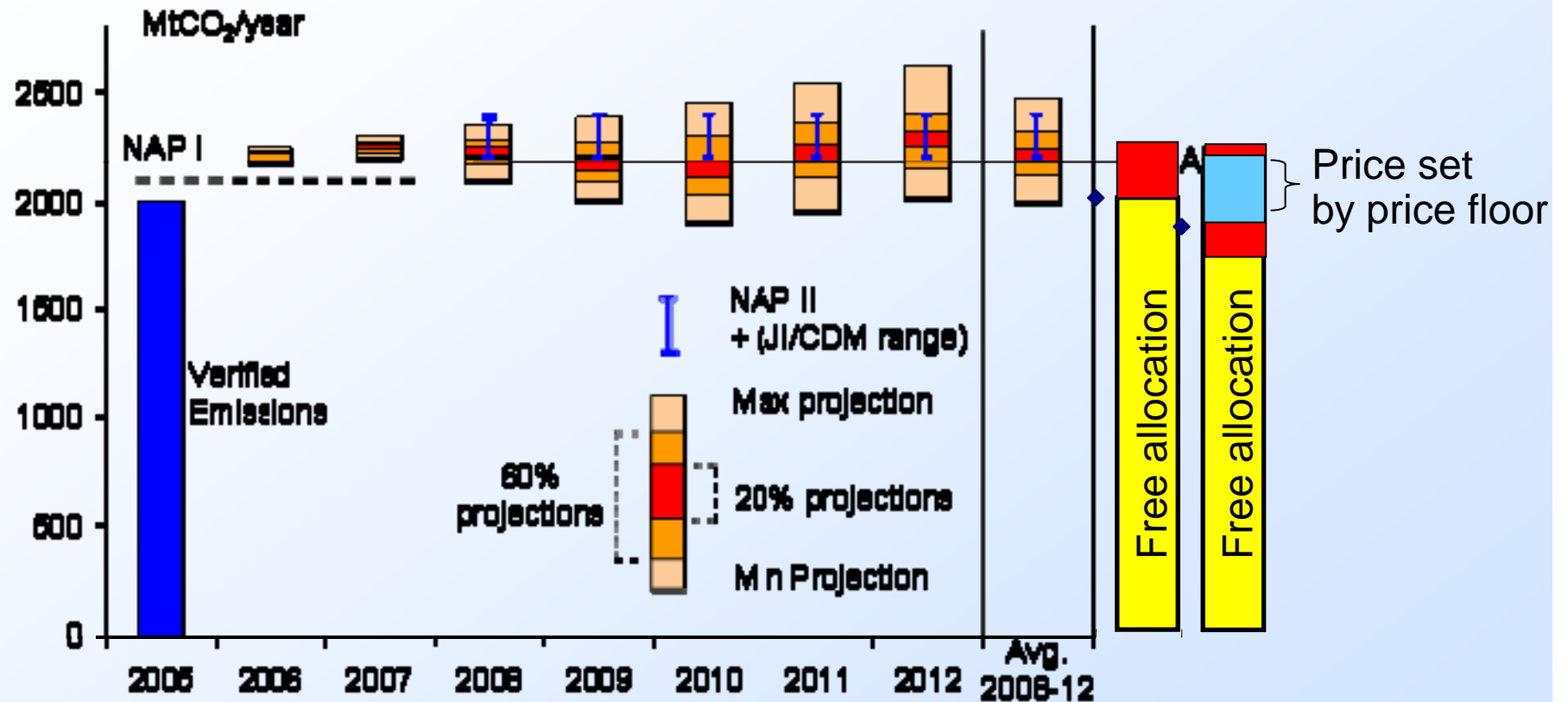
Source: Neuhoff, Ferrario, Grubb, Gabel, Keats (Sept 2006)

- Cap envisaged in NAPII too lax → Commission reduced by 200 mio. t
- Projections difficult – uncertainty about price likely to remain

Minimum price auction – how does it work



Minimum price auction – effect on allowance price

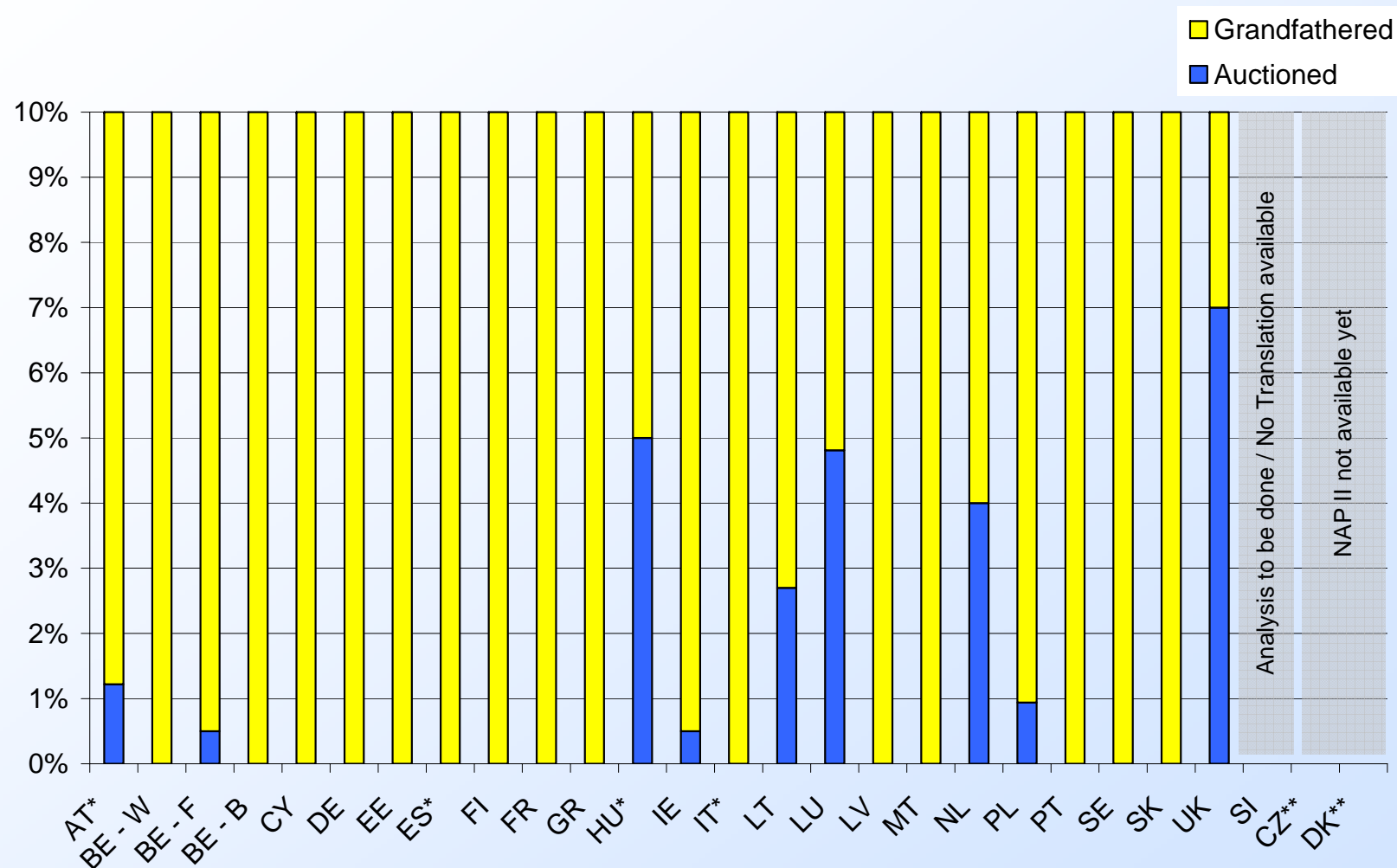


Source: Neuhoff, Ferrario, Grubb, Gabai, Keats (Sept 2006)

Coordinated auction with price floor can set floor to allowance price

- Facilitates low carbon investment
- Reduces emissions and thus allowance price

Currently proposed fraction of allowance auctions Phase II



Detail – auctions with price floor

- Auctions are viable and simple option for allocation
- Directive allows for up to 10% auctions in 08-12
- We suggest to a coordinated auction with price floor
- Use complementarity criteria to limit CER inflows
 - if their price too low relative to desired price floor
- Some allowances from auctions will be required
 - thus they determine a price floor
- Price ceiling – difficult to align with Directive
 - price spikes unlikely given current projections
 - flexibility from CERs likely to prevent price spikes

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

Open market sales

- Presentation of Hungarian proposal
- Under what conditions feasible (frequency, share of market)
- Participation constraints?

Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

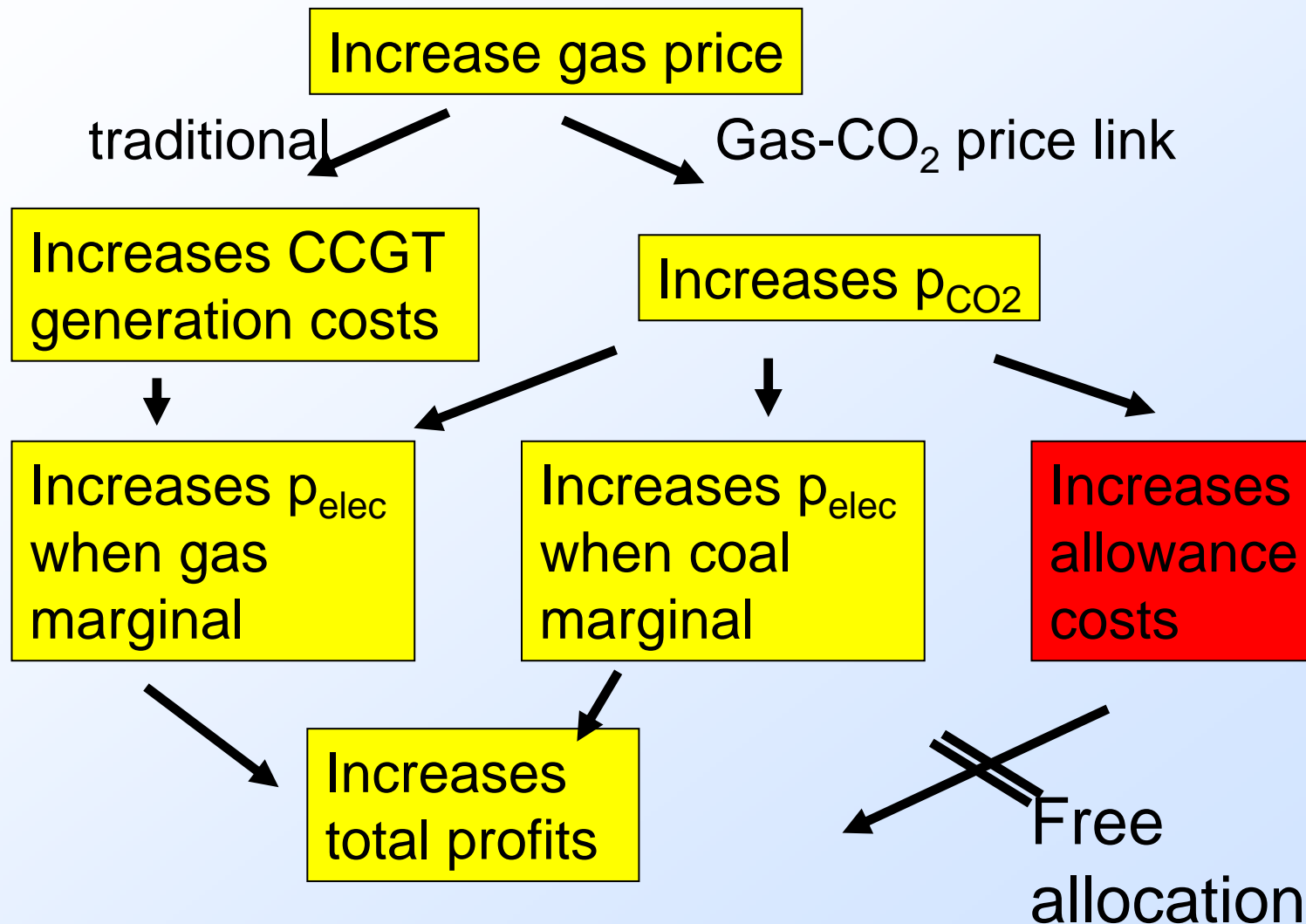
Auctions and market power in CO₂ market

- Follow on French discussion
- What happens with partial auctioning of allowances

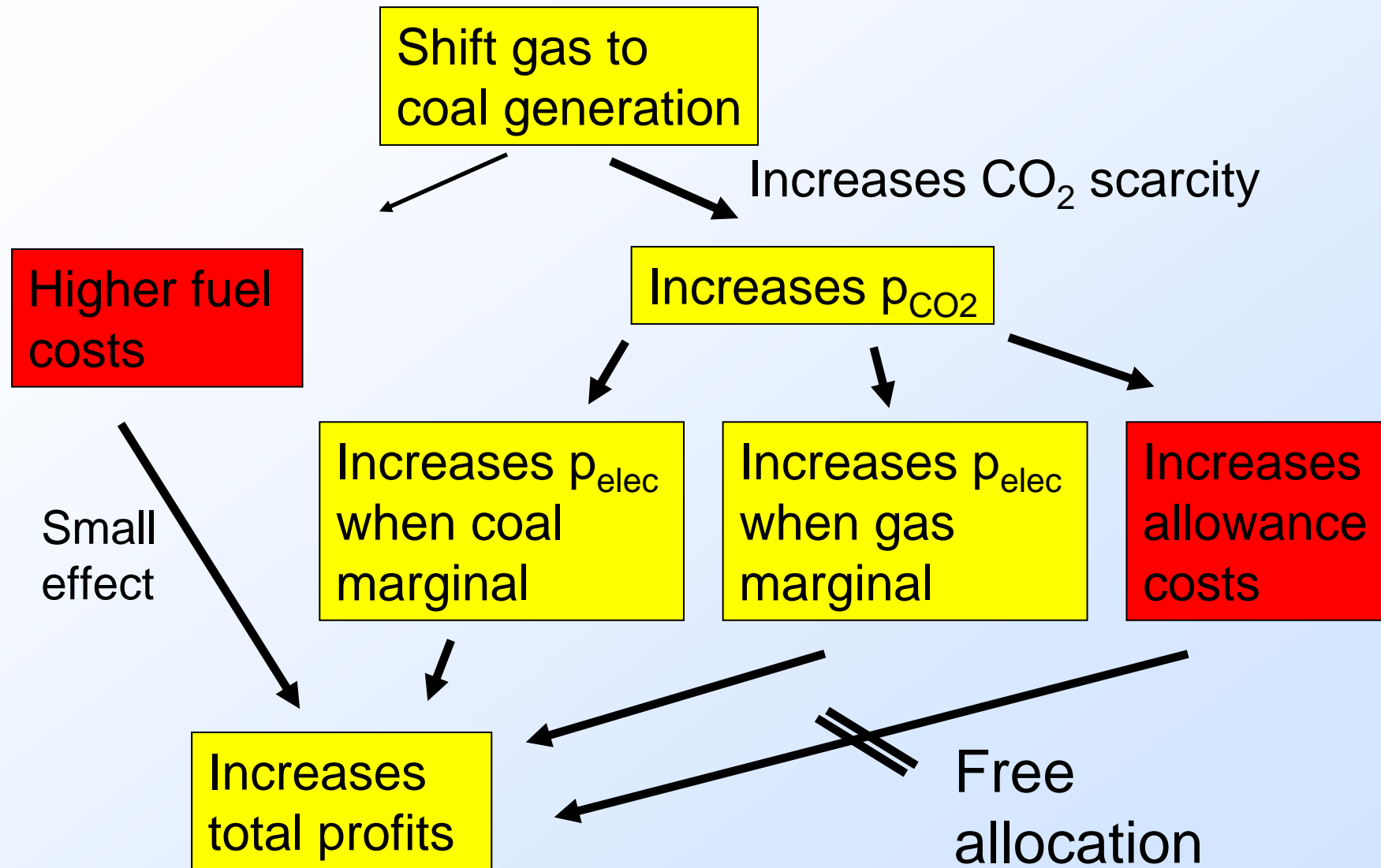
Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling

Market power of integrated electricity & gas producer



Market power of joint coal & gas generator



Topics for auction workshop – first list

- For different auction frequency & participation
 - Concerns to address in auction design
 - Preferred auction design options
 - Interaction with bilateral trading/hedging
- Host/participants at auction, requirements
- Impact of auctions on cash flow
- Distribution of allowances across auctions
- Coordination across Europe
- Minimum price auction
- Open market sales
- Auctions and market power in CO₂ market
- Auctions and market power in gas/electricity market
- Auctions and revenue recycling