

Problems of liberalising the Electricity Industry

David Newbery, DAE Cambridge

EEA 2001

B9 European deregulation

www.econ.cam.ac.uk/dae/research/regulate.htm

Politically acceptable liberalisation requires:

- sustainable competitive outcomes
- absence of abusive market dominance
- credibility for efficient free entry and investment
- regulatory interventions pass CB test

These challenges remain unmet in EU



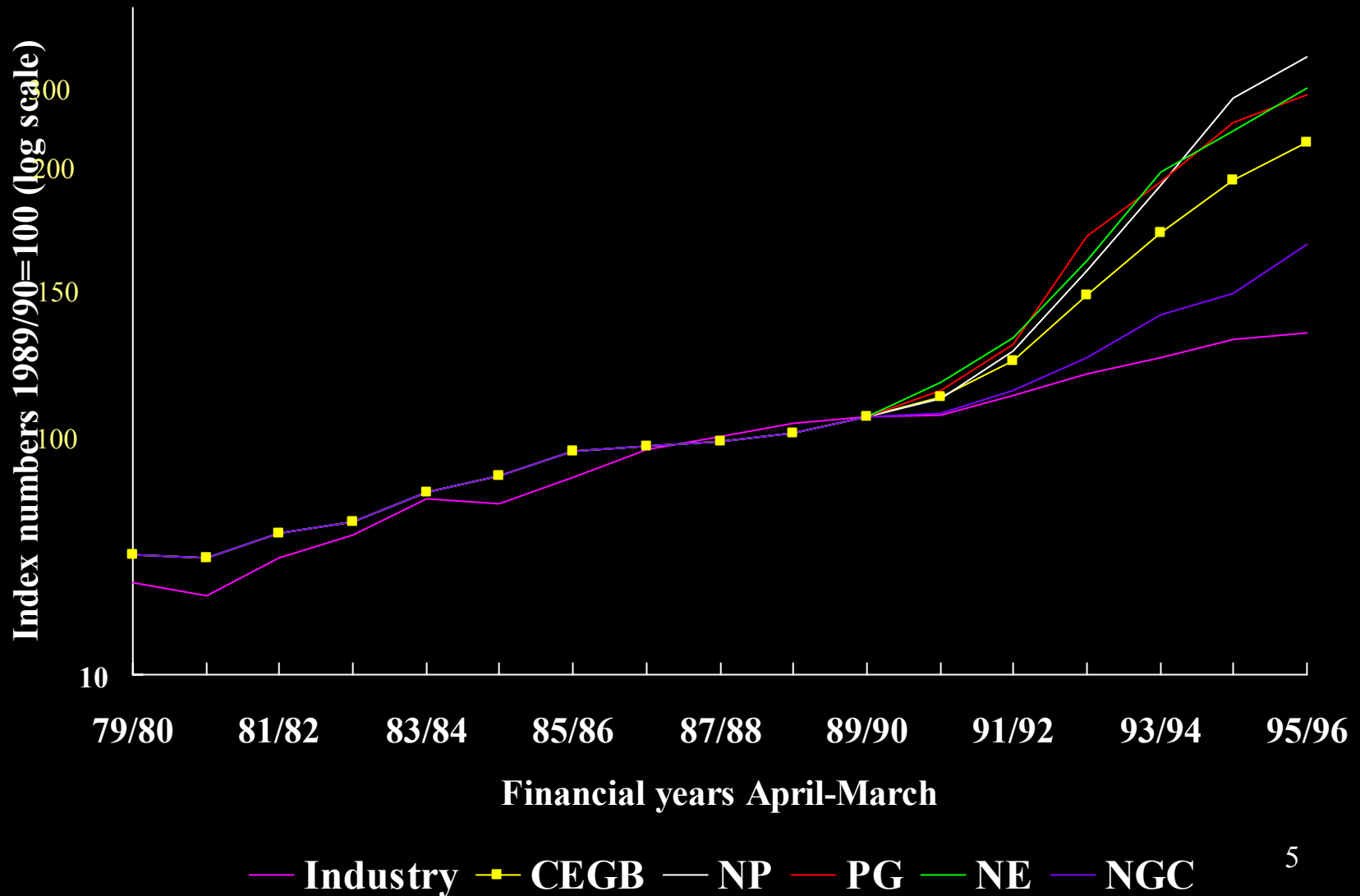
A Single European Electricity Market?

*Lars Bergman, Geert Brunekreeft,
Chris Doyle, David Newbery,
Michael Pollitt, Pierre Regibeau,
Nils von der Fehr*

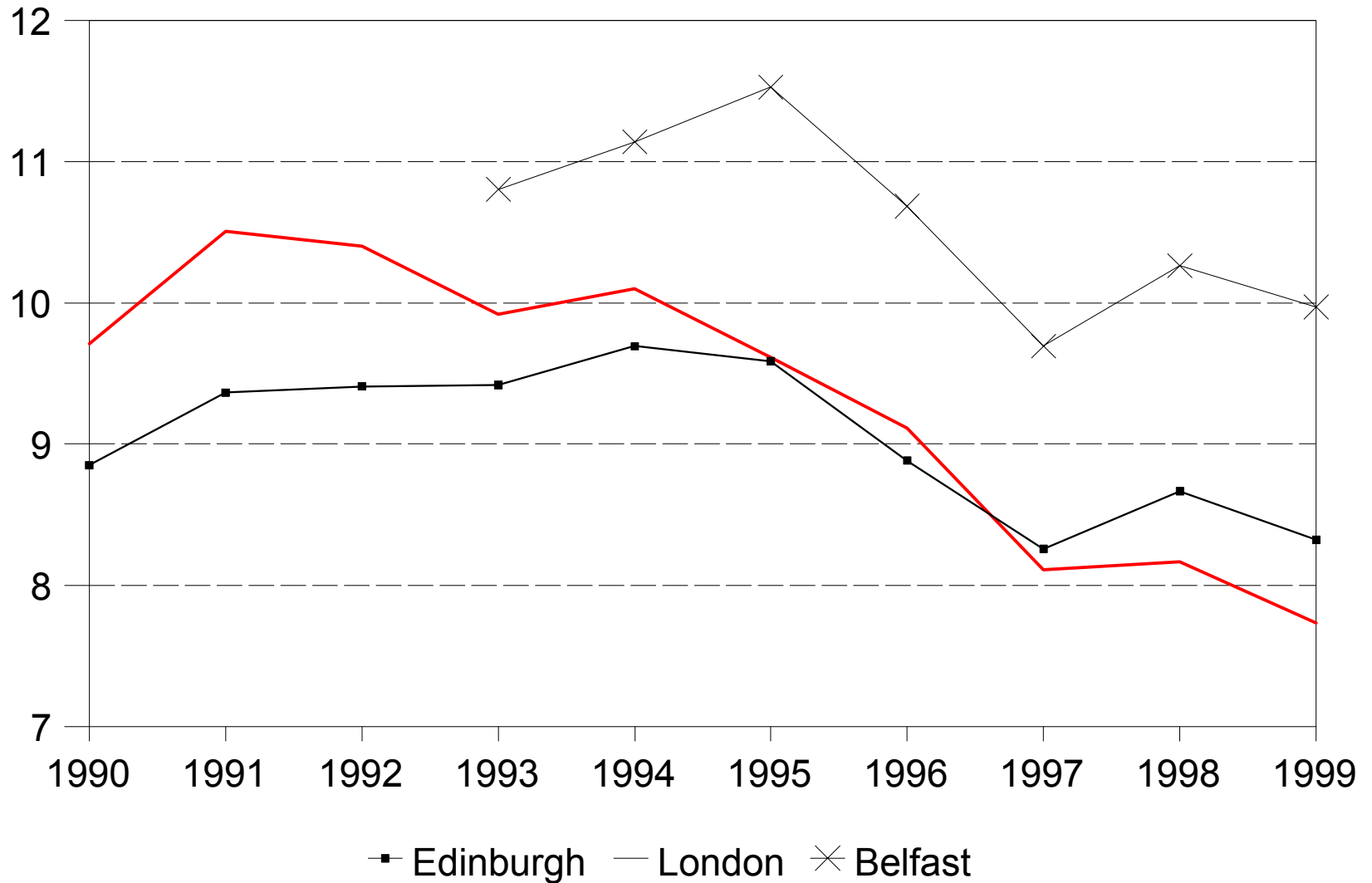
Lessons from UK ESI

- England+Wales unbundled, Scotland not
 - social benefits: 6% p.a. E+W; 0 in Scotland
 - = 100% return on CEGB sales value
 - consumers lose, generators win
 - ⇒ regulatory pressure to increase competition
 - tough price controls to pass through cost fall
 - ⇒ E+W model for EU Electricity Directive

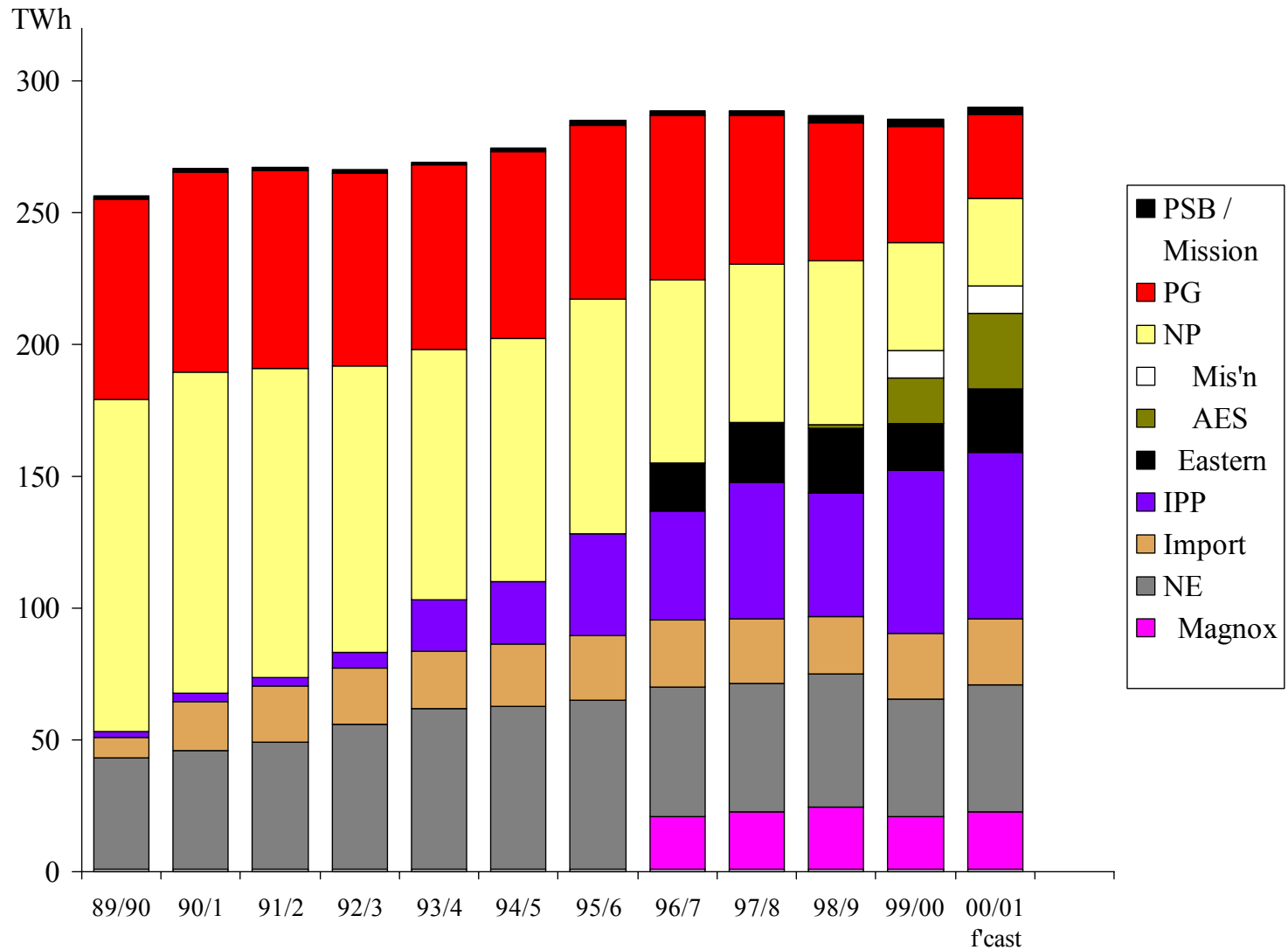
Productivity of CEGB and successor companies compared to UK manufacturing industry



Electricity prices by town 3,300 kWh at 2000 prices excl VAT



Generation in England and Wales



Lessons for Reform

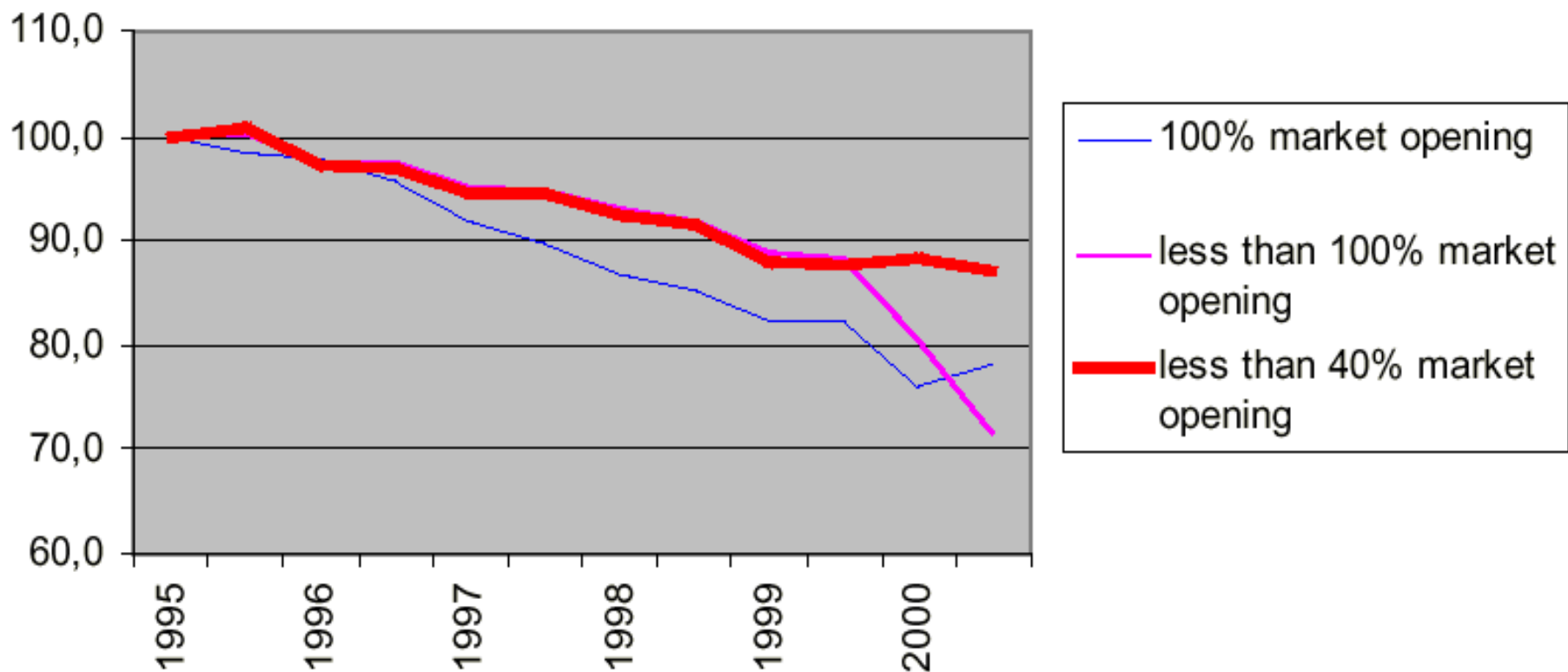
- authorisation preferable to tendering
- **access** is key to creating single market
 - press for rTPA
 - require transparency
- require ownership separation of G & T/D
- separate distribution and supply
- strong sector specific regulation needed

EU response

- Lisbon 2000 European Council asks CEC to work to complete single ESI market
- CEC reaches same conclusion as CEPR
- Stockholm 2001 CEC presents
 - analysis: working papers
 - Press Release: ‘California not a problem’
 - proposed amendments to Gas+Elec Directives

Electricity Price Development for Industry 1995 - 2000

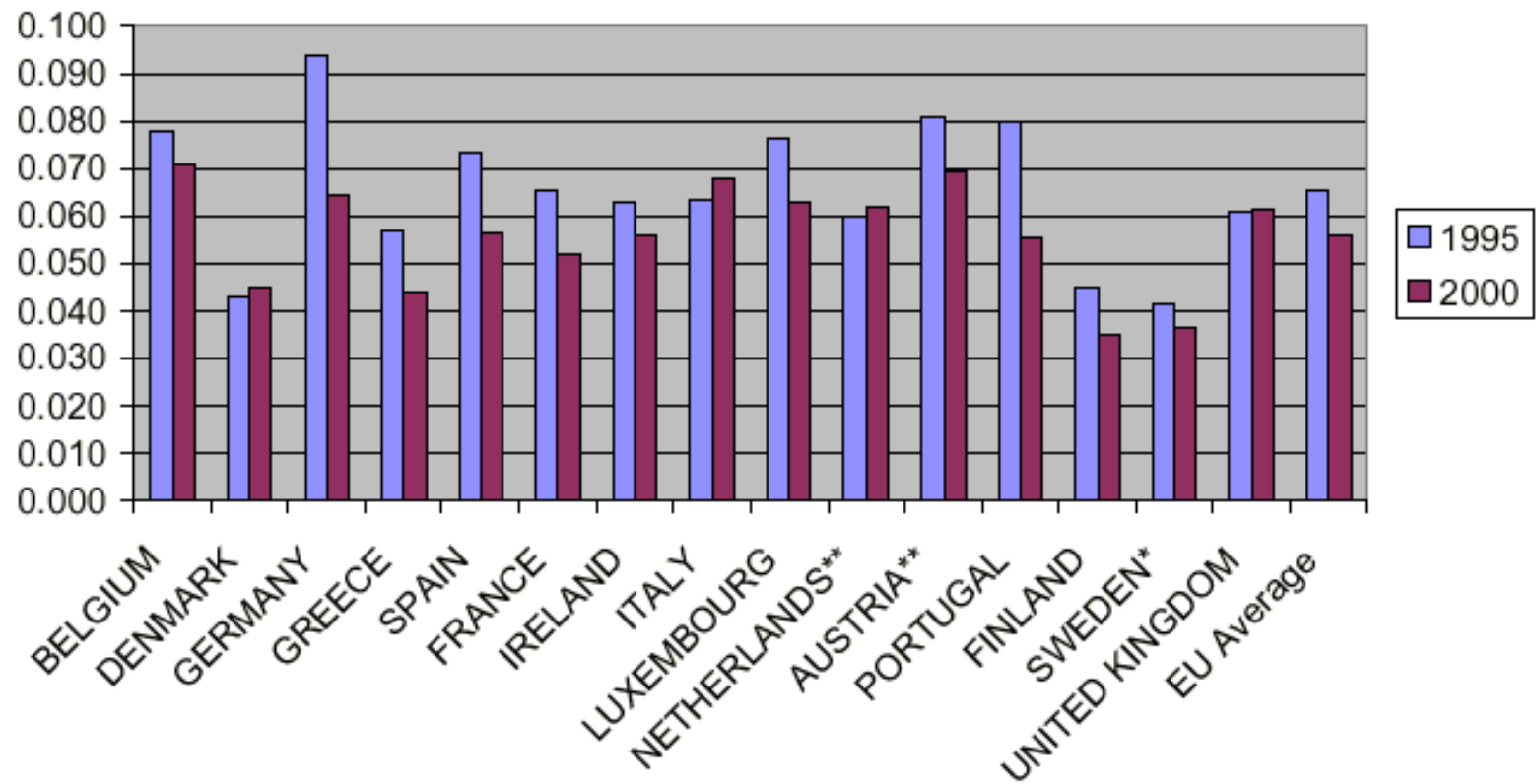
1995 = 100



Source: Eurostat.

Note: Prices exclude energy taxes and VAT and prices have been deflated. "Industry" is defined as an annual electricity consumption of 2 GWh.

Average electricity prices in € cents per kWh for industrial consumers (VAT and energy taxes excluded)



Source: Eurostat. In Member States where there is more than one observation, an arithmetic average has been calculated.

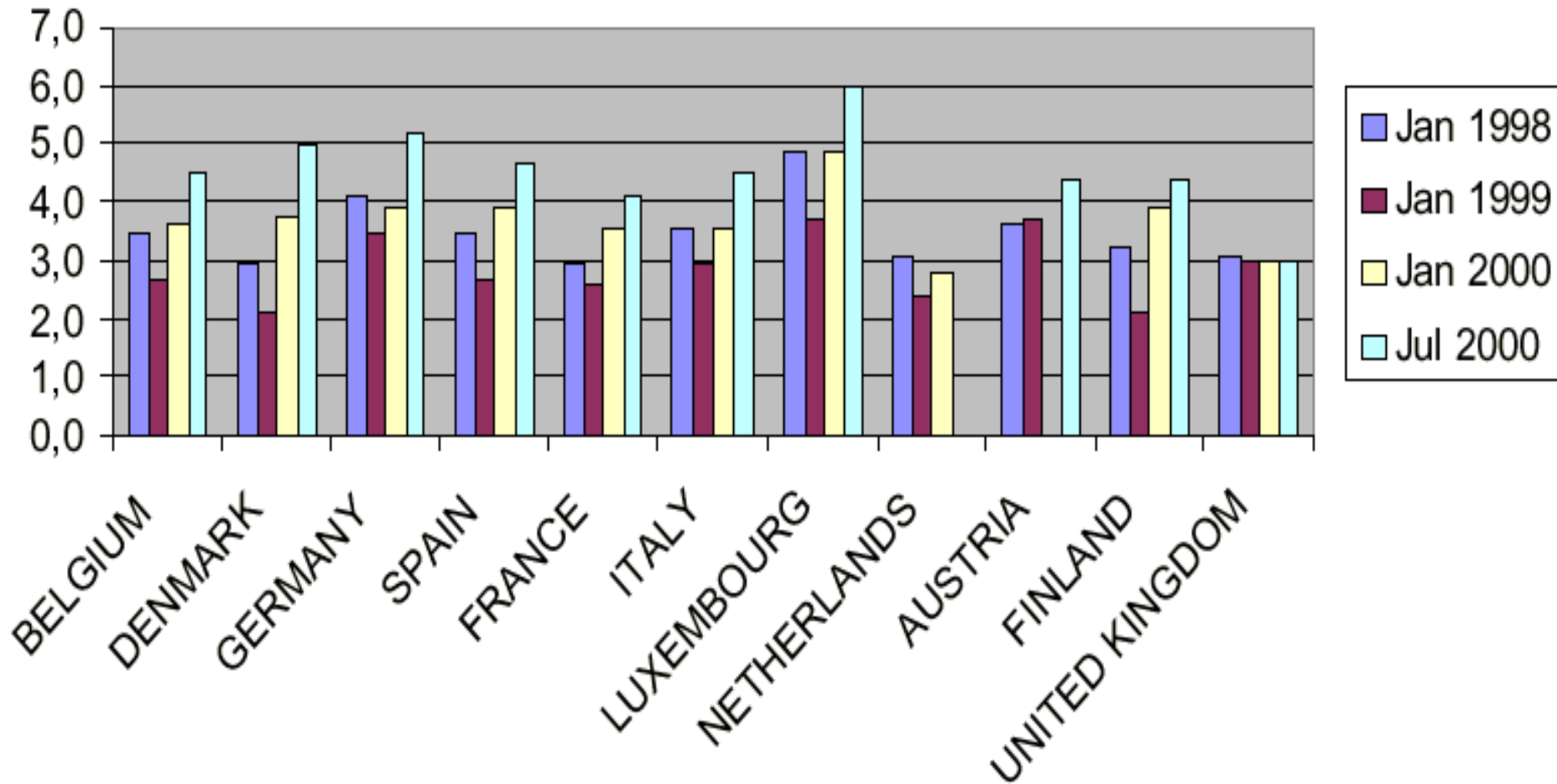
Note: Industry is here defined as an annual electricity consumption of 2 GWh

Proposed New Directive

- for electricity *and* gas
- only rTPA, tariffs published *ex ante*
- sector-specific regulator
- legal (but not ownership) unbundling G&T
- no SBM, no tendering (except reserve)
- 1.1.2005 all gas + elec markets fully open

But gas prices are still linked to oil

Gas prices (excluding VAT and energy taxes) in € per GJ for industry



Stockholm, March 2001

- CEC claims reforms will avoid California problems caused by “inadequate legal framework and .. capacity”
- France opposes new Directive: not convinced of liberalisation
- Germany opposes need for regulator
 - also has nTPA and vertical integration

What happened in California?

1996: cost of new power < regulated price

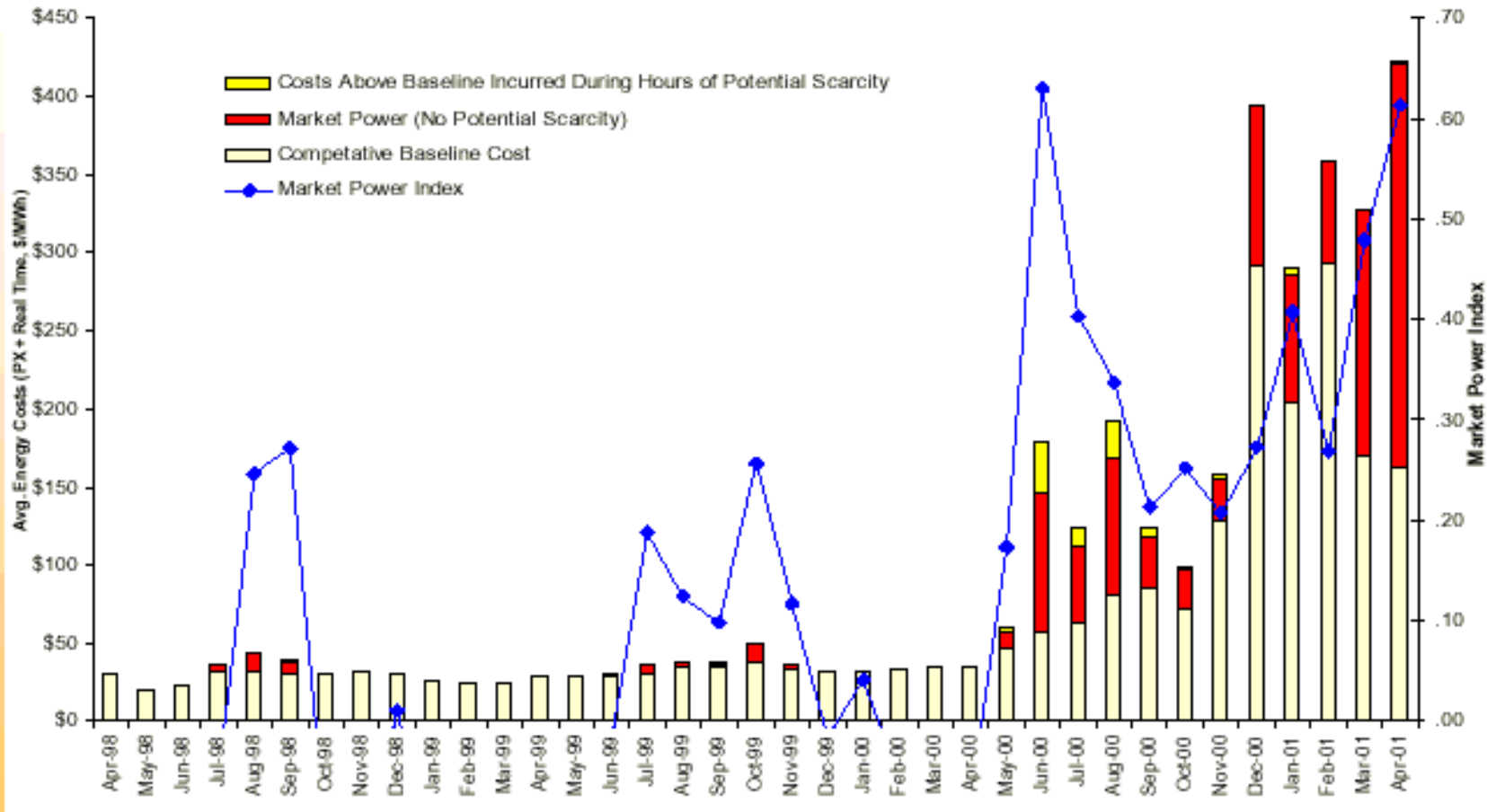
– buy out stranded generation assets

- Price cap until then, expect price fall, *but*
- *average* 2000 wholesale price 3 x 1999
- Jan-Apr 2001 prices 10 x 1999
- distribution companies bankrupted
- State steps in at huge cost



What Explains the High Prices?

Prices above competitive levels were due to both higher production cost and higher mark-up from market power



Preconditions for liberalisation

- rTPA + ownership unbundling: CEC ✓
- adequate and secure supply: CEC ✓
 - network adequate and reliable
 - production capacity adequate
 - security of supply of primary fuel
- power to regulate competition: CEC ✗

Competition policy for utilities

“competition where possible, regulate where not”

- Leave markets to competition legislation?

- *Ex post*, penalties \Rightarrow legalistic, slow

- dominance \sim 40+% of market

- information collected only for case

\Rightarrow need *ex ante* regulatory powers

British regulatory experience

- 2000: Market Abuse Licence Condition
 - refers to bidding in Pool
 - not accepted by AES, British Energy
 - ⇒ referred to Competition Commission
 - ⇒ not “against public interest” if unmodified
- Pool to be replaced by NETA 2001

Lessons from Britain

- generator licence restrains market behaviour
 - can be modified after reference to CC
 - market power possible with $HHI < 1800$
 - electricity cannot be stored
 - transmission constraints fragment market
 - supply must be matched to demand by second
 - demand inelastic in short run
- ⇒ volatile prices: £11-1100/MWh over 24 hrs

Contrast EU with US

- US has long history of price regulation
- markets *may* achieve better outcome
 - if not, fall back on regulation
- EU assumes market *will* be better
 - no fall-back option

Mitigating market power

- Federal Power Act 1935 requires prices that are ‘just and reasonable’
- Selling at market-related prices requires:
 - utility and affiliates do not have market power
 - competitive prices are just and reasonable
 - can withdraw right if there is market power
 - can re-impose cost-based prices caps

Californian debate

- Dec 15, 2000 FERC
 - deems prices ‘unjust and unreasonable’
 - imposes soft price-caps on spot prices
- ⇒ perverse effects, ‘MW laundering’
- June 2001 FERC order extended to WSCC
 - must offer to spot market
- contrast with CA MSC mitigation plan

MSC's mitigation plan

- IOUs sell at cost
- consumers can buy 85% at 2000 price
- right to market pricing only if
 - sell 75% capacity as 2-year contracts at 'competitive price' (\$54/MWh)
 - file annual outage plan, must bid otherwise
 - no cap on spot, AS markets
 - otherwise face cost-based price regulation

Contrast approaches

- both attack capacity withdrawal
- FERC caps spot prices of whole region
 - ⇒ to avoid market power contagion
- CA MSC operates on contract price
 - ⇒ leaves spot price to signal scarcity
 - ⇒ rights to regulated contracts prices
 - ⇒ avoids costly long-term lock-in

Attractions of contracts

- market power falls as contract cover rises
- confine price regulation to contracts
 - leaves spot price to signal scarcity
 - ‘dual pricing’ prevents large rent transfers
 - sustained by legacy contracts in short-run
 - long run requires franchise?

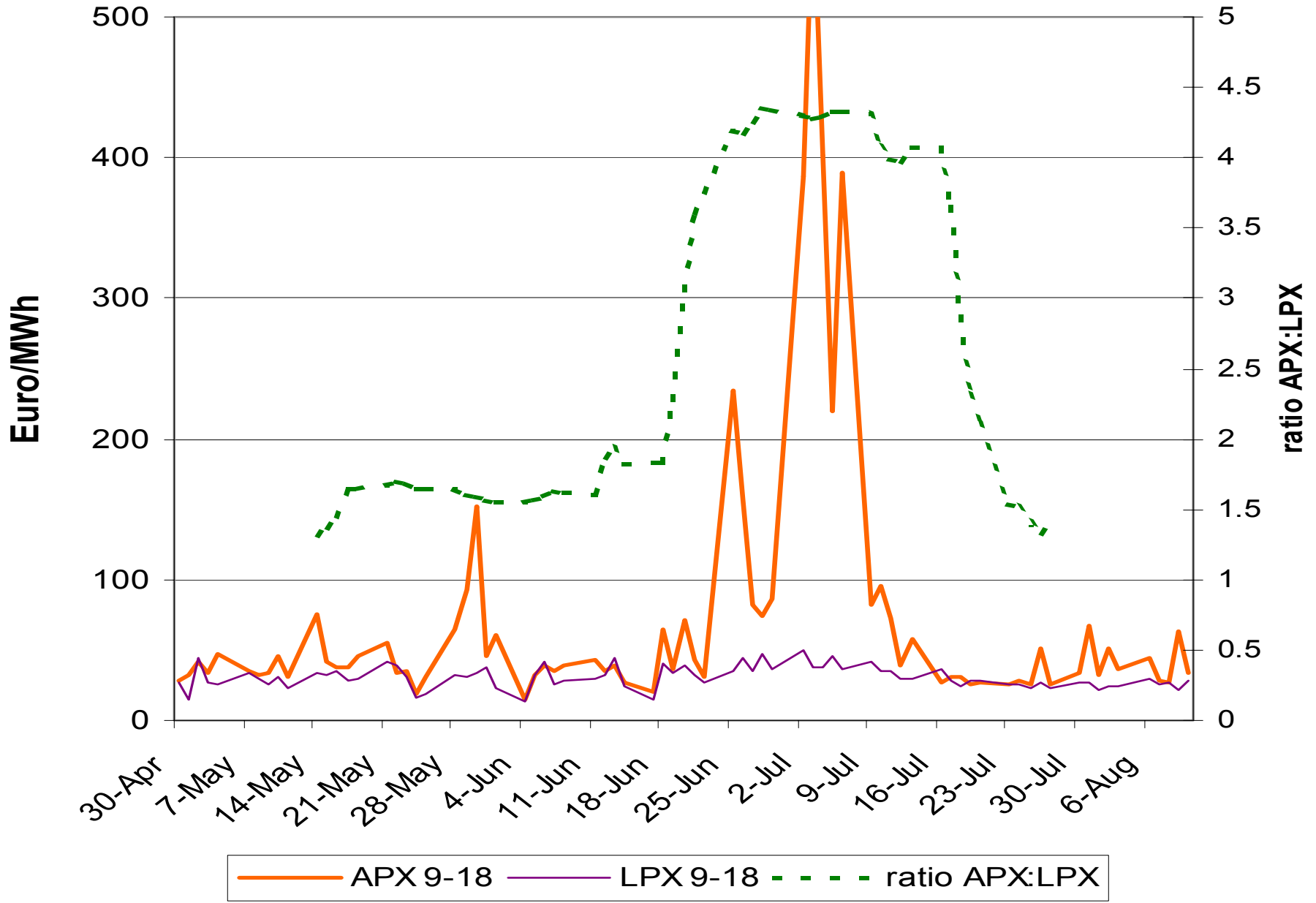
Contrast with Europe

- no prior legislated cost-based regulation
 - no concept of ‘just and reasonable’ prices
 - little power to control wholesale prices
 - often limited power to get information
- ⇒ weak market surveillance
- competitive tests derive from other markets

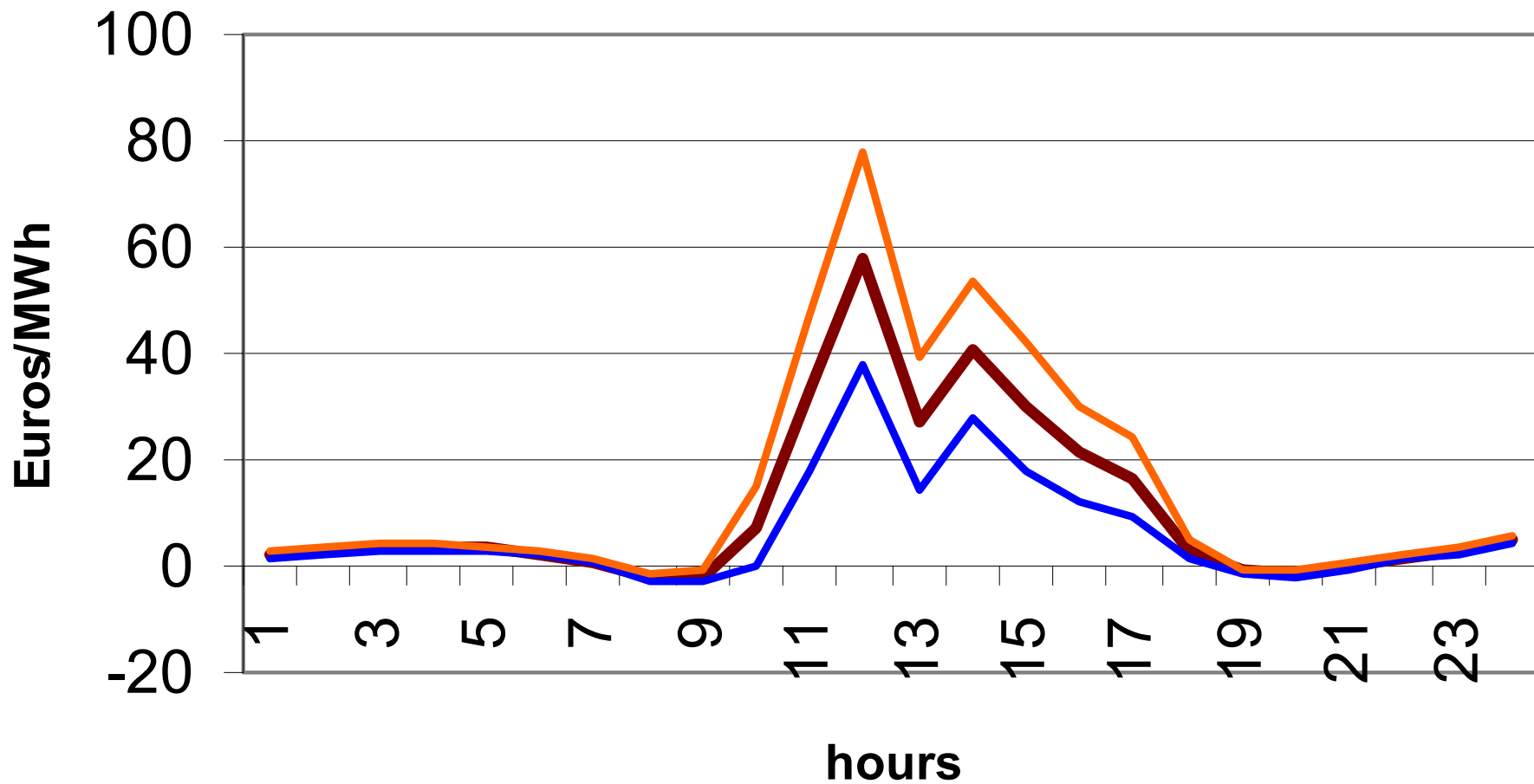
Competition problems in EU ESI

- dominant incumbents (Fr, Be, It)
- merger wave (EdF, E-on, RWE)
- inadequate interconnect transmission
- illiquid or absent wholesale markets
- under-staffed or no regulator
- access to information patchy
- lack of regulatory enforcement power

APX and LPX Weekday prices May-July 2001



Arbitrage profit weekdays May - July 2001



Competition concerns

- vertical integration \Rightarrow recover fixed costs via access charges to grid?
 - \Rightarrow low spot prices, entry deterrence, merger
 - Germany (Brunekreeft)?
- Electrabel: 95% of Be, 30% of NL
 - vertically integrated in Be, no spot market
 - low cost but interconnector zero price

Possible scenarios - 1

- lack of markets + domestic franchise \Rightarrow contracts necessary
 - reduces short-run market power, hedges spikes
 - yardstick regulation of PPAs countervails
- opaque markets & asym info deter entry
 - \Rightarrow horizontal, vertical integration \Rightarrow old German-style equilibrium: safe but costly?

Possible scenarios - 2

- new Directive ends franchise
⇒ generators integrate into supply
- remove counterparties to entry contracts
⇒ reduce spare capacity
- limited interconnector ⇒ market power in national markets
- ESI now 400 bn euros, high prices costly

Solutions

- increase interconnect capacity rapidly
 - ‘excess’ T is public good
 - dilutes market power in short run
 - ⇒ reduces need for regulation
- ⇒ long run EU-wide shortages?
- Maximise contracts, incl for capacity
 - G capacity is public good
- ⇒ keep franchise as counterparty?

Paper can be downloaded

- follow links to me from the DAE website:

www.econ.cam.ac.uk/dae \Rightarrow people

- or go directly to:

www.econ.cam.ac.uk/dae/research/regulate.htm