

# British Electricity Restructuring: From the Pool to NETA

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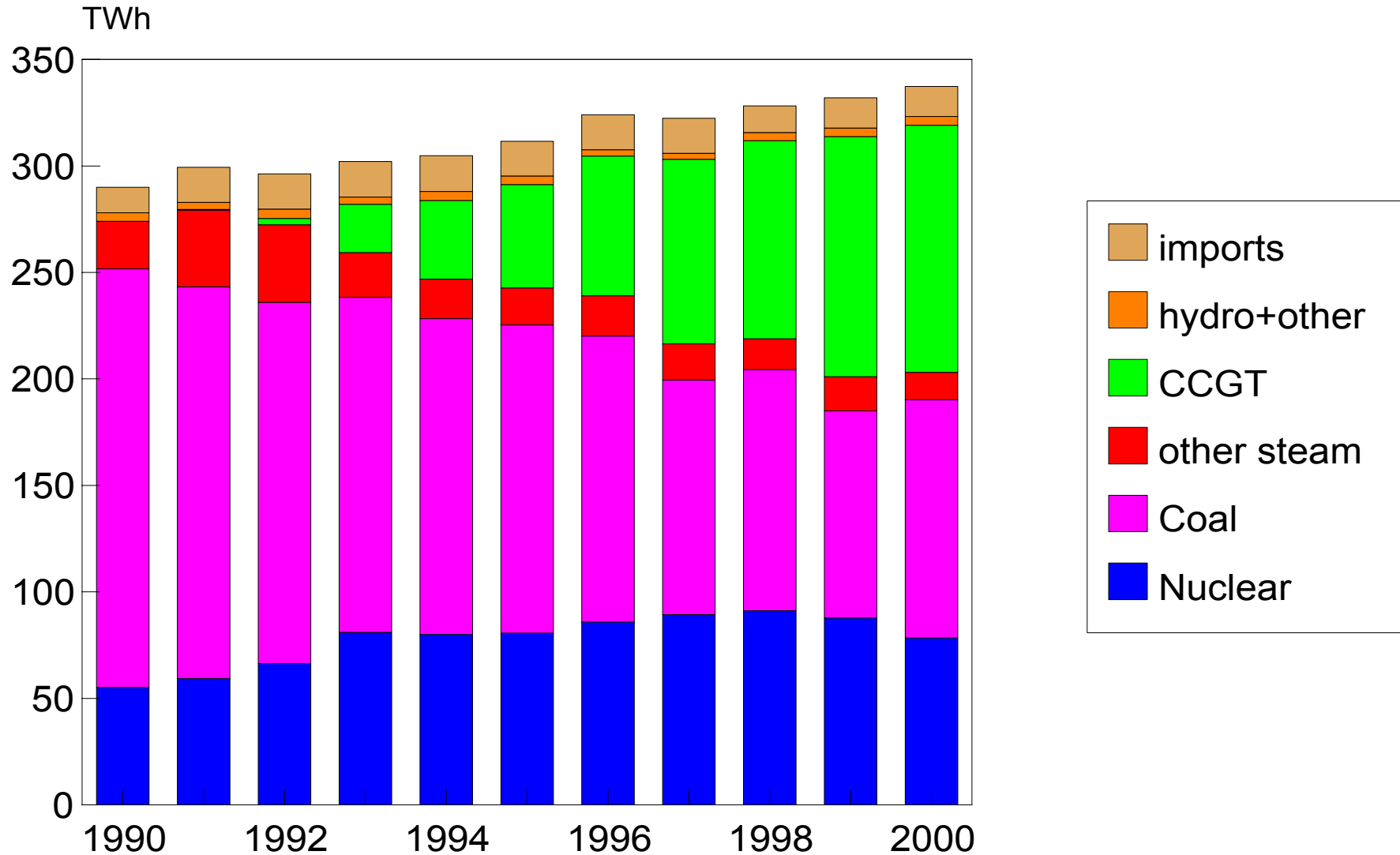
*MIT Energy and Environment Policy  
Workshop*

[www.econ.cam.ac.uk/dae/research/regulate.htm](http://www.econ.cam.ac.uk/dae/research/regulate.htm)

# NETA and the coal end-game

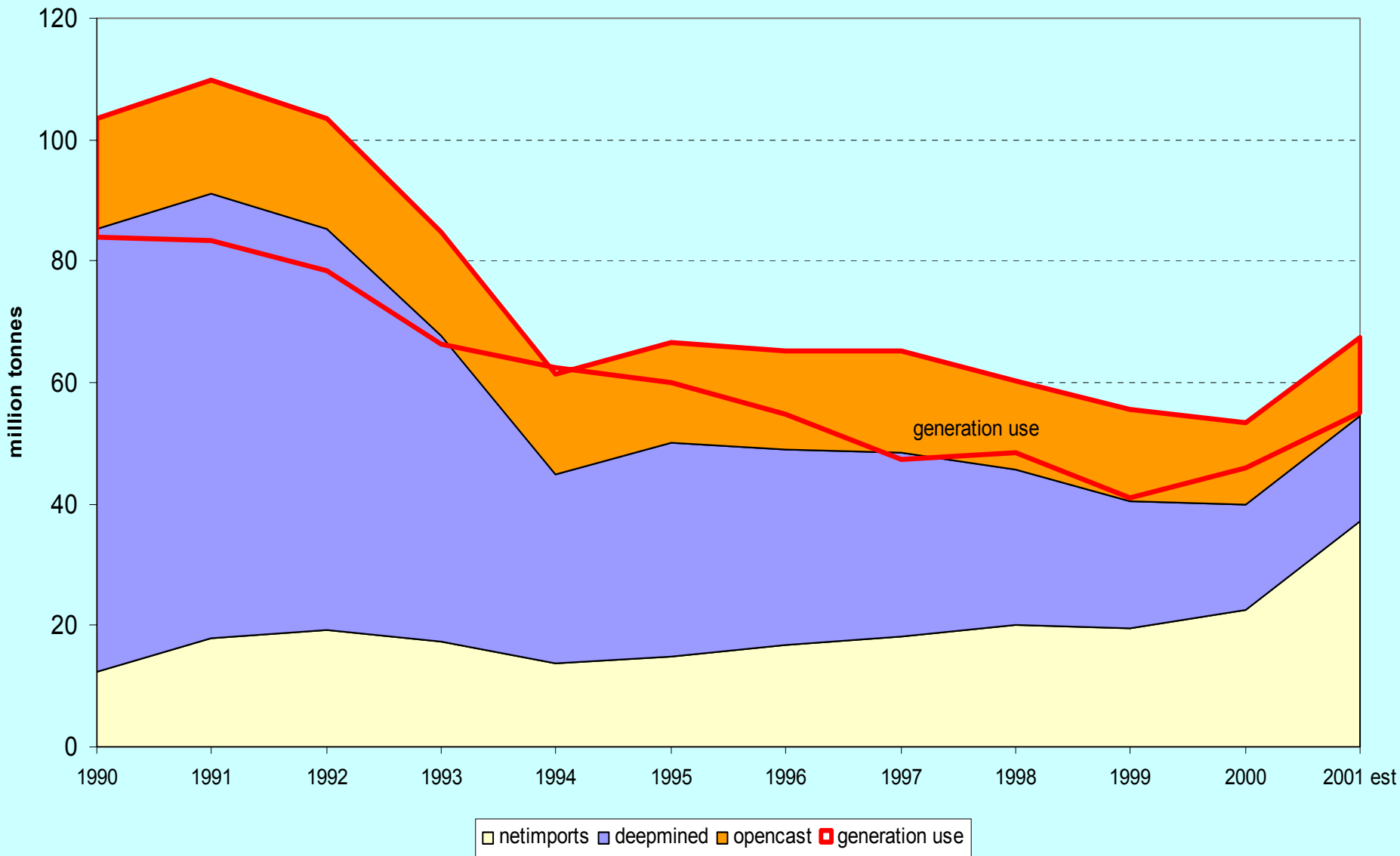
- coal privatised on franchise contracts
  - franchise due to end “1998”
  - coal faces gloomy future
  - coal-friendly Labour party elected
  - electricity prices, profits stubbornly high
- ⇒ Oct 1997 Minister requests RETA
- ⇒ to correct bias against flexible coal

# Generation in England and Wales by fuel type

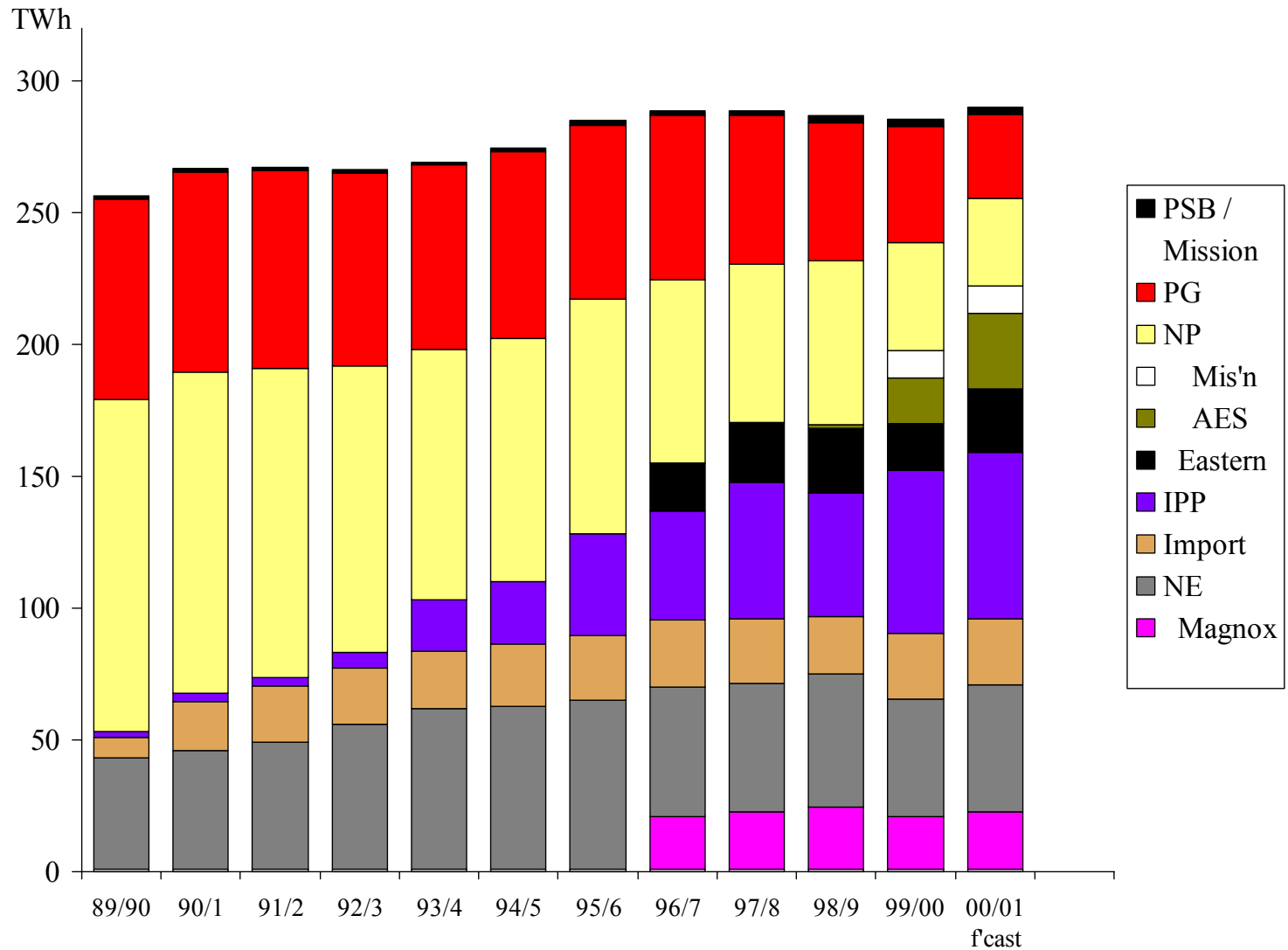


# The demise of UK coal

## Coal production and use

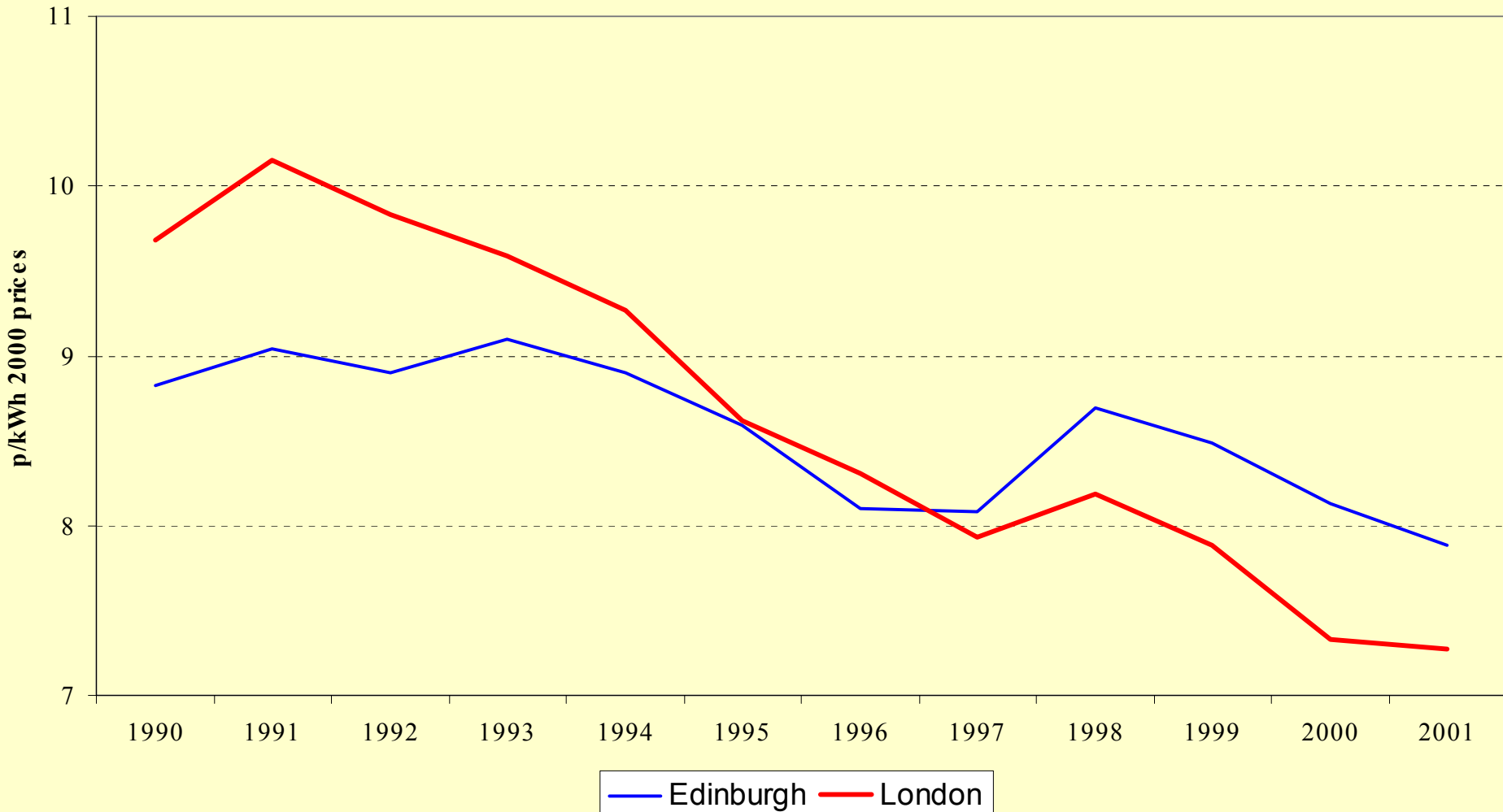


# Generation in England and Wales



# A tale of two cities

**British Domestic electricity prices net of taxes**



# Criticisms of the Pool

- generators have market power
- capacity payments are unnatural
- biased against coal
- generators get PPP regardless of bid
- constraint payments unsatisfactory
- no demand side
- unsatisfactory governance structure

# Offer's analysis

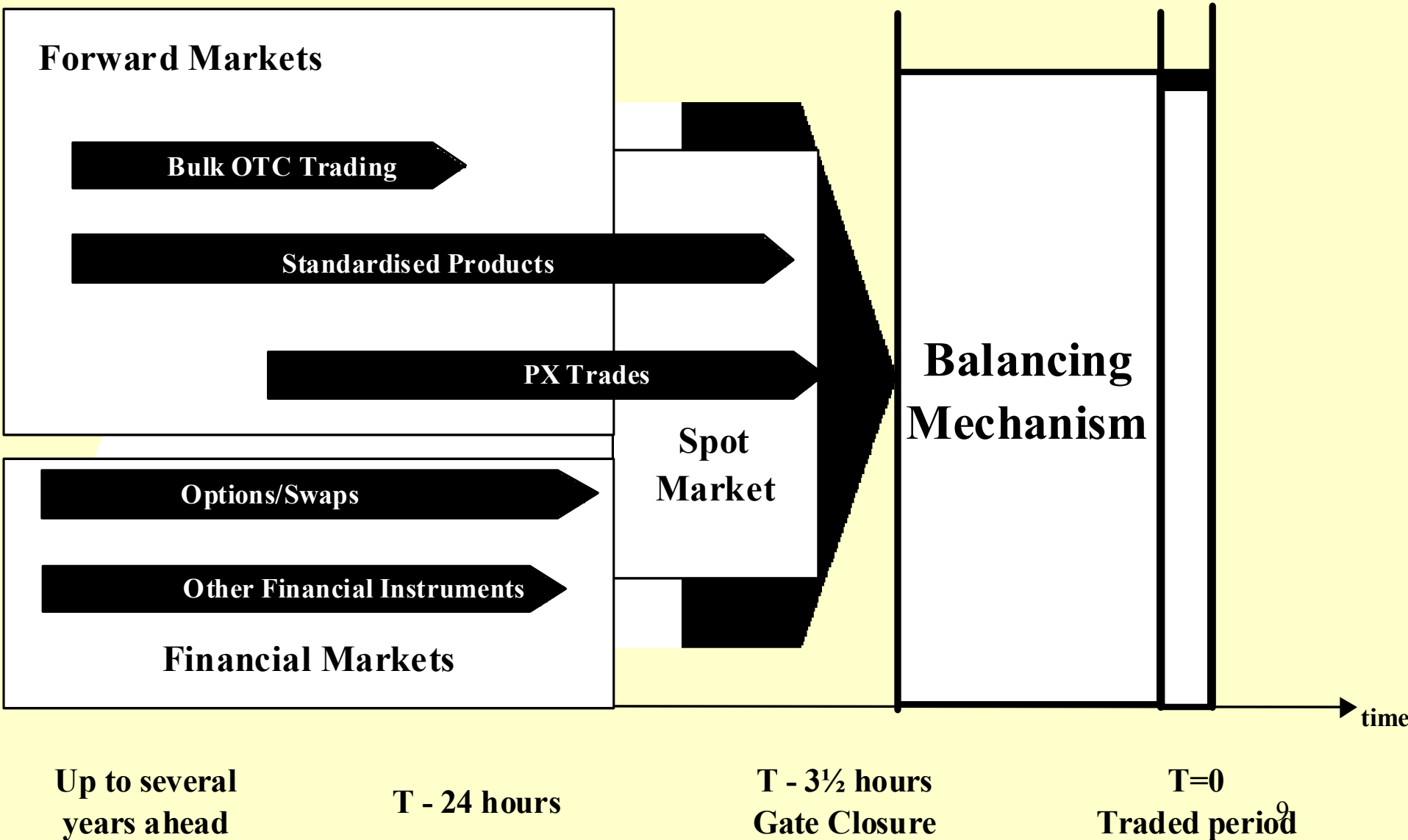
- Pool complexity amplifies market power
- ending guaranteed PPP will encourage competition
- commodity markets a suitable model
- end Pool  $\Rightarrow$  end PSA  $\Rightarrow$  change governance



# Offer's proposals

- Pool replaced by voluntary markets
  - self-dispatch, physical contracts
  - SO trades in balancing market to stabilise
  - pay-bid in BM, different buy, sell prices
- ⇒ costly to be out of balance

# Traded markets under NETA



# DN's Critique to Pool (Sep 1998)

- Efficiency gains are small and easily lost
  - Newbery and Pollitt estimate restructuring CEGB lowered costs by 6%
- Transaction costs may be large
  - Electricity: like cocoa or financial services?
  - Financial services charge 25% of income
  - Offer estimated restructuring costs at £700+ = 1.5% of PPP

# Will bilateral trading lower prices?

- “The Pool is too transparent and discourages bilateral bargaining”
- “Making balancing market a poor guide to SMP will encourage contracting”
- “If there is no market of last resort then must-run stations have to accept lower bids”

# Sceptical comments

- 90% of electricity contracted - what was wrong with Pool contracting?
  - A penal and opaque BM may encourage contracts but raise transaction costs
  - advantages incumbents and deters entry
- ⇒ more likely to raise costs and prices  
because long-run prices set by entry cost

# Possible adverse consequences

- destroying Pool will create new risks
  - ⇒ more vertical integration
  - ⇒ make entry more difficult
  - ⇒ allow total capacity to be controlled
  - ⇒ to tighten market and raise prices

# Critique - 1998 conclusions

- The root problem is lack of competition
- If this is resolved the Pool may work better
- Pool replacement may then be unnecessary, costly and counterproductive
  - it will accelerate vertical integration
  - it will raise transaction costs and hence prices
  - it will deter entry and allow prices to rise

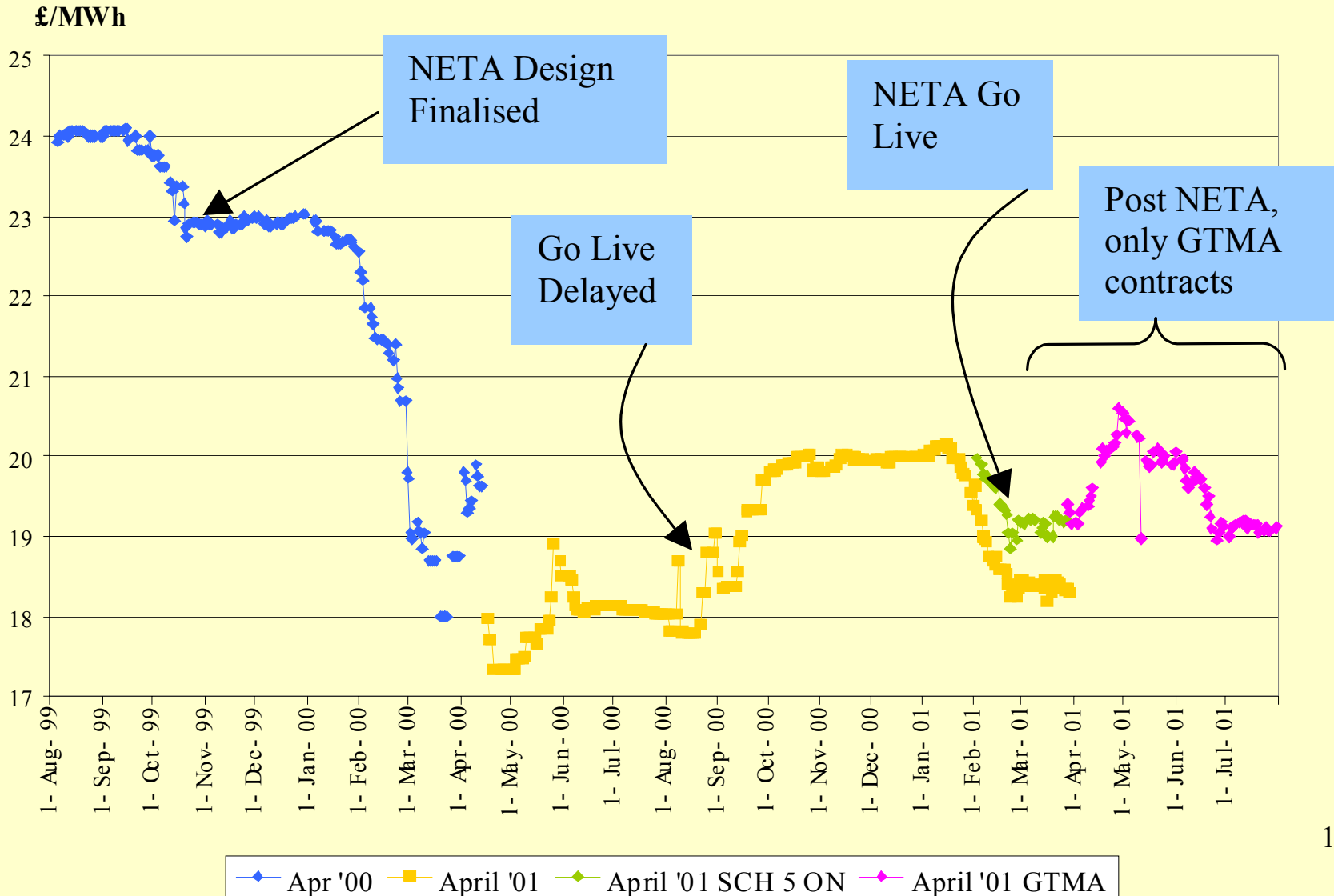
# Events from RETA to NETA

- Competition intensified
  - Jul 99 Edison Mission buys 4GW \$472/kW
  - raises load factor from 25% to 40+ %
  - ⇒ SMP falls 20-30% year-on-year
  - Oct 01 Edison Mission sells at \$190/kW
- Interconnector raises UK gas prices
  - CCGT now at margin
  - more dispersed ownership ⇒ more competition



# Ofgem's evidence on effect of NETA

## Annual baseload EFA prices



# Ofgem vs other explanations

- The outbreak of post divestiture competition by Edison Mission?
- Baseload supplied by inflexible nuclear
- Delays in 'Go-live' cause contract unwinding?

*Key question: what caused price decline?*

# Defences of NETA

- discriminatory auctions discourage collusion
- penal imbalances encourage OTC contracts  
⇒ fiercer competition, chiselling
- BM charges those who cause imbalance  
⇒ better cost allocation and control

# Response to arguments

- revenue equivalence theorem
- ⇒ with risk of inefficient dispatch
- supported by lab experiments
- BM discourages efficient financial contracts
  - BM charges are not cost-reflective
  - BM charges company not system imbalance
- ⇒ excessive self-balancing

# Ofgem's expectations

- more competitive trading
- more scope for demand side
- forward curves facilitate efficient entry
- sharper cost incentives to manage risk

⇒ lower prices for *all* customers

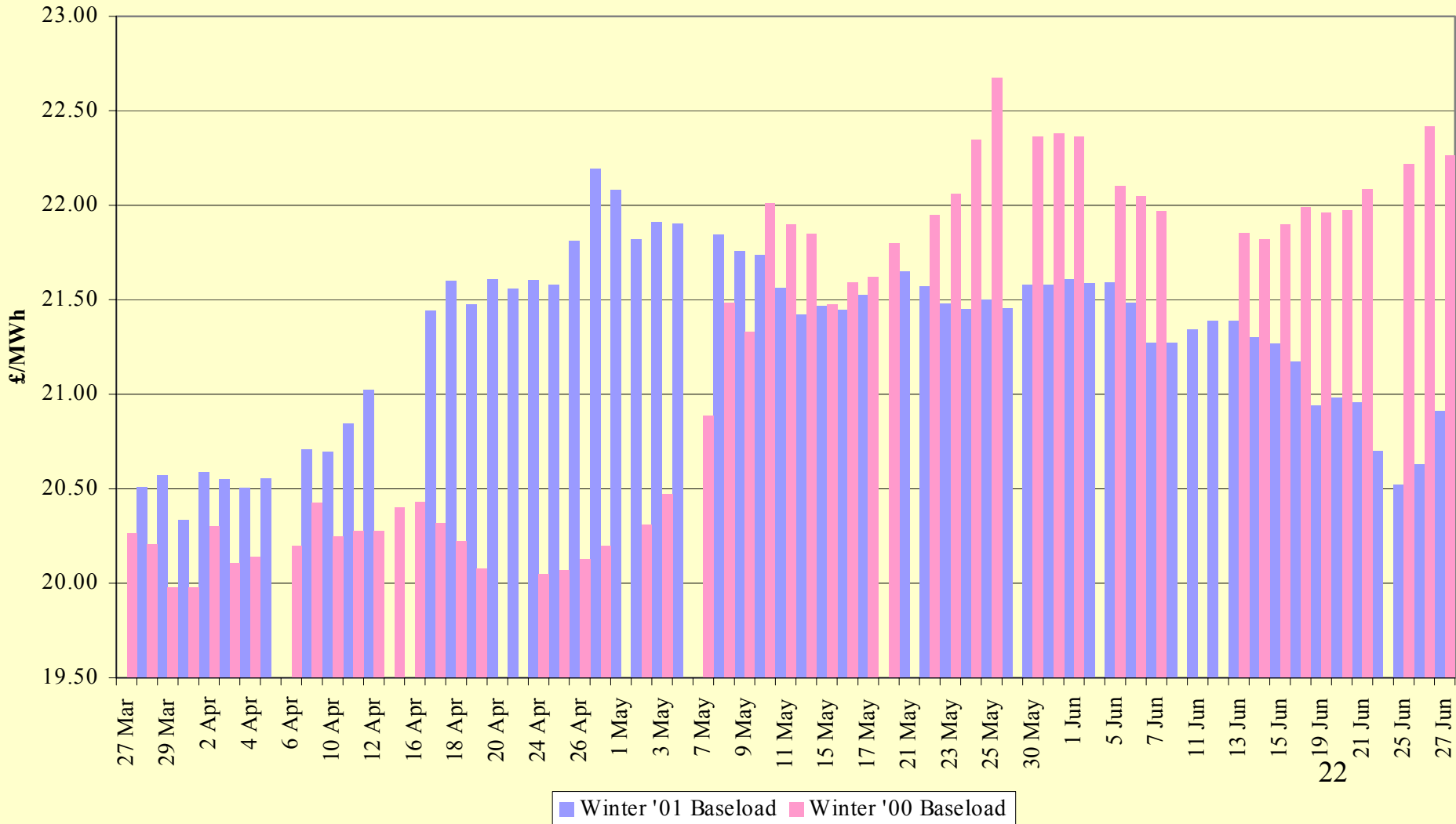
# Ofgem's findings after 3 months

- OTC forward baseload prices fall 6% y-o-y
- forward peak prices fall 21% y-o-y
- markets evolving nicely
- Balancing Market 1.5% oversupplied
- BM volatile but only 3% of trade
- BM price spread narrowing

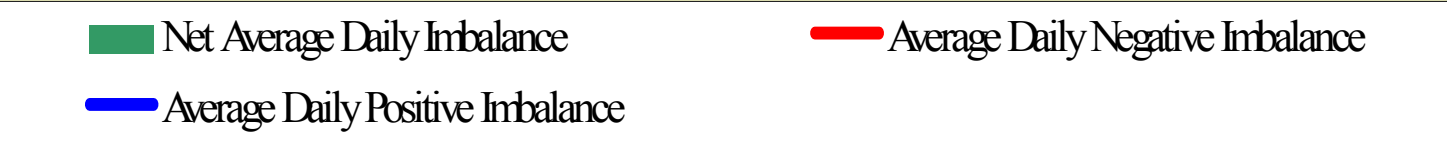
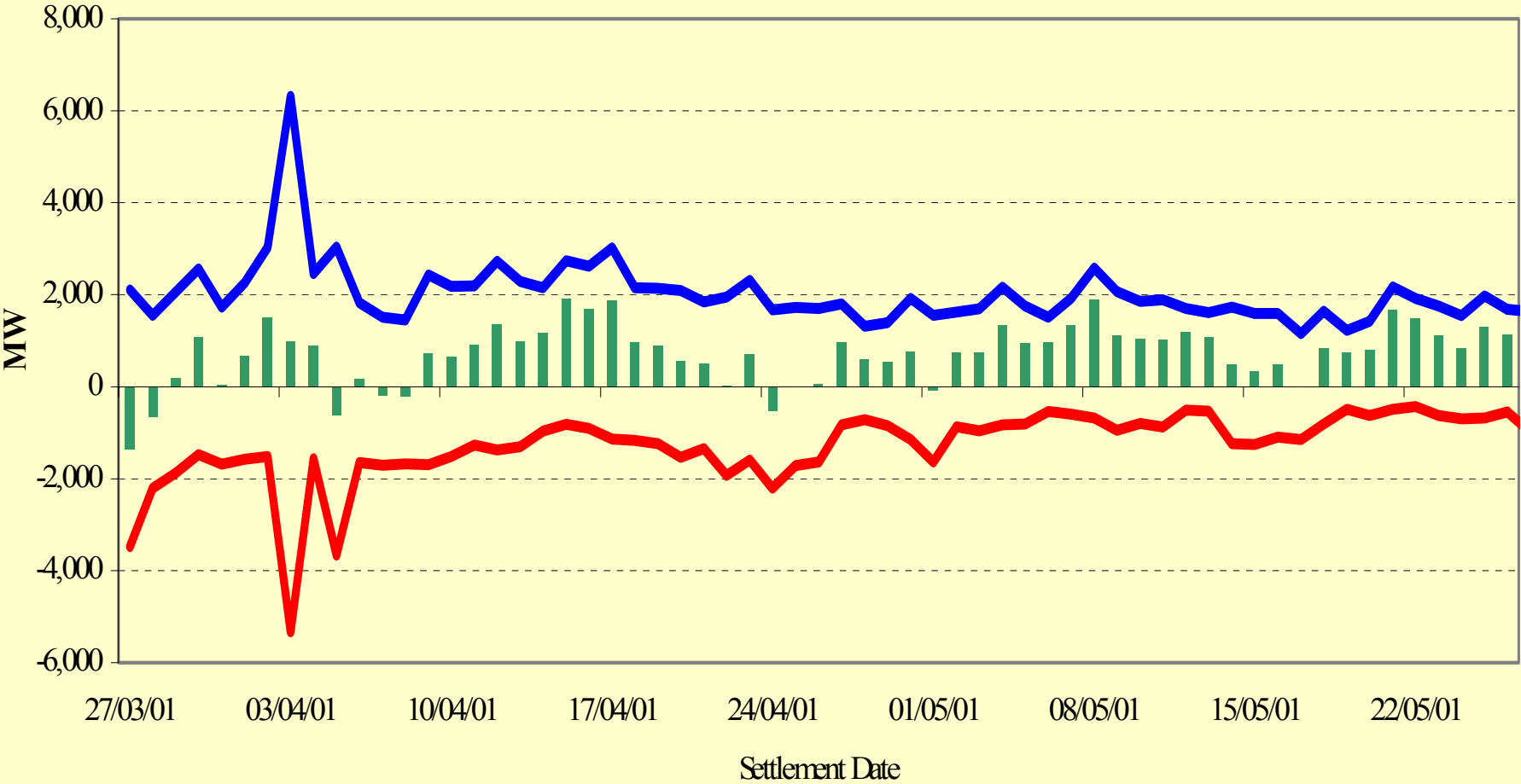
*“Real and substantial benefits for consumers”*

# OTC winter baseload pre and post NETA

Winter Baseload year on year 2000/01



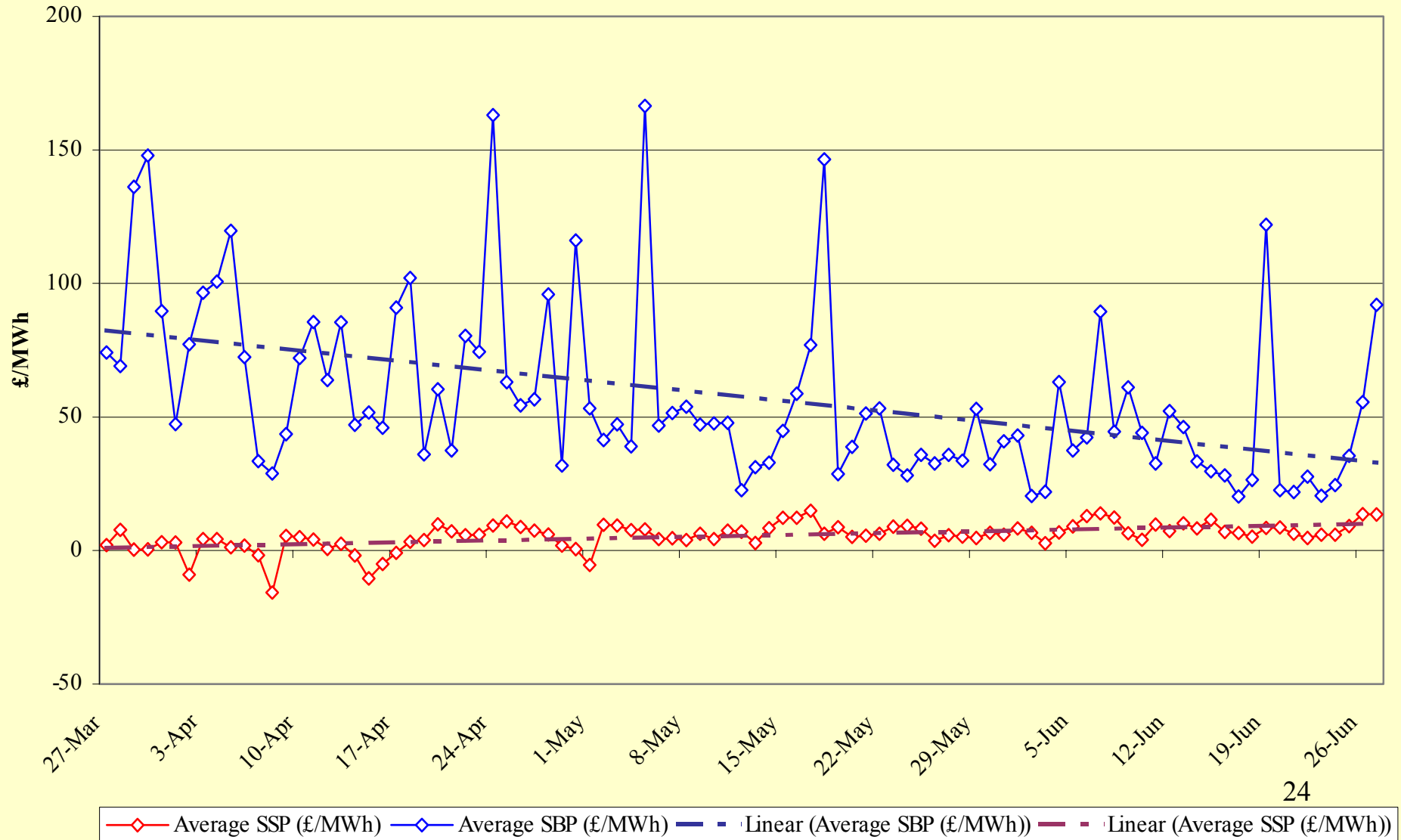
# Gross and net BM balances





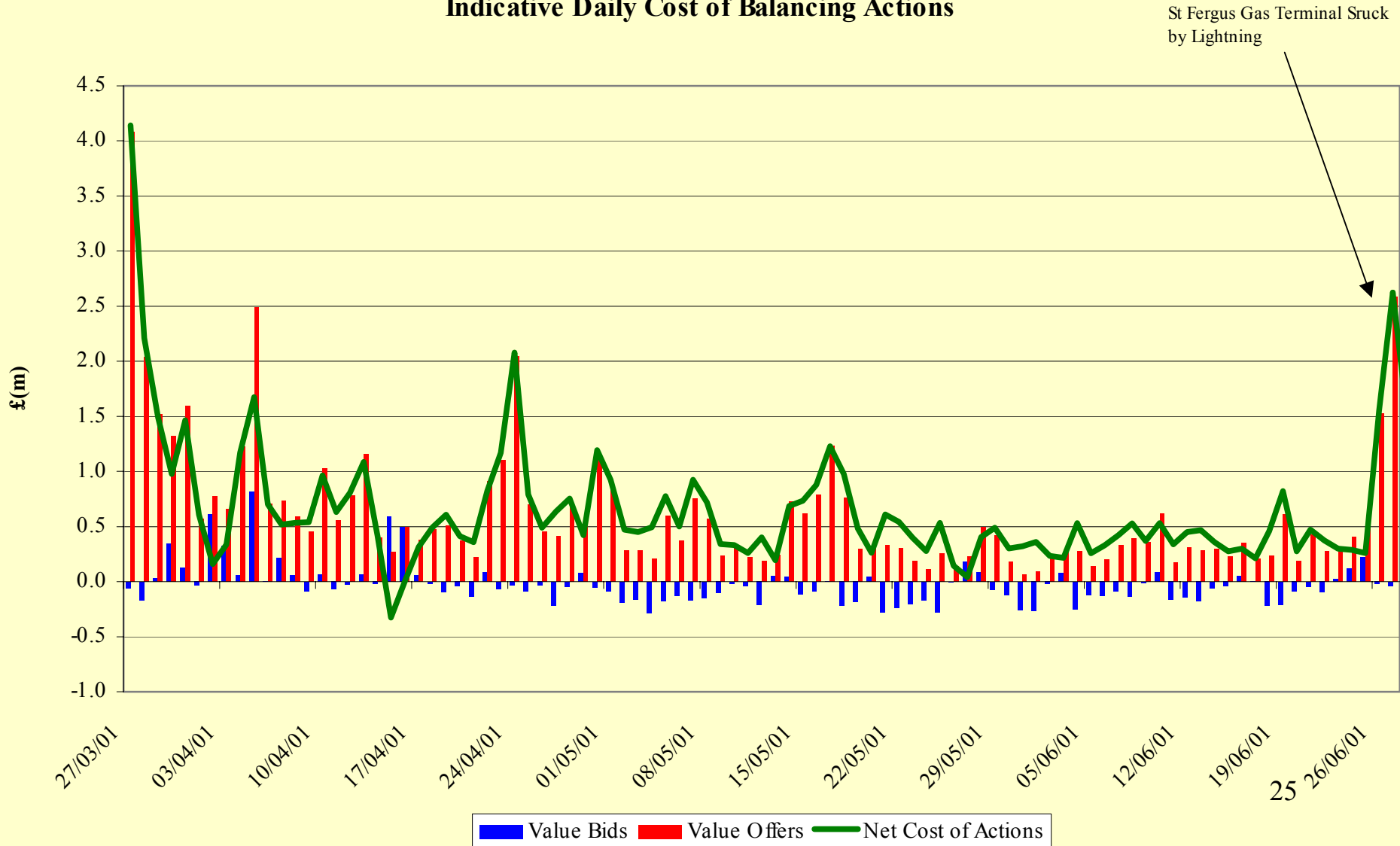
# Average daily system buy and sell prices

Average Daily SSP and SBP since NETA



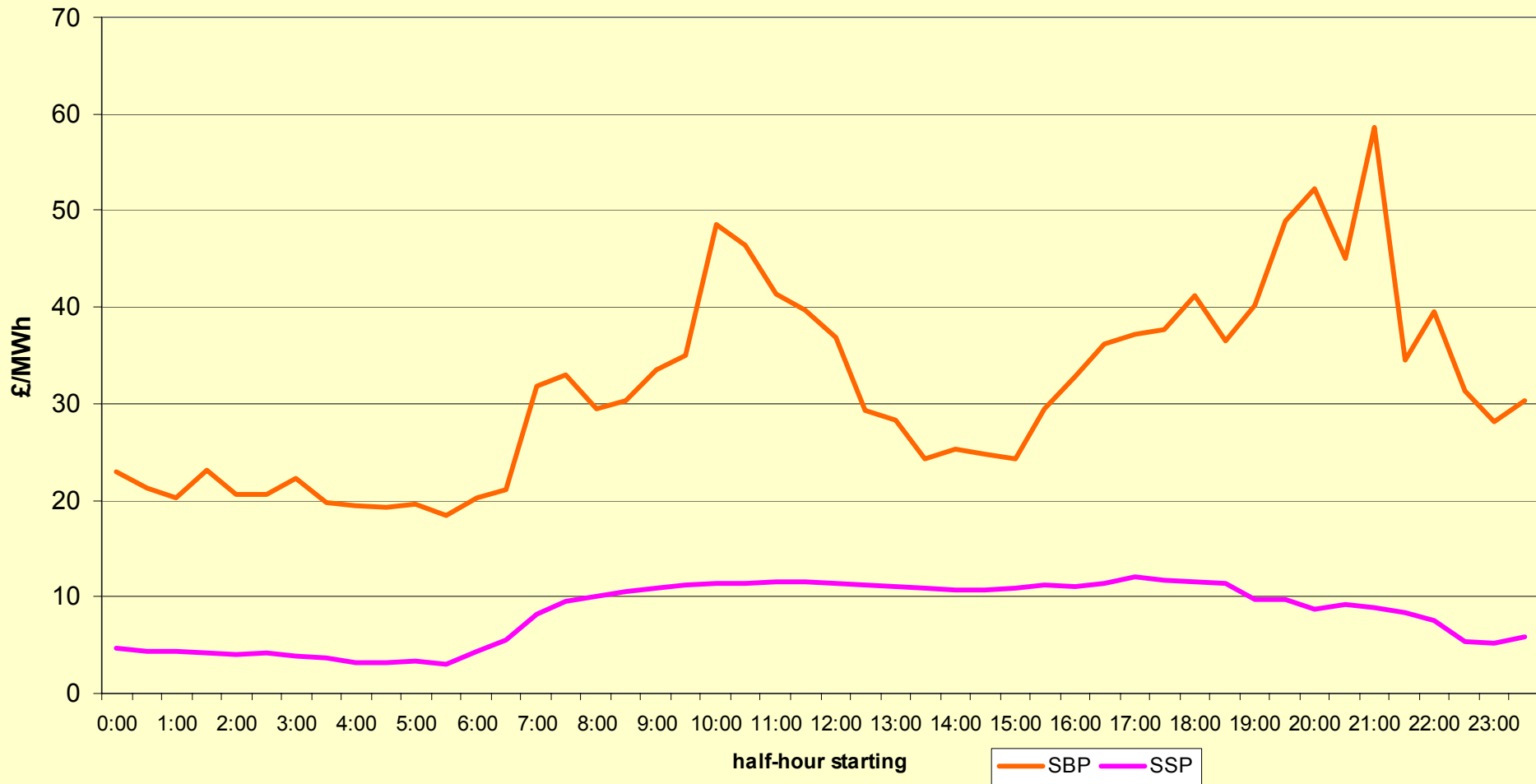
# Daily costs of NGC's balancing actions

## Indicative Daily Cost of Balancing Actions



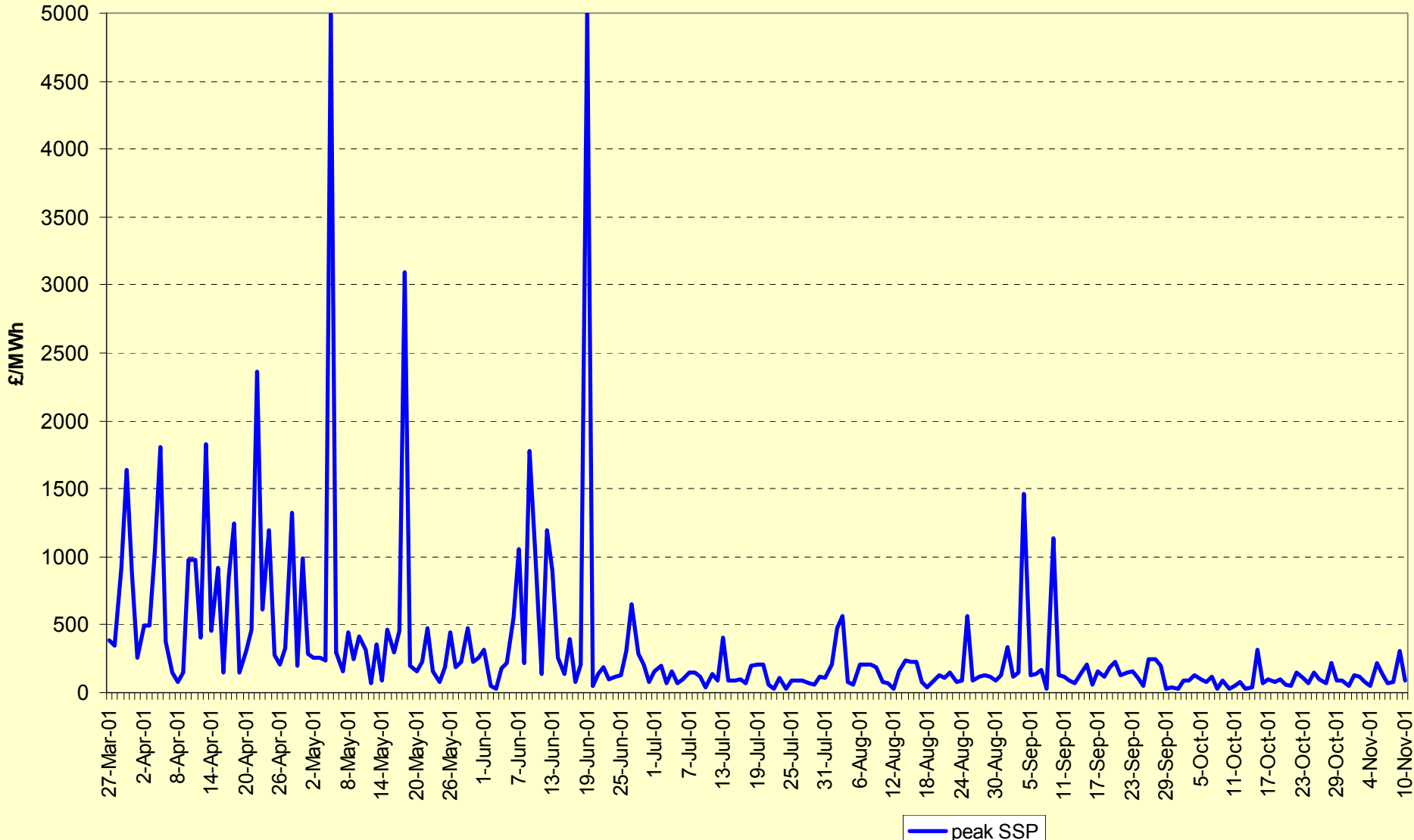
# Spread in average BM prices

Balancing prices weekday Sep-Oct 2001



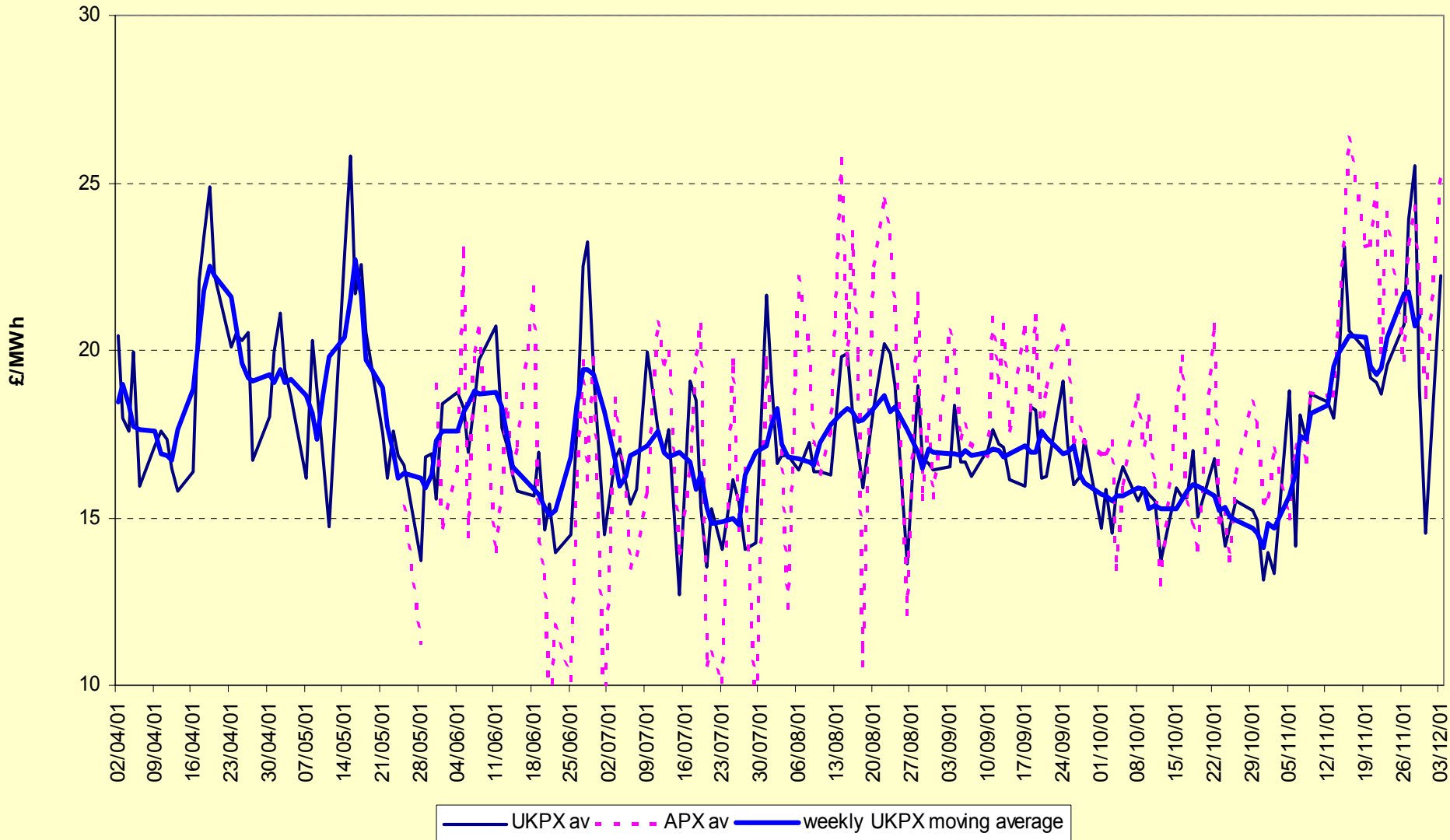
# Daily maximum BM SBP

Balancing Market weekday daily Maximum SBP



# Weekday HH average spot price

UKPX and APX weekday average prices



# What do traders think?

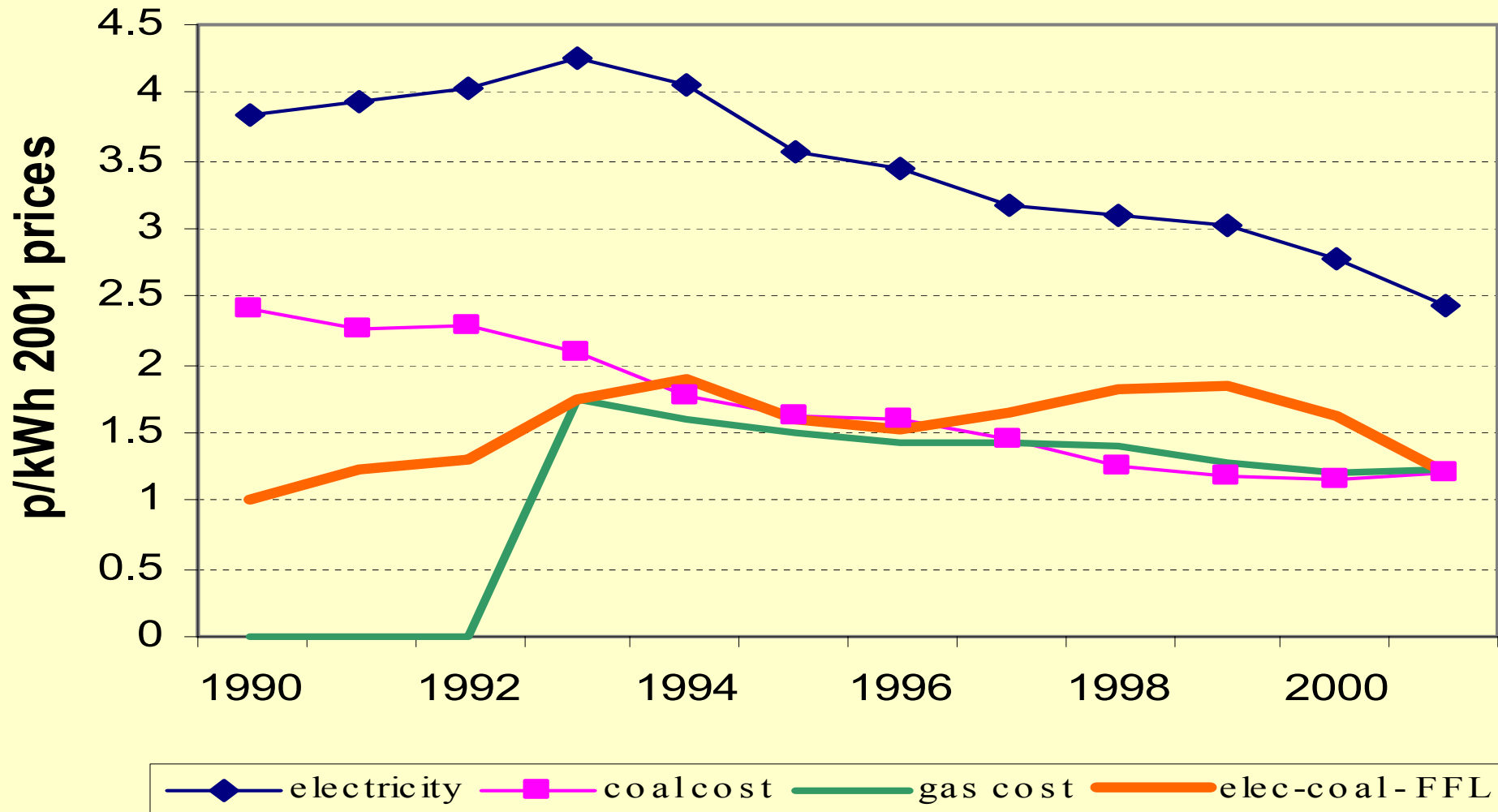
- Market fundamentals drive prices down
- Oct 01 contract round 2% up y-o-y
- BM volatility/spread  $\Rightarrow$  PX prices  $\Rightarrow$  OTC prices
- BM SBP unpredictable, can be very high
- mistakes very costly
- incentive not to balance but go long
- fear  $\Rightarrow$  minimise risks

# What do large users think?

- Hard to get quotes for contracts  $< 2\text{GWh/yr}$
  - tariff includes BM premium  $\sim 5\%$
  - penalty if profile differs from historical
  - hard for demand side to bid, lost DSB 15%
  - higher management costs
- $\Rightarrow$  higher delivered electricity prices

# Too soon to tell?

## Very large user electricity prices





# Other reactions

- power exports from CHP down 61%
- small genco costs up 16%
- wind power can be charged for selling
  - BM imbalance exceeds energy value
- self-insure with own spinning reserve
  - loss of system multiplexing
- Demand forecasting decentralised
  - system accuracy  $\sim 5\%$ , individual  $> 15\%$

# Assessment - the good news

- BM over-rewards flexibility
  - ⇒ keep old plant available (oil, coal)
  - ⇒ excess capacity keeps prices low?
- Rules can be changed, still learning
- but rule changes costly
- prices are lower - but why?

# Assessment - the bad news

- costly to implement: \$1+ billion and rising
- trading personnel up 400%
- all supply businesses vertically integrated
- penal imbalance encourages self-insurance
  - more spinning reserve
  - more plant output variation
  - ⇒ higher operation and maintenance costs

# Conclusions

- “RETA rests on unsubstantiated claims, inappropriate analogies, and unquestioned criticisms” (DN Oct 1998)
- NETA benefits large vertically-integrated (G+S) companies with smart traders
  - overproduction and excess reserves costly
  - self-dispatch - feasible under Pool, now obligatory
  - Not clear that NETA countervails market power

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