

A blurred, blue-tinted background image of a computer keyboard, showing keys and a mouse in the lower left corner.

# 4<sup>th</sup> EU/US Regulators Roundtable

## 13 May 2003

Kevin James  
European Affairs  
Ofgem

# The need for reform

- Pool deficient in number of ways, e.g. :
  - Complex trading rules
  - ‘Capacity payments’ based on administrative VOLL
  - Insufficient account taken of demand side
  - Governance arrangements slowed pace of change
  - Players did not always pay costs of their actions
- Generation market structure insufficiently competitive
- Consequently, prices high and not falling even in face of falling input costs
- Review of Trading Arrangements started 1997

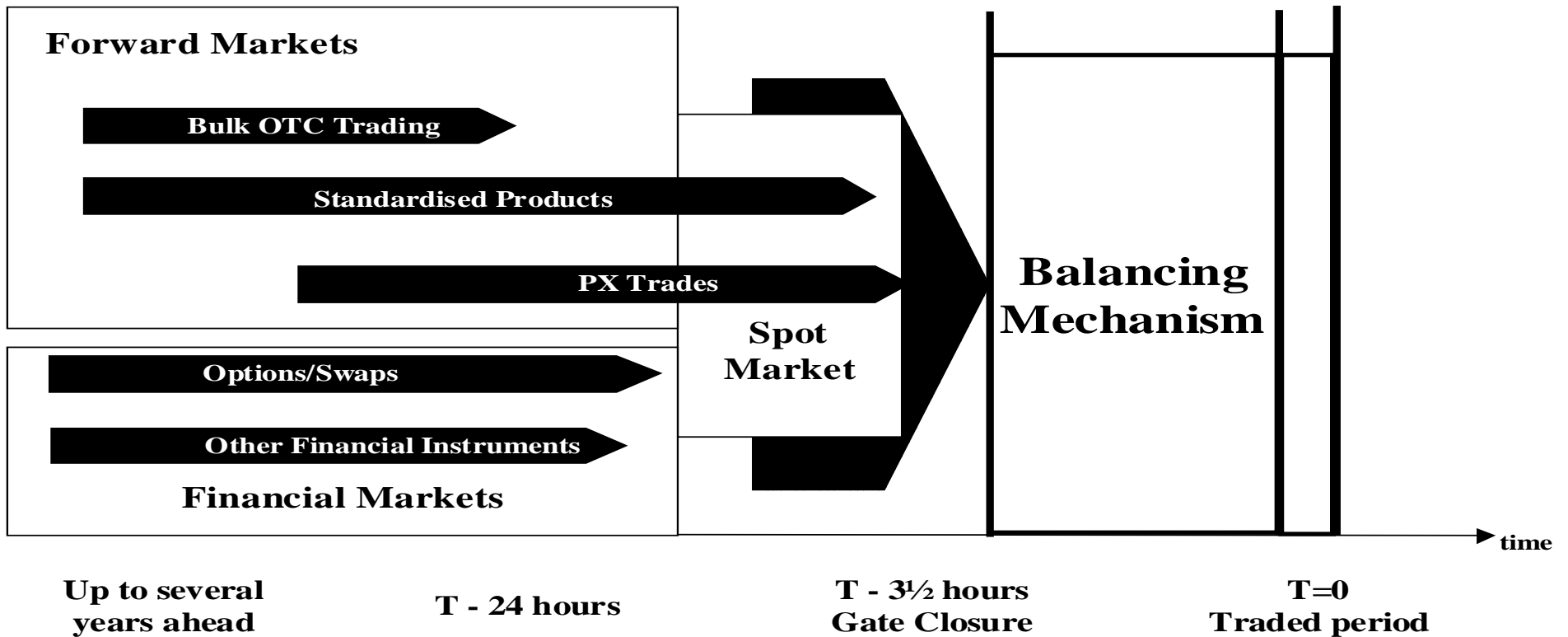
# New Electricity Trading Arrangements

- NETA 'Go Live' 27 March 2001
- Based on voluntary, bilateral trading (no central despatch)
- Introduction of compulsory Balancing Mechanism
- Provides or allows for :
  - Forward and futures markets
  - Fine tuning of contracted positions via short term power exchanges
  - Better separation of Transmission (TO) and System Operator (SO) roles
  - NGC as SO to balance system real time via Balancing Mechanism
  - Settlement process

# Overview of trading arrangements

- Electricity traded like any commodity, but with mechanism to encourage outturn Generation or Load to match contract
- Parties strike bilateral contracts up to one hour before 'Gate Closure', using number of trading choices
- Parties can submit supply or demand curves to be used by NGC as SO after Gate Closure
- Balancing Mechanism opens at Gate Closure when :
  - NGC as SO uses market tools to balance system
  - Parties who generate or demand quantities that differ from their contracted position pay or receive System Buy or System Sell Price

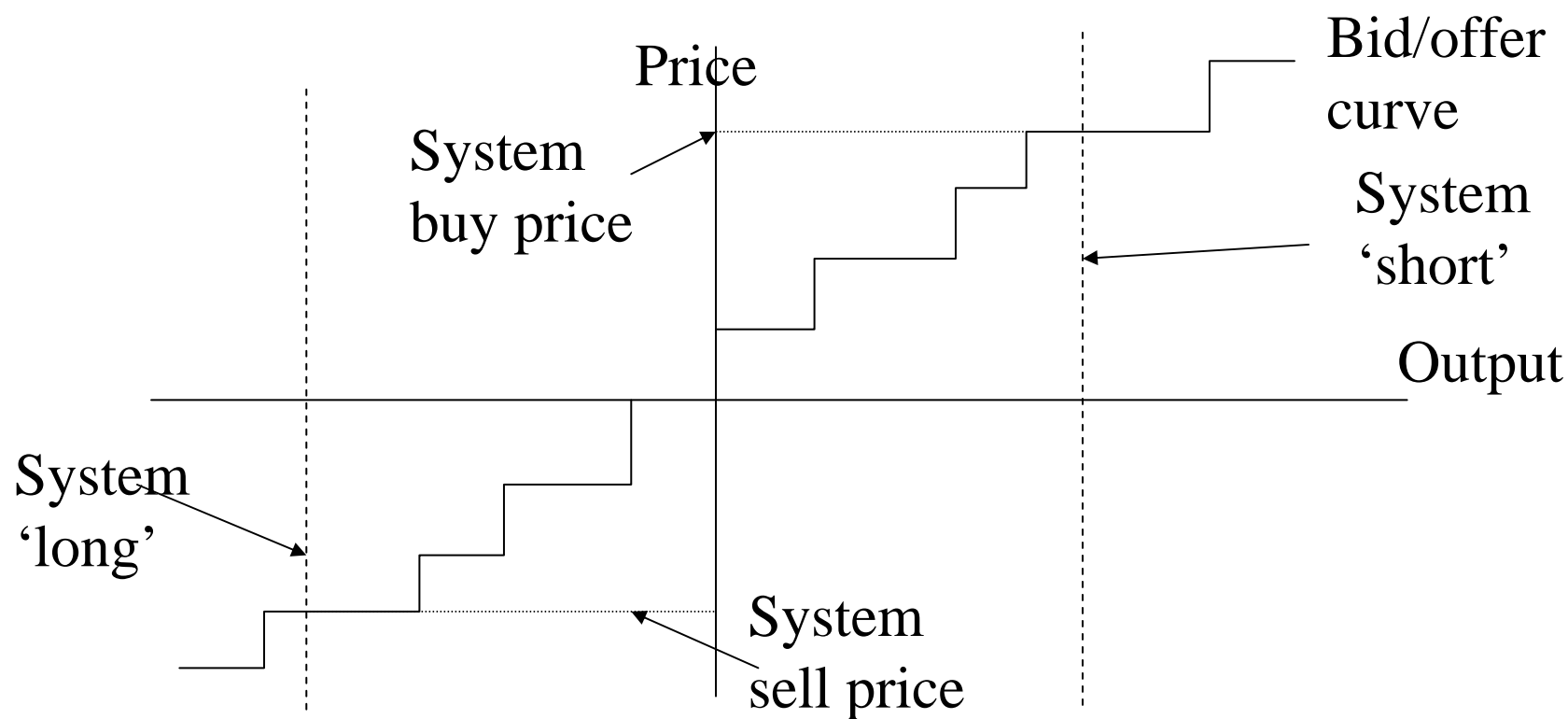
# Trading timeline



# NGC and Balancing

- NGC manages and responsible for system balancing costs (i.e. costs incurred between T-1 and real time)
- NGC is allowed to recover actual costs of system balancing, adjusted by incentive payments or receipts
- Recovered from generation and load through 'BSUoS'

# Determination of imbalance prices



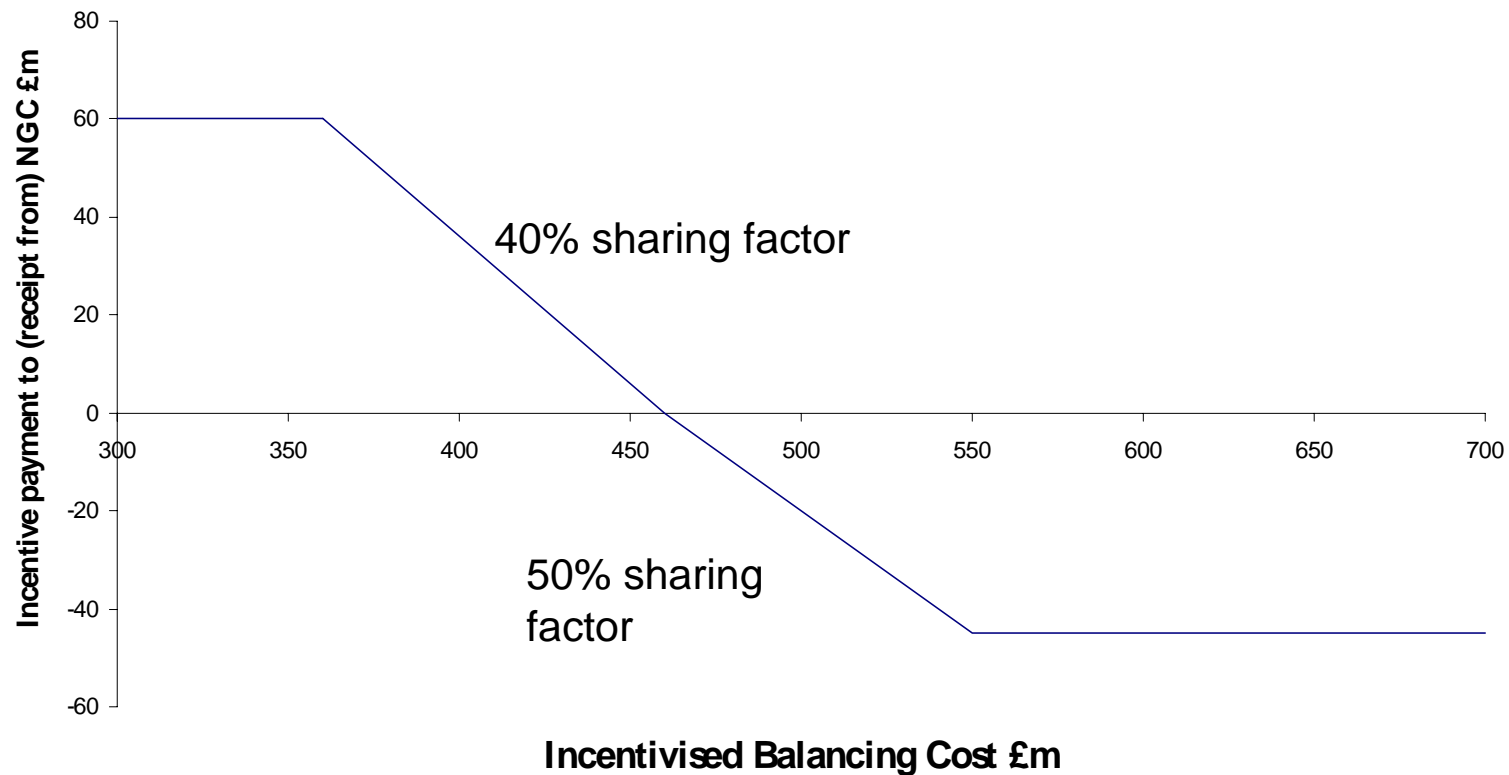
## Balancing Mechanism in context

- Gross volume of NGC's actions in Balancing Mechanism around 2% of England and Wales demand
- Net actions result in around 1% removal of electricity from system
- Balancing costs around £180 million / year, compared with annual value of wholesale market of an estimated £5 000 million.



# Incentive scheme on NGC 2002/03

## NGC SO External Incentive Structure



# Incentivised Balancing Cost (IBC)

- Key determinant of incentive payment to (receipt from) NGC
- Comprises
  - Cost of bids and offers in Balancing Mechanism accepted
  - Costs of contracts for availability or use of balancing services
  - Cost of losses, given as volume x Transmission Loss Reference Price
  - Total Net Imbalance Volume x Net Imbalance Reference Price
- Net Imbalance Reference Price (NIRP) to be based on UKPX and APX price indices

## Demand side better represented

- Demand side fully incorporated into trading arrangements, allowing any 'price elastic' demand to influence market
- Large customers can for example
  - offer load reductions into the Balancing Mechanism
  - respond to NGC tenders for balancing services
- Potential for 'aggregators' to co-ordinate demand side response of smaller players
- Demand side now provides 5% of 'Fast reserve' compared with 0% previously
- Prices for this service down from £438/MWh to £118/MWh

## Legal & regulatory framework

- Electricity Act 1989 requires all generators, suppliers, and transmission companies to hold and comply with relevant licence
- Licences require licensees to be a party to the Balancing and Settlement Code (BSC)
- BSC sets out rules for Balancing Mechanism and Settlement
- NGC's Transmission licence obliges it to maintain system electricity balance

## Balancing & Settlement Code

- Framework for BSC set out in NGC's licence, with objectives e.g. :
  - Efficient, economic, co-ordinated operation by the Transmission Co.
  - Promotion of effective competition in generation
  - Promotion of efficiency regarding balancing and settlement
- BSC Panel is governing body for management, development and implementation of BSC
- Panel has at least 11 members e.g. :
  - independent Chairman appointed by Ofgem
  - consumer, industry and independent members
  - appointee by NGC

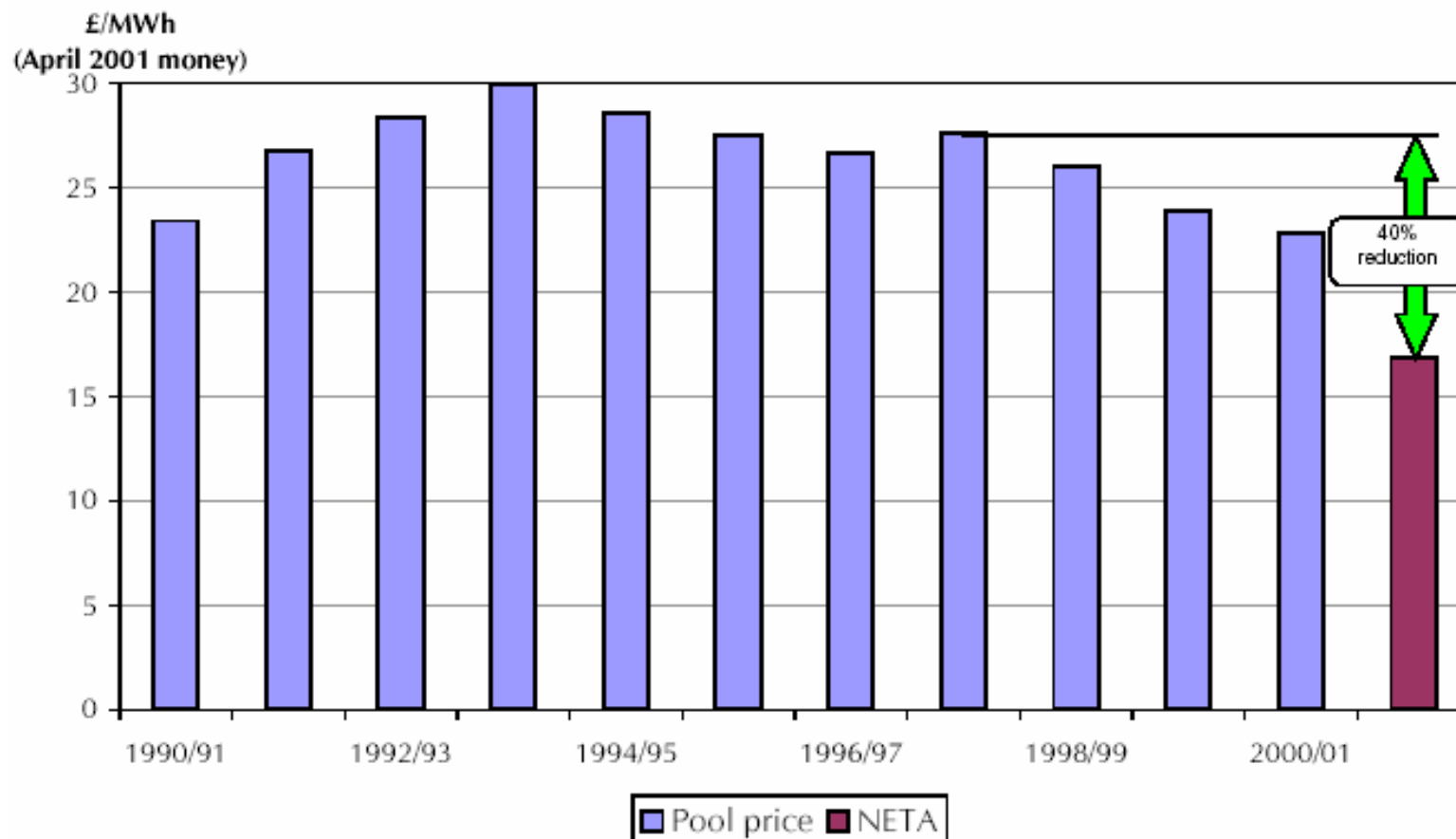
## BSC Modifications

- BSC can only be modified by NGC following direction by Ofgem, BUT
- NGC must follow BSC Modification Procedure e.g. :
  - Allow any BSC party or Energywatch to propose a Modification
  - Consult with interested parties
  - Inform Ofgem with a Modification Report
- Modification proposals may be considered by Modification Group set up by Panel

# Impact of NETA

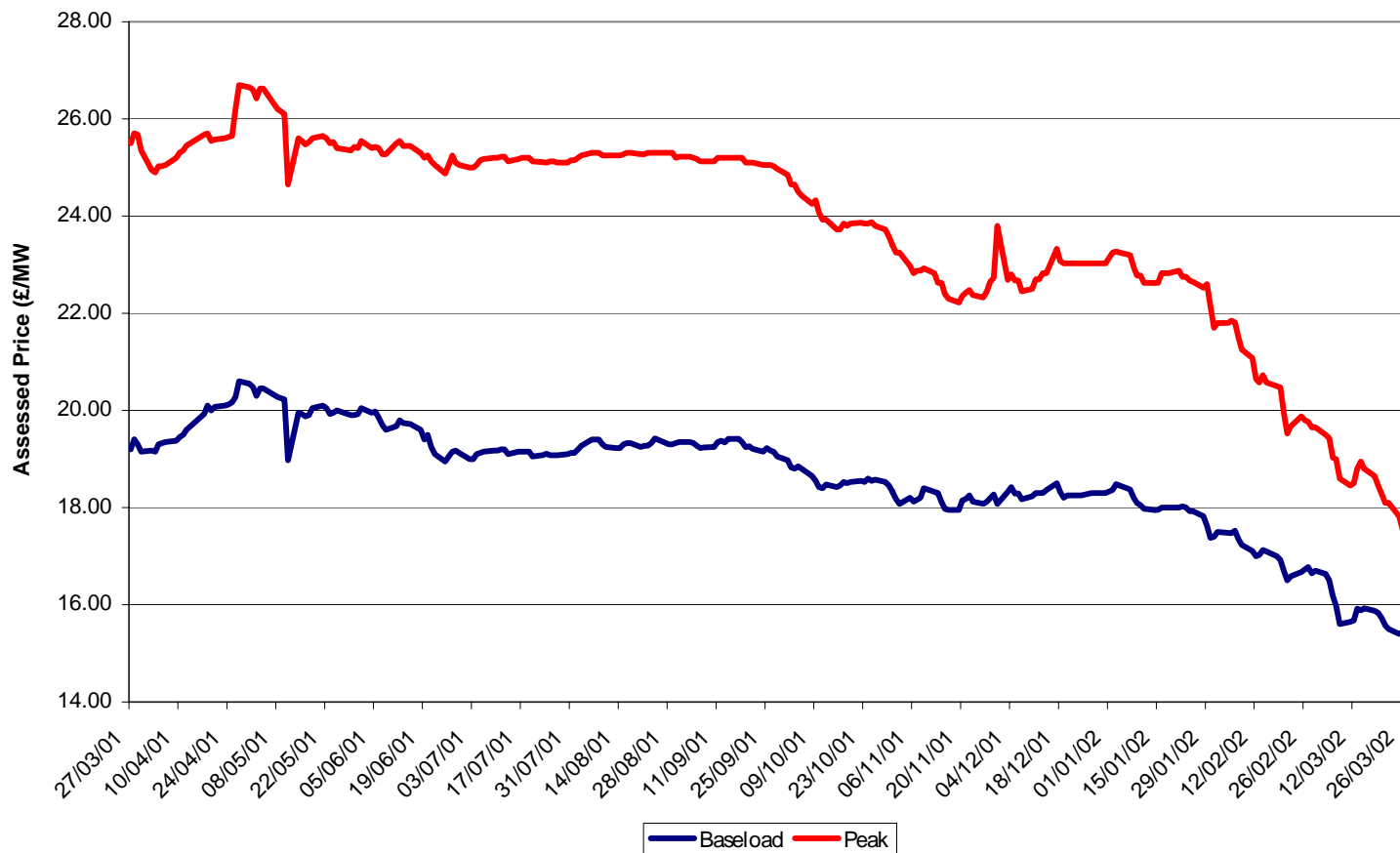
- Reviews published in August 2001 and July 2002
- Focused on :
  - Prices and emerging markets
  - Balancing arrangements
  - Retail prices
  - Smaller generators and renewables
  - Demand side
  - Governance arrangements
  - Further developments

# Impact of NETA : Wholesale Prices

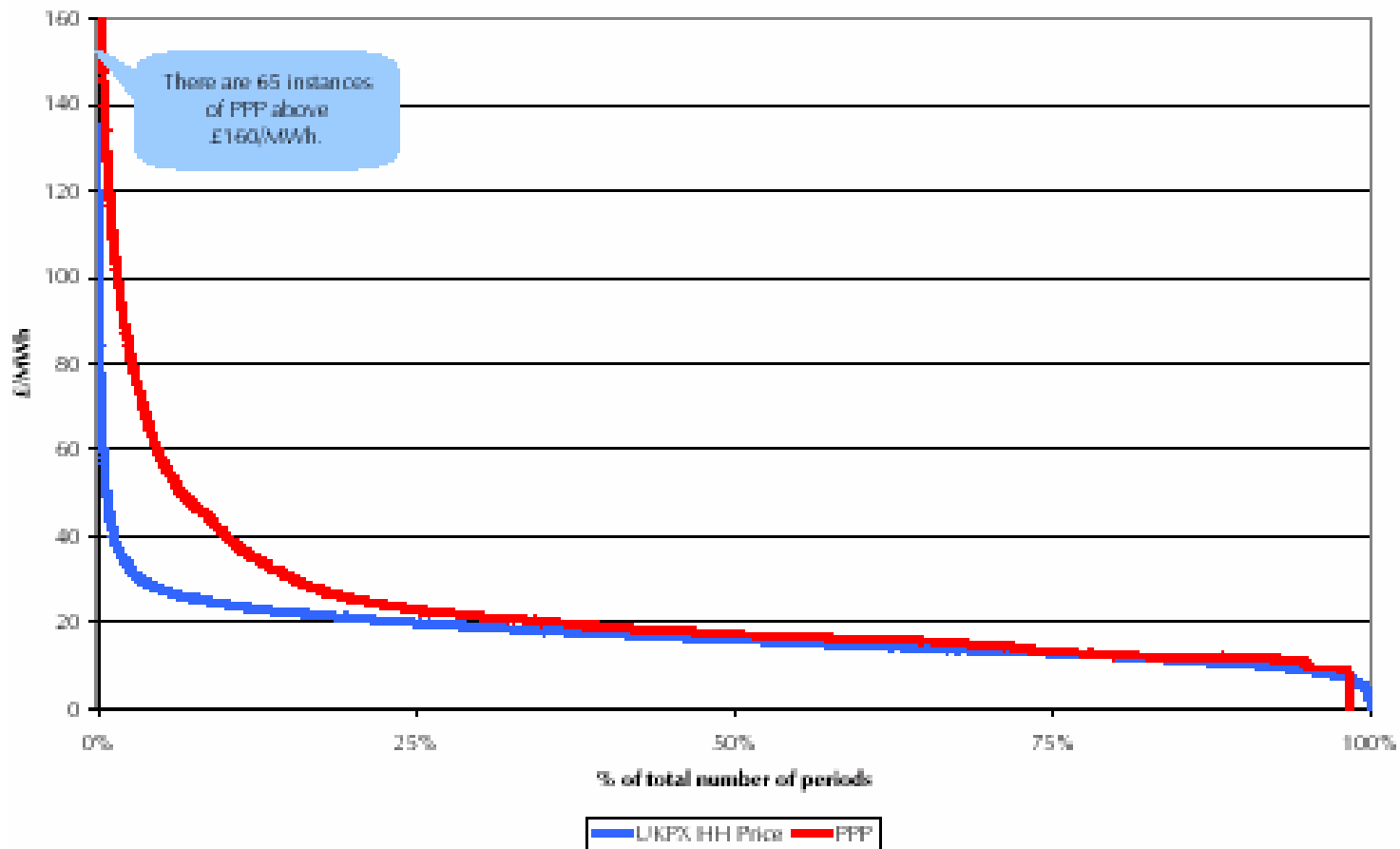




# Prices March 01 – March 02

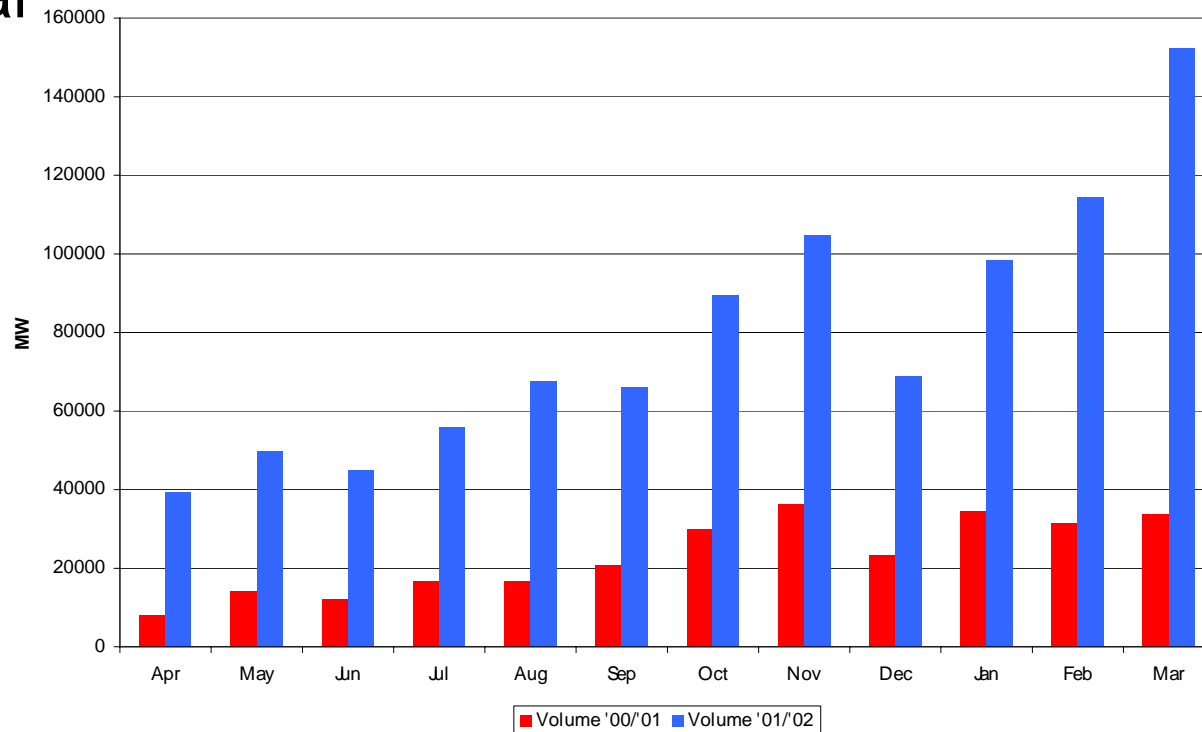


# Price duration curve



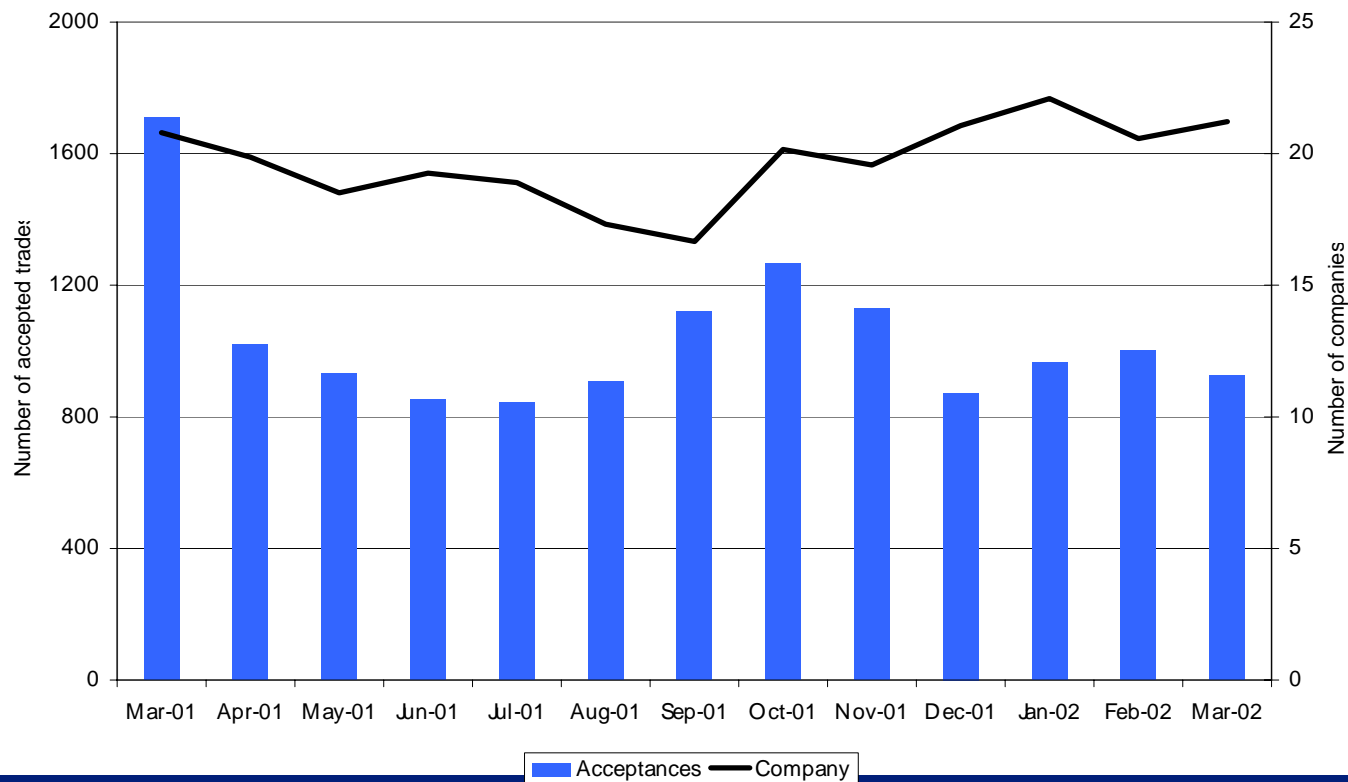
# Liquidity

Volume of OTC trades has grown steadily over year



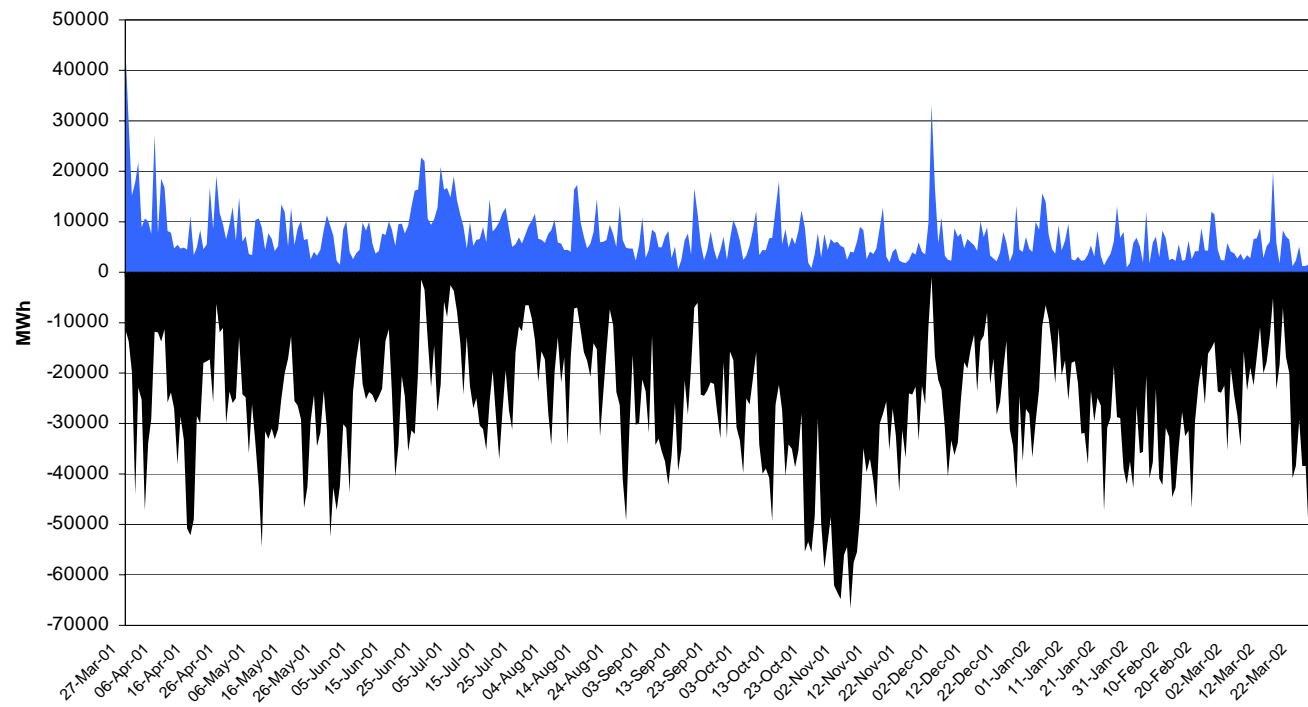
# Balancing arrangements (1)

- No. acceptances reduced, no. participating companies up



# Balancing arrangements (2)

- NGC has predominantly accepted bids as a result of the overall length of the market

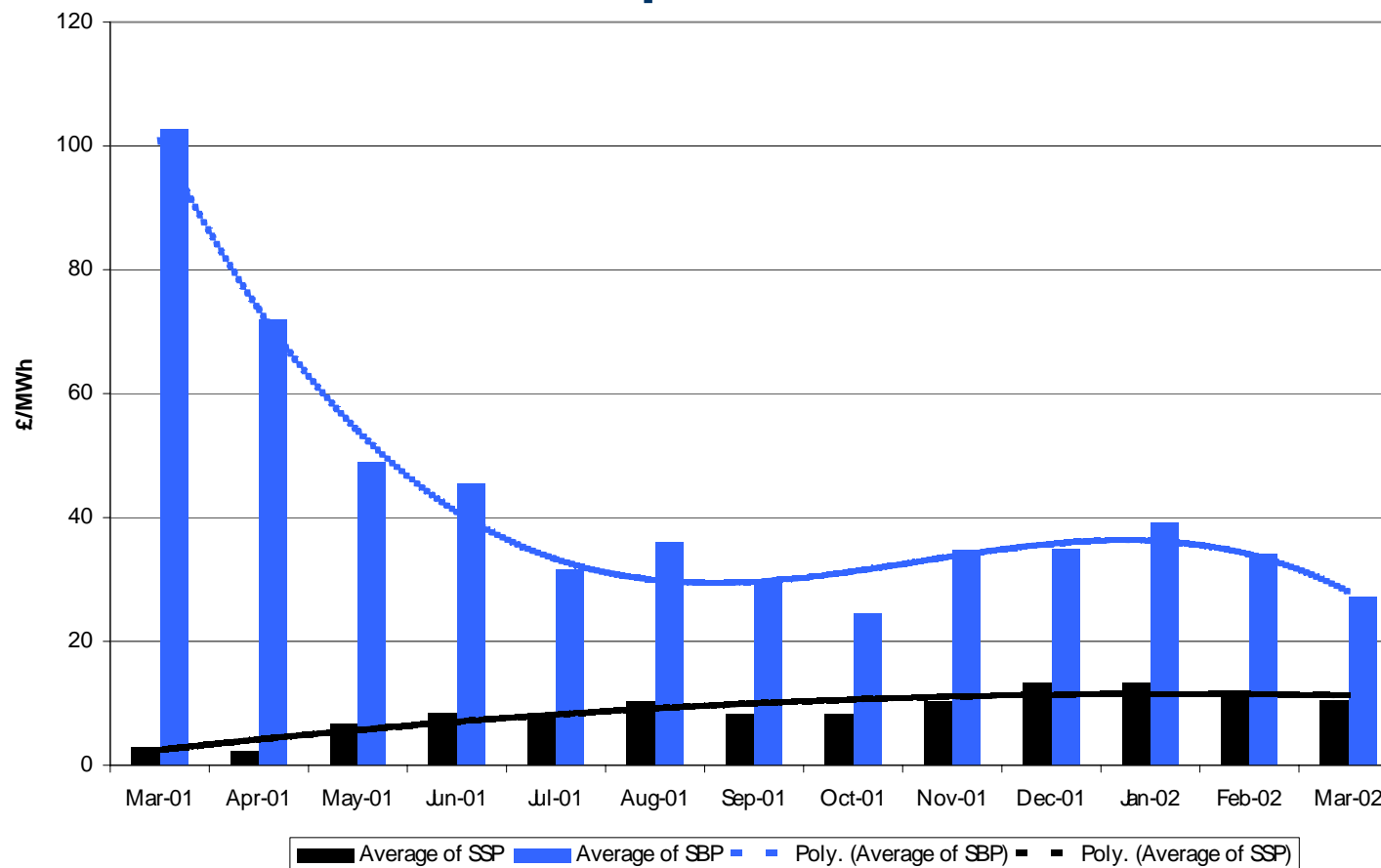


■ Sum of Bid Volume ■ Sum of Offer Volume

# Balancing (3) : Average Bid/Offer Prices

Fuel Type	Av of bid price	Av of offer price
Advanced Gas Reactor (AGR)	-540.45	7.25
Combined Cycle Gas Turbine (CCGT)	5.78	26.69
CCGT/CHP	11.00	19.68
Combined Heat & Power (CHP)	13.49	26.14
Coal	7.22	26.15
Coal Gas Turbine	147.31	160.82
Demand Side Bidder (DSB)	184.25	257.96
Interconnector	15.29	61.82
Open Cycle Gas Turbine (OCGT)	144.47	167.07
Oil	55.47	246.68
Pumped Storage Business (PSB)	-37.89	1003.13
Pressurised Water Reactor (PWR)	-1666.67	8.00
<b>Average</b>	8.42	97.02

# Balancing (4): Stabilised imbalance price



## Balancing (5) : Other indicators

- Under NETA there has been a tendency to part load plant with free reserve averaging around 4 GW
- Plant availability increased 7.6% in comparison to the last year of the Pool
- NGC believes that NETA has not had a detrimental effect on System Performance. Annual System availability was 95.4%.



# Retail prices

- 9% overall price reduction in April 2002 Industrial and Commercial contacting round
- Domestic retail prices have fallen in real terms over the period from October 1999 to February 2002 :

	<b>%</b>	<b>Direct Debit</b>	<b>Standard Credit</b>	<b>Prepayment</b>	<b>Average</b>
<b>In-area electricity</b>		-8.7	-8.1	-8.9	-8.6
<b>Out-of-area electricity</b>		-13.7	-11.5	-13.0	-13.0

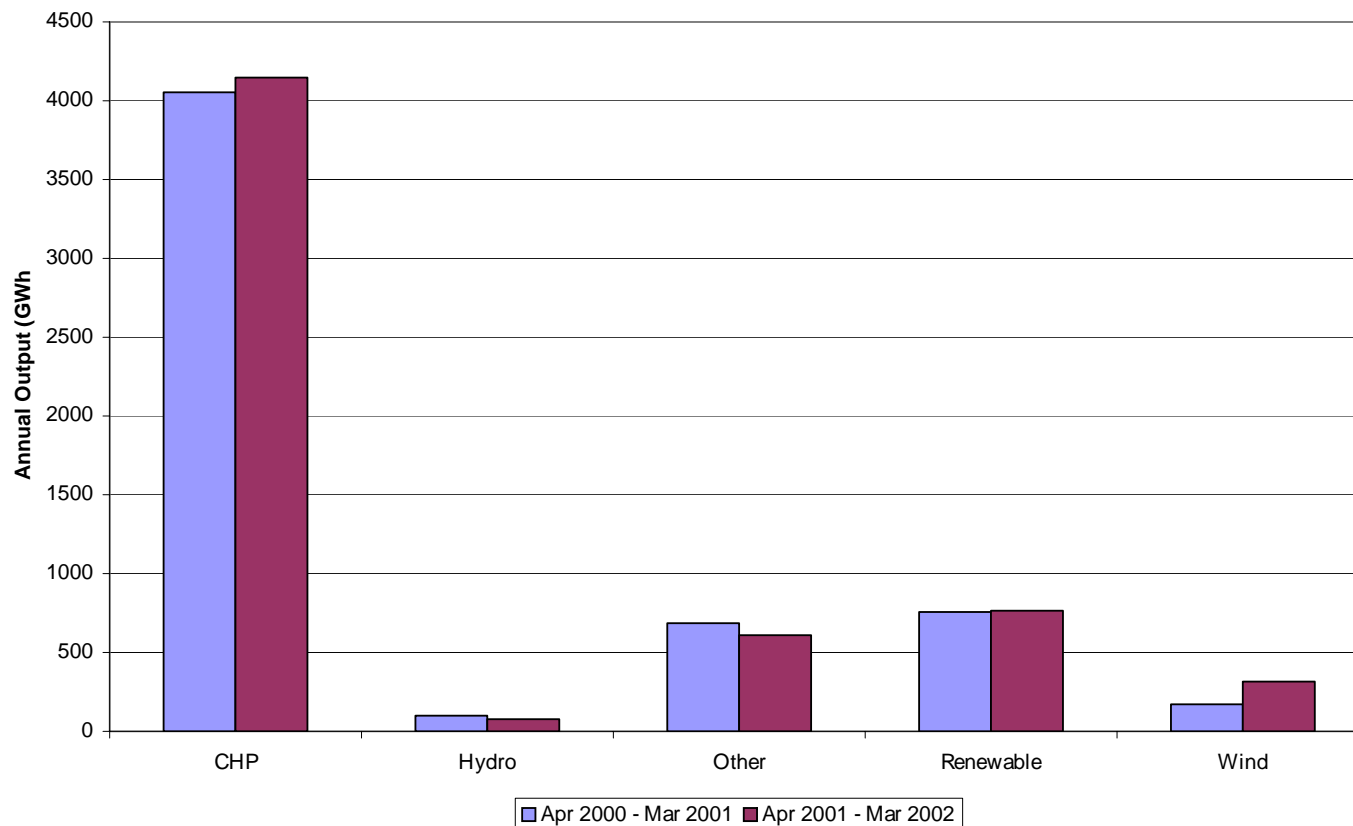
## Smaller generation (1)

- Some arguments put forward that NETA would disadvantage smaller generators, e.g. Balancing Mechanism would disadvantage less predictable units
- Evidence suggests prices fell, on average, by less than for larger generators
- Most smaller generation output is as unpredictable as larger generation, with exception of wind power
- Would expect market mechanisms, such as 'aggregators', to allow small generators to aggregate and manage risk
- Some changes made to BSC to address concerns

# Smaller generation (2) : Prices received

	Minimum price (£/MWh)	Average price (£/MWh)	Maximum price (£/MWh)	Number of responses
Bilateral Contracts	16.00	18.73	26.68	18
Independent consolidator	16.54	26.27	36.00	2
NFFO/SRO	33.00	55.93	77.50	8
Parent Company	16.00	20.74	30.43	21
Supplier	17.83	18.92	20.00	2
<b>Overall</b>	<b>16.00</b>	<b>25.69</b>	<b>77.50</b>	<b>51</b>

# Smaller generation (3) : Output



## Demand side (1)

- Under NETA the demand side:
  - participates directly in the wholesale market
  - contracts with generators/traders to cover their electricity requirements
  - has increased its provision of balancing services e.g. provision of Fast Reserve
  - is considering future developments in the DSWG

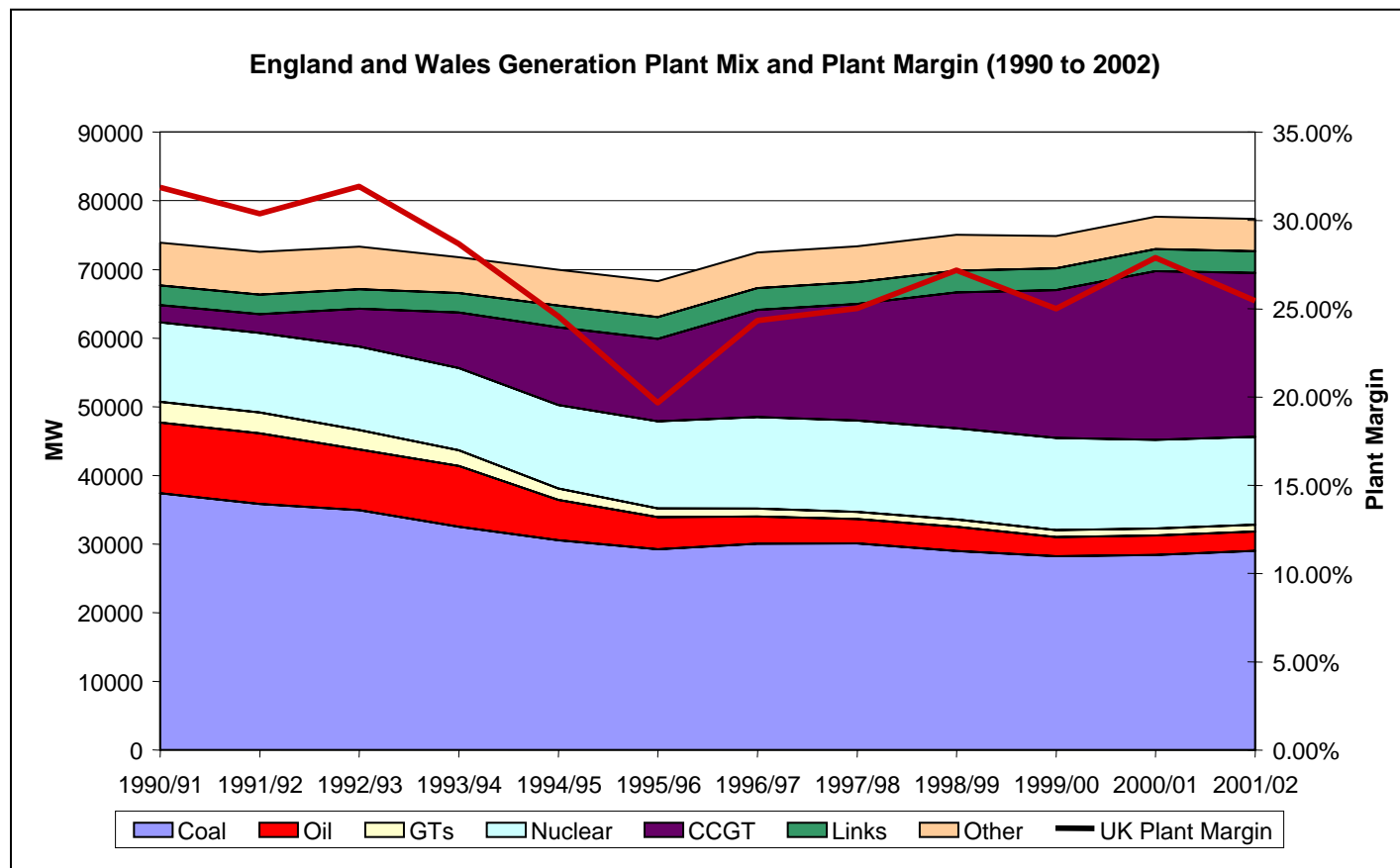
## Demand Side (2)

- Proportion of services provided by demand side has increased:

<b>Service</b>	<b>2001/2</b>	<b>2000/1</b>
<b>Frequency response</b>	29%	29%
<b>Fast reserve</b>	5%	0%
<b>Standing reserve</b>	29%	23%

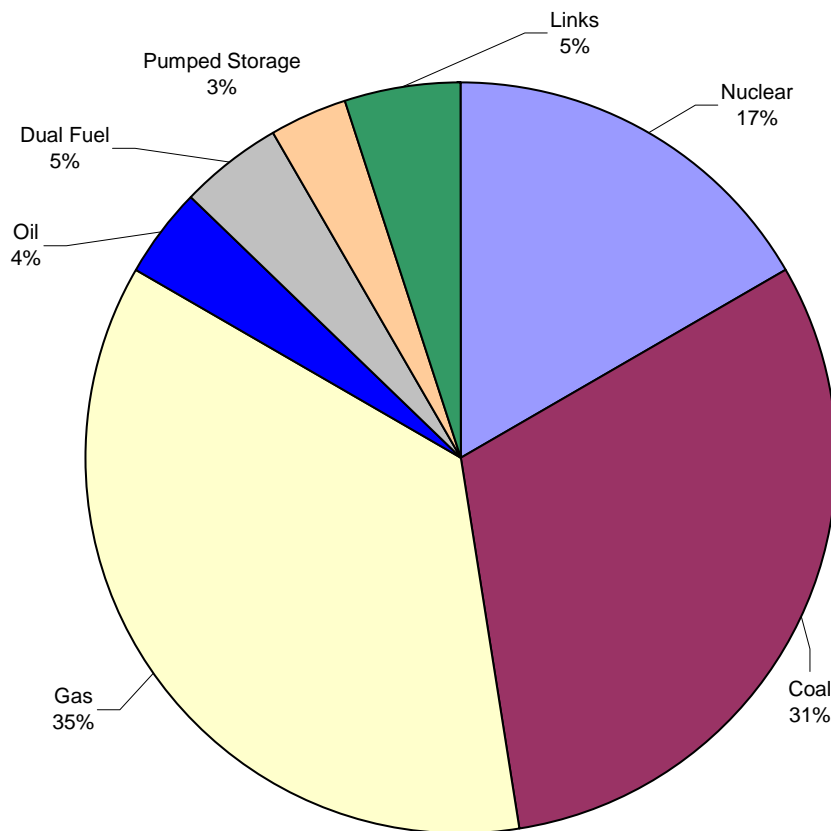
- Demand side is developing new balancing services with NGC e.g. radio tele-switching of demand

# Security of supply



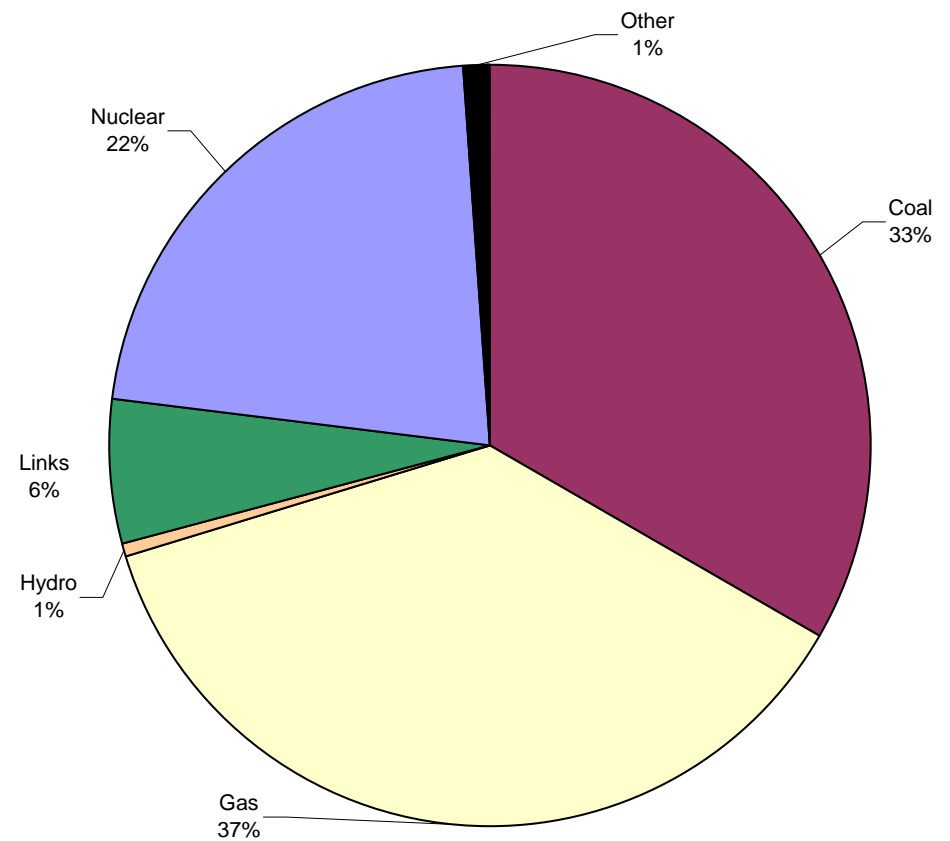
# UK generation is well-diversified

**Generation Capacity Mix (2001/2)**



Source: NGC Seven Year Statement 2002

**Generation Output Mix (2001/2)**

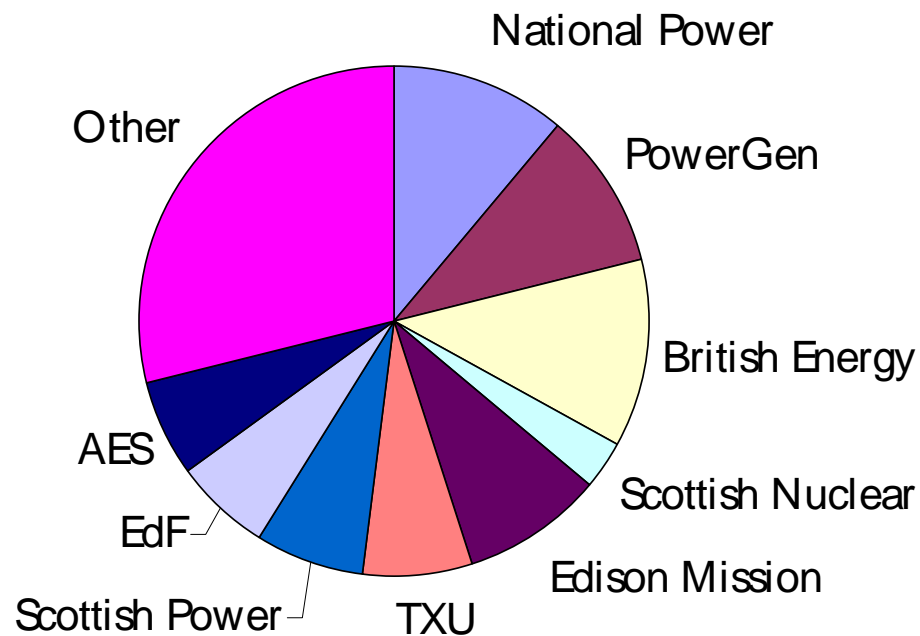


Source: Ofgem



# Changed market structure

## GB market share by capacity 2001



## NETA Review : In sum

- Concluded e.g. :
  - Introduction of NETA has a downward effect on prices
  - Appropriate markets and liquidity are emerging
  - Balancing mechanism is working well
  - Governance structure delivering appropriate changes

## Further Developments (1)

- Introduction of BETTA
  - Creation of GB trading arrangements based on those in place in England & Wales
  - BETTA is being taken forward using a combination of consultation papers, expert groups and seminars
  - Due to be implemented in late 2004

## Further Developments (2)

- “Deep” SO incentive scheme for NGC and new losses
  - Current “shallow” scheme provides financial incentive in relation to operating costs
  - Aim of “deep” scheme is to encourage NGC to make efficient trade-offs between operating and investment costs
  - SO will have increased role in investment planning
  - Proposals for zonal losses to reflect locational differences

A large, central version of the ofgem logo, featuring the word "ofgem" in white lowercase letters on an orange rounded rectangular background. The background of the slide is a blue-tinted image of electrical outlets and a plug.

Promoting choice and value for all  
gas and electricity customers