
An alternative 20:20 vision of the UK energy sector

ENERGY TRADING SOLUTIONS IN A CARBON FREE WORLD

SmartestEnergy One Day Seminar

10 June 2004

John Bower

What the White Paper Implies

Decision Drivers

Reality Will Dawn

UK EWP refocused energy policy away from a pure liberalisation / competition agenda...

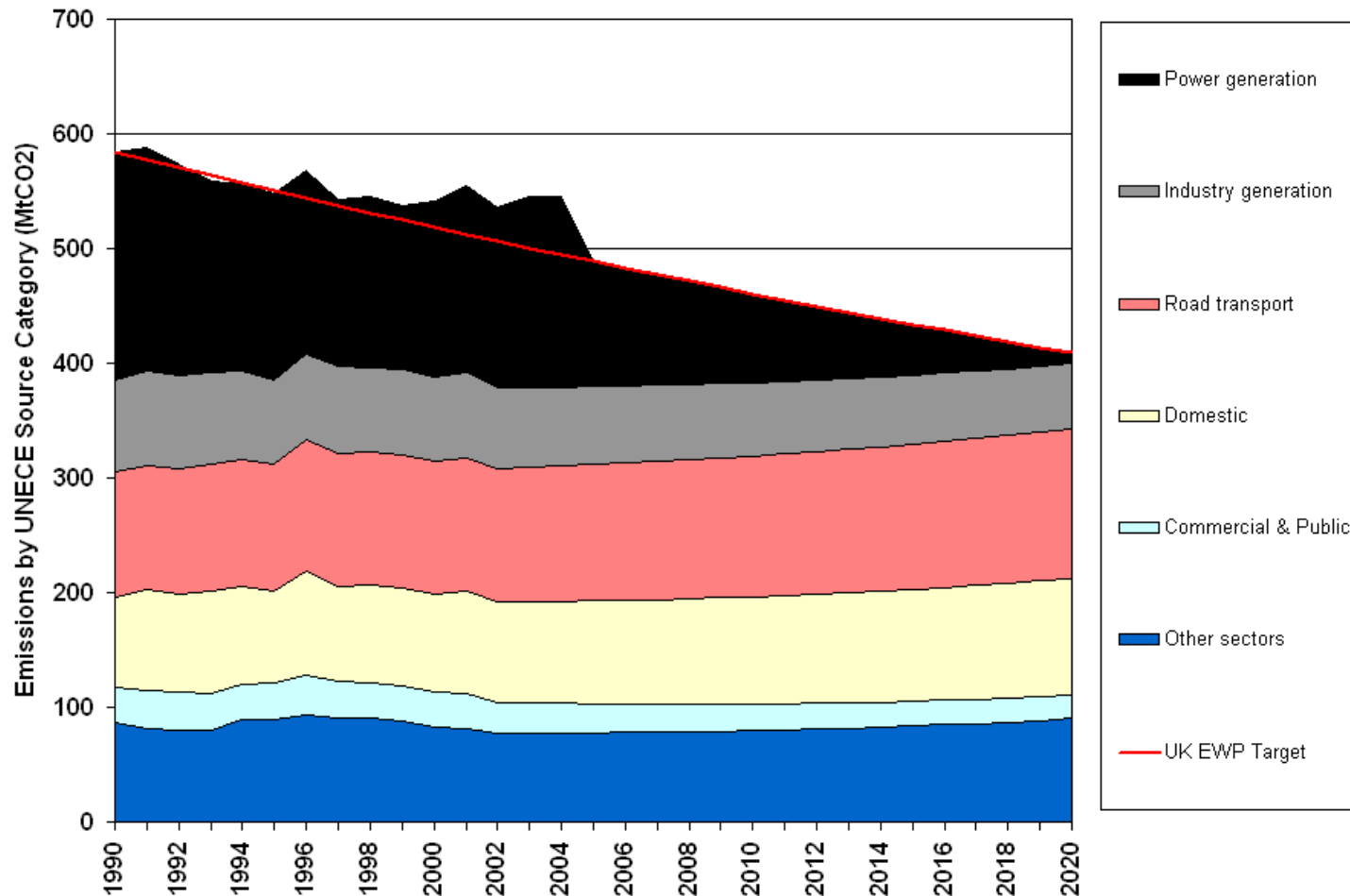
GOALS AND POLICIES

1. Reduce CO2 emissions by 60% by 2050 - REDUCE 30% BY 2020
2. Maintain reliability of energy supplies - DIVERSE OF SUPPLY
3. Promote competitive markets in UK and beyond - LOW PRICES
4. Ensure every home is adequately / affordably heated - LOW PRICES

What the White Paper Implies

... with power generation squeezed between a hard objective and soft implementation

IMPLIED UK ENERGY POLICY ASPIRATION FOR CO₂ EMISSIONS 1990 - 2020

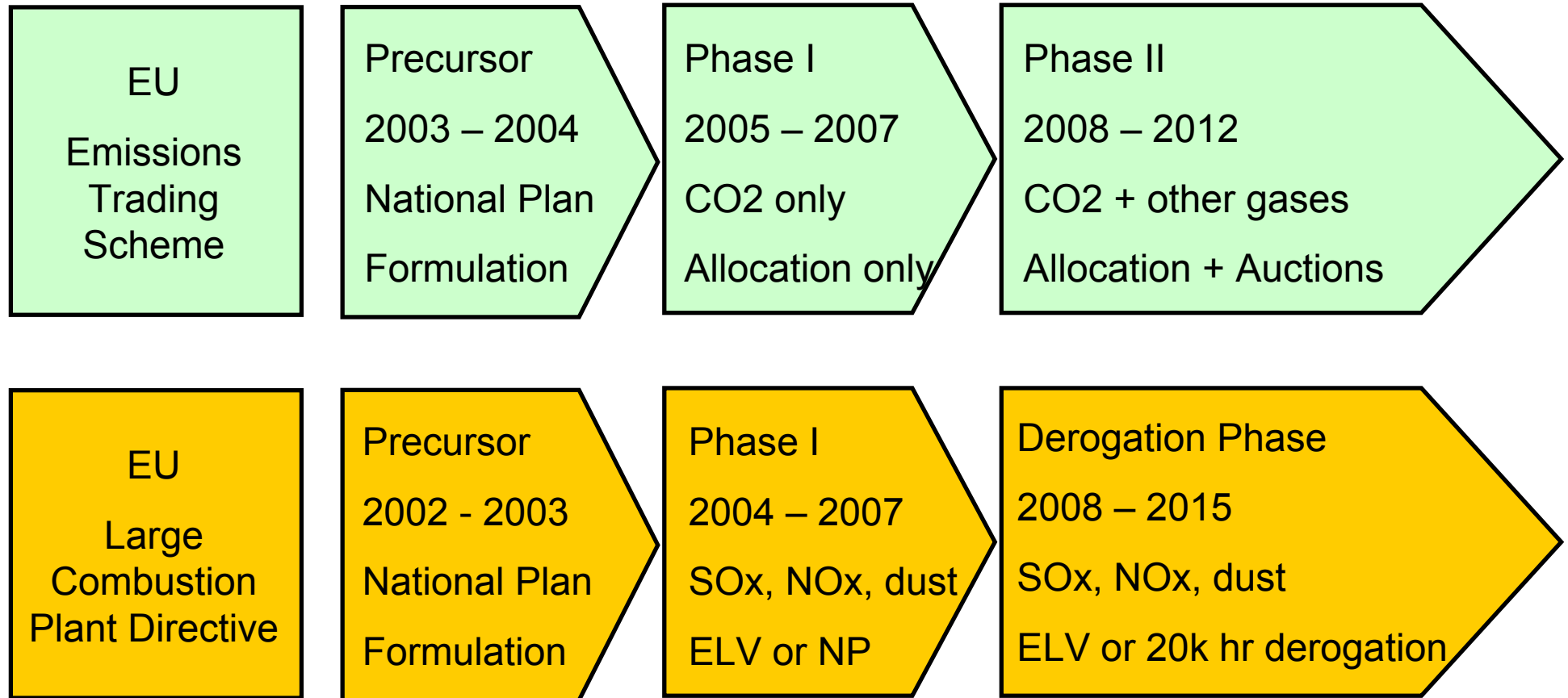


Source: DEFRA data and author's estimates

What the White Paper Implies

UK energy policy in power generation is now really driven by EU ETS and LCPD....

EU EMISSIONS TRADING SCHEME AND LARGE COMBUSTION PLANT DIRECTIVES



What the White Paper Implies

.... with UK policy providing weak and diverse signals on marginal CO2 abatement costs

UK ENERGY TAXES AND PERMITS: IMPLIED MARGINAL CO2 ABATEMENT COST

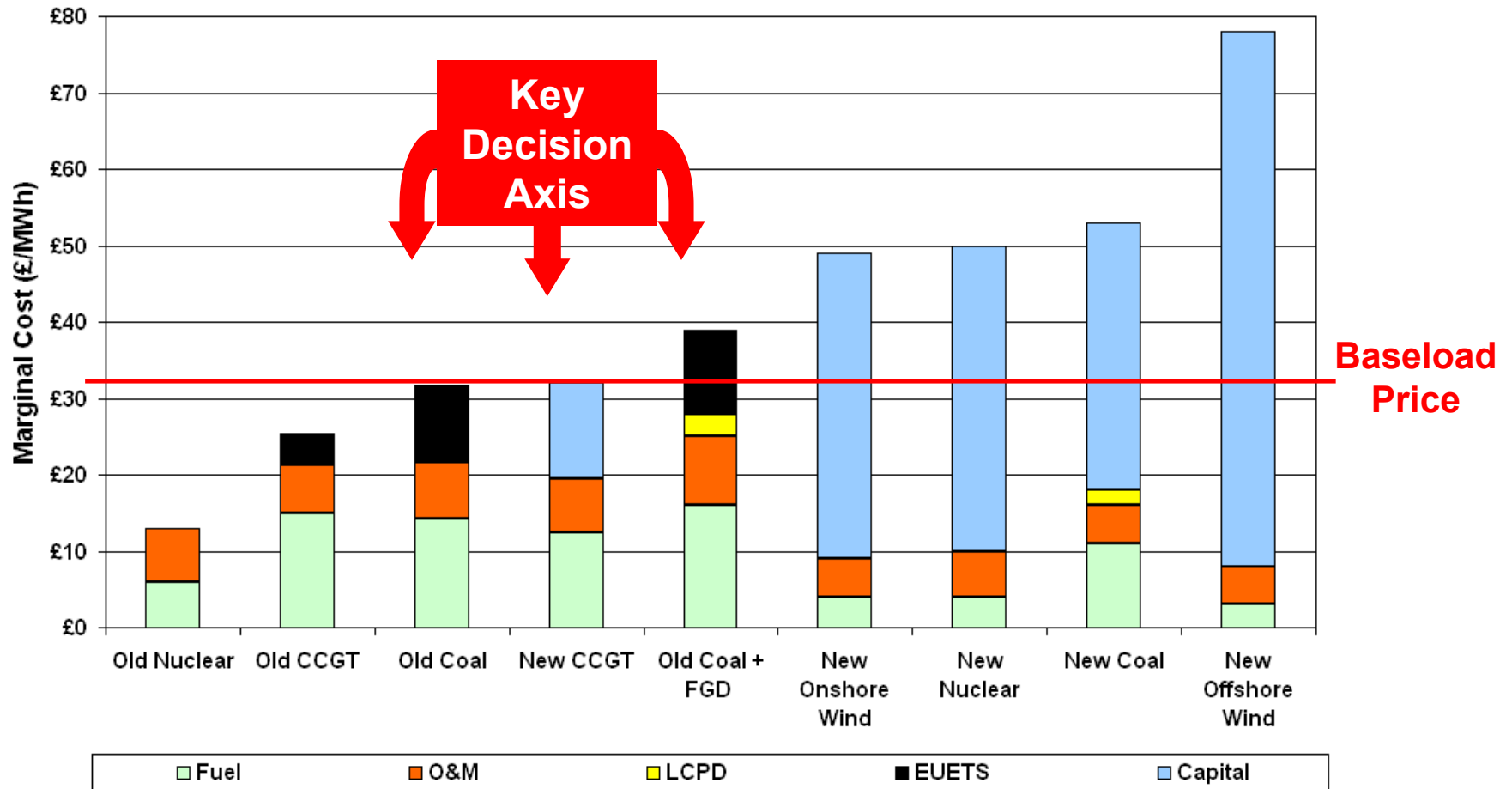
	Nominal Unit Price	Marginal CO2 Price
EU ETS (2005 mid)	£ 6.00 / MtCO2 on marginal CO2 abated	= £ 6.00 / MtCO2
Electric (CCL + VAT)	£ 7.30 / MWh on domestic 'follow on' units	= £ 10.60 / MtCO2
UK ETS (subsidy)	£15.00 / MtCO2 on all CO2 abated	= £ 17.50 / MtCO2
ROCs (buyout)	£ 30.00 / MWh on marginal unit	= £ 33.30 / MtCO2
Petrol (Duty + VAT)	£ 0.60 / litre on all units supply	= £300.00 / MtCO2

Source: Author's estimates

Decision Drivers

At EU ETS €15/MtCO₂ old coal will delay new CCGT entry until LCPD bites in 2011 - 12

EXPECTED MINIMUM MARGINAL COST OF GENERATION IN 2008 - 12

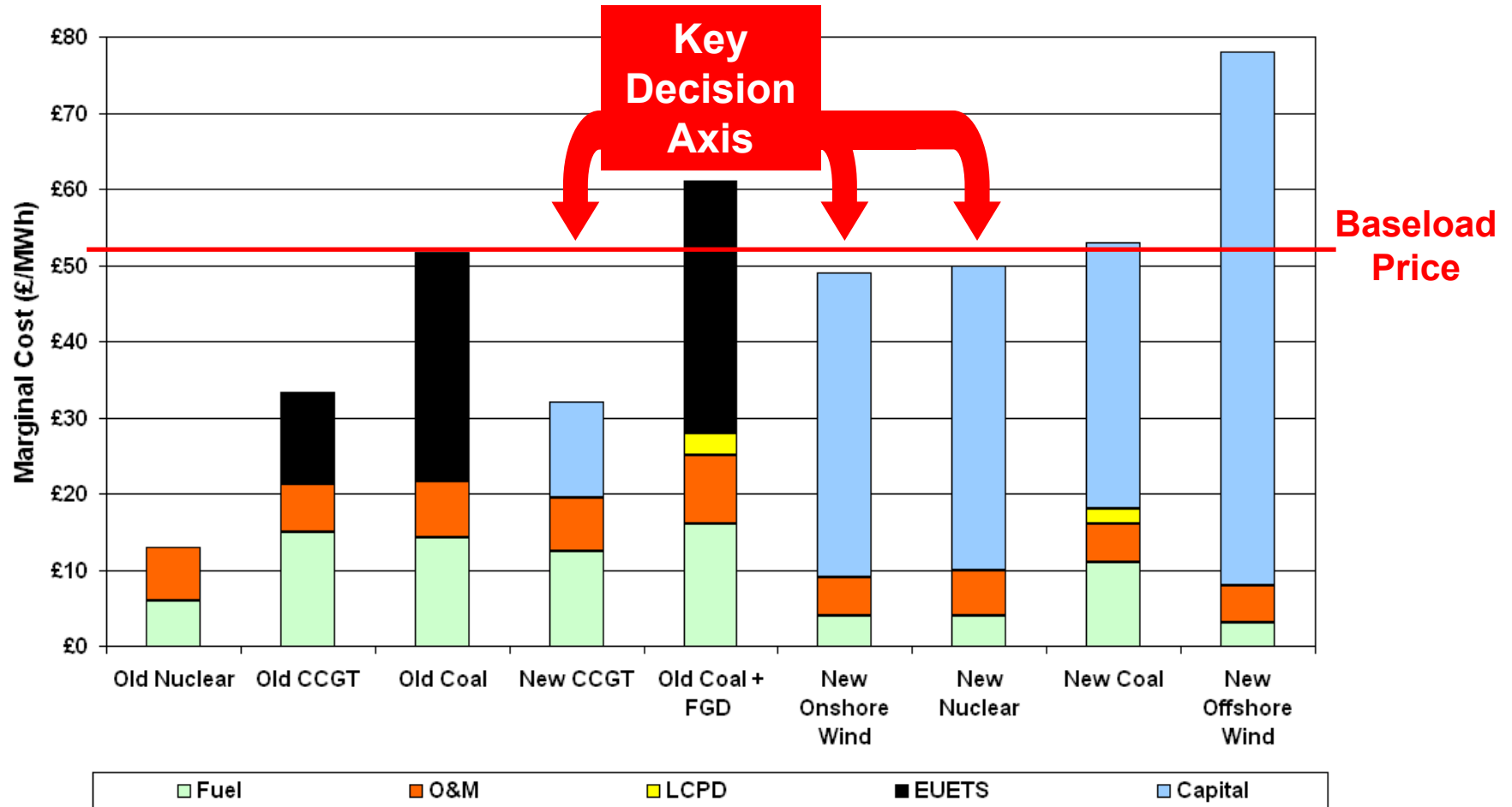


Source: Author's estimates

Decision Drivers

At EU ETS €45/MtCO₂ prices spike, dash for gas and CHP/nuclear/onshore wind interest

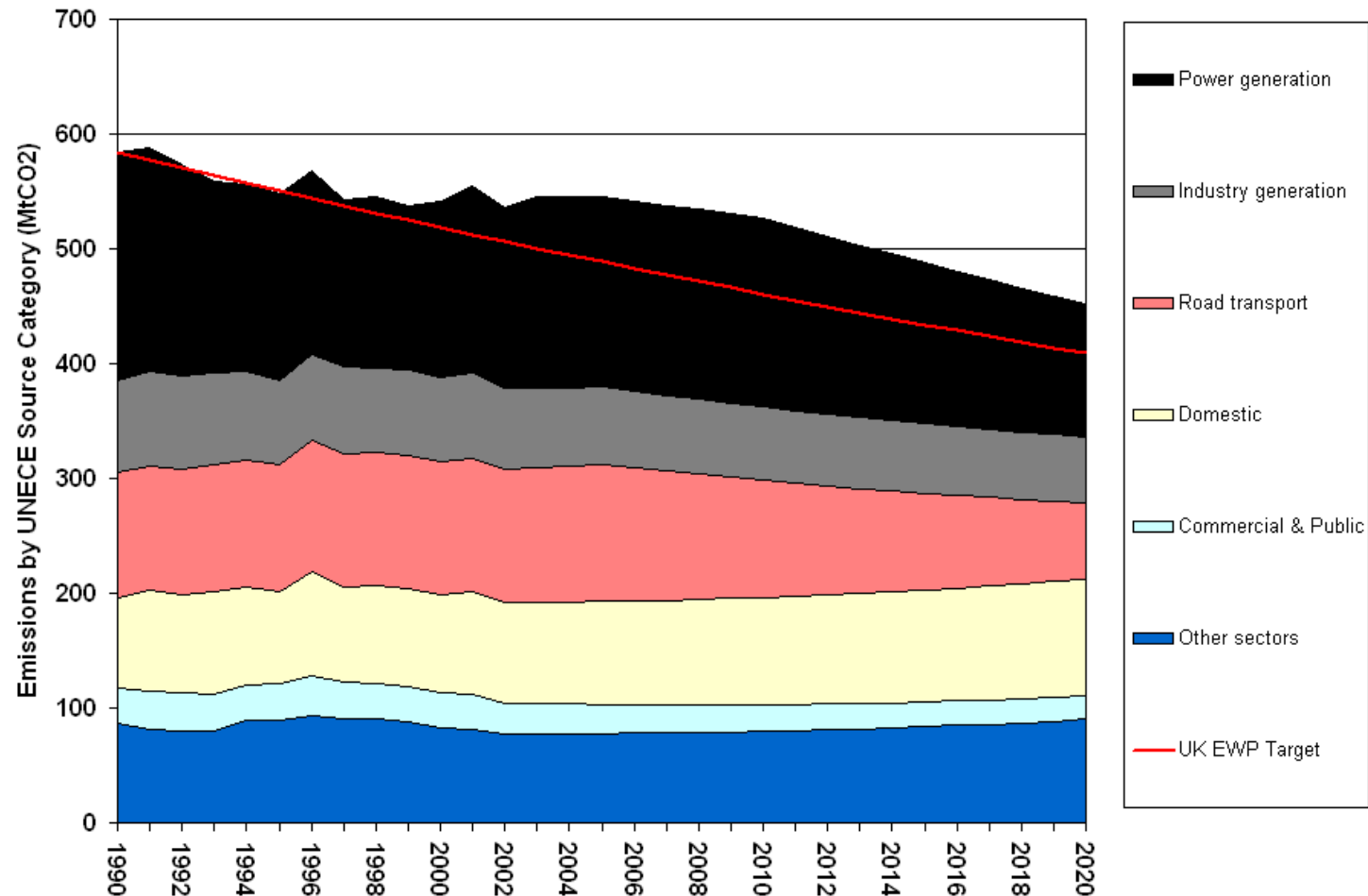
EXPECTED MAXIMUM MARGINAL COST OF GENERATION IN 2008 - 12



Source: Author's estimates

Low CO2 prices mean UK will buy JI/CDM/ETS permits and cut CO2 only 20% by 2020

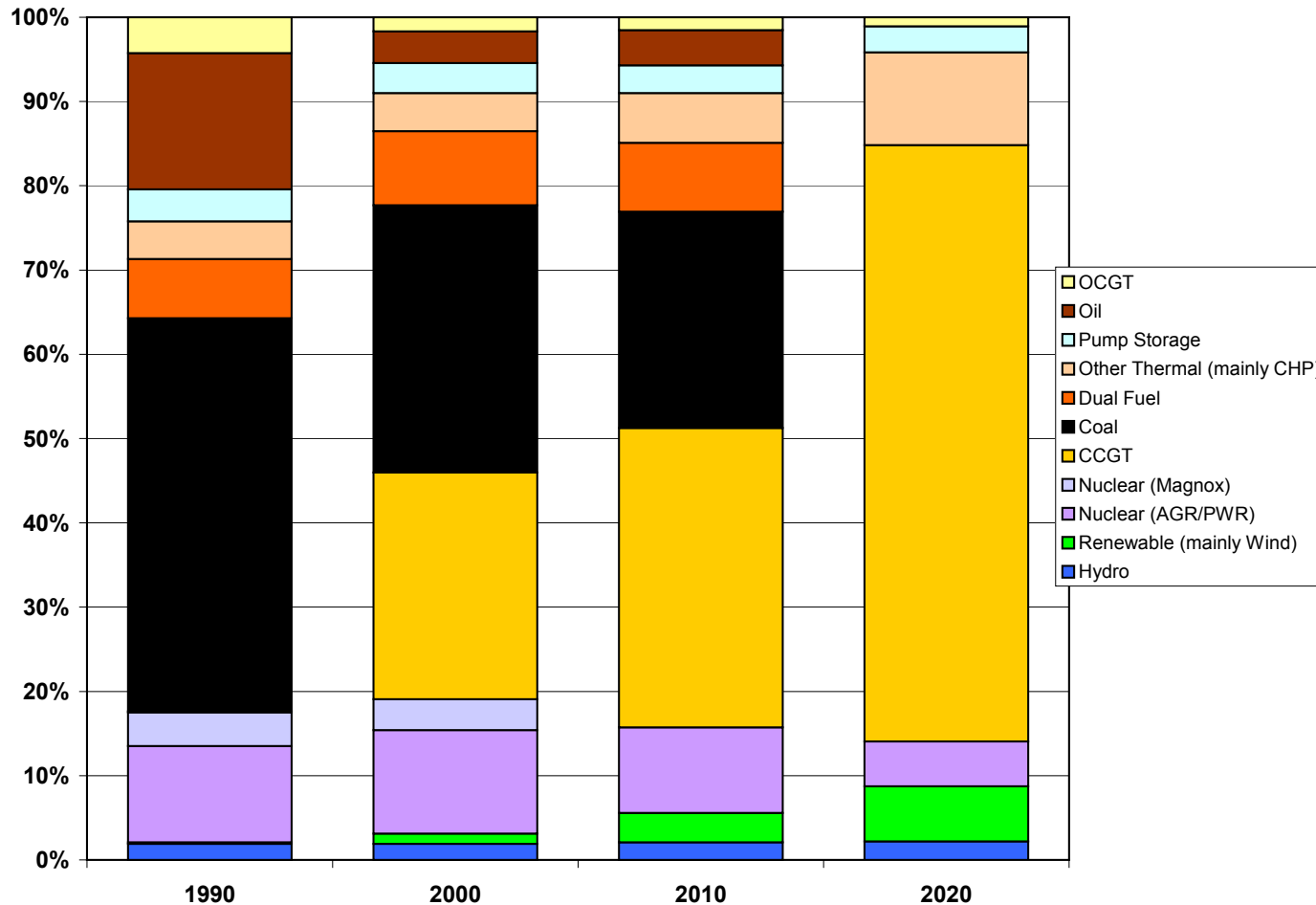
UK EMISSIONS IN A LOW EU ETS PRICE SCENARIO



Source: DEFRA data and author's estimates

Even a 20% cut will need a massive CCGT investment but price signals are not clear yet

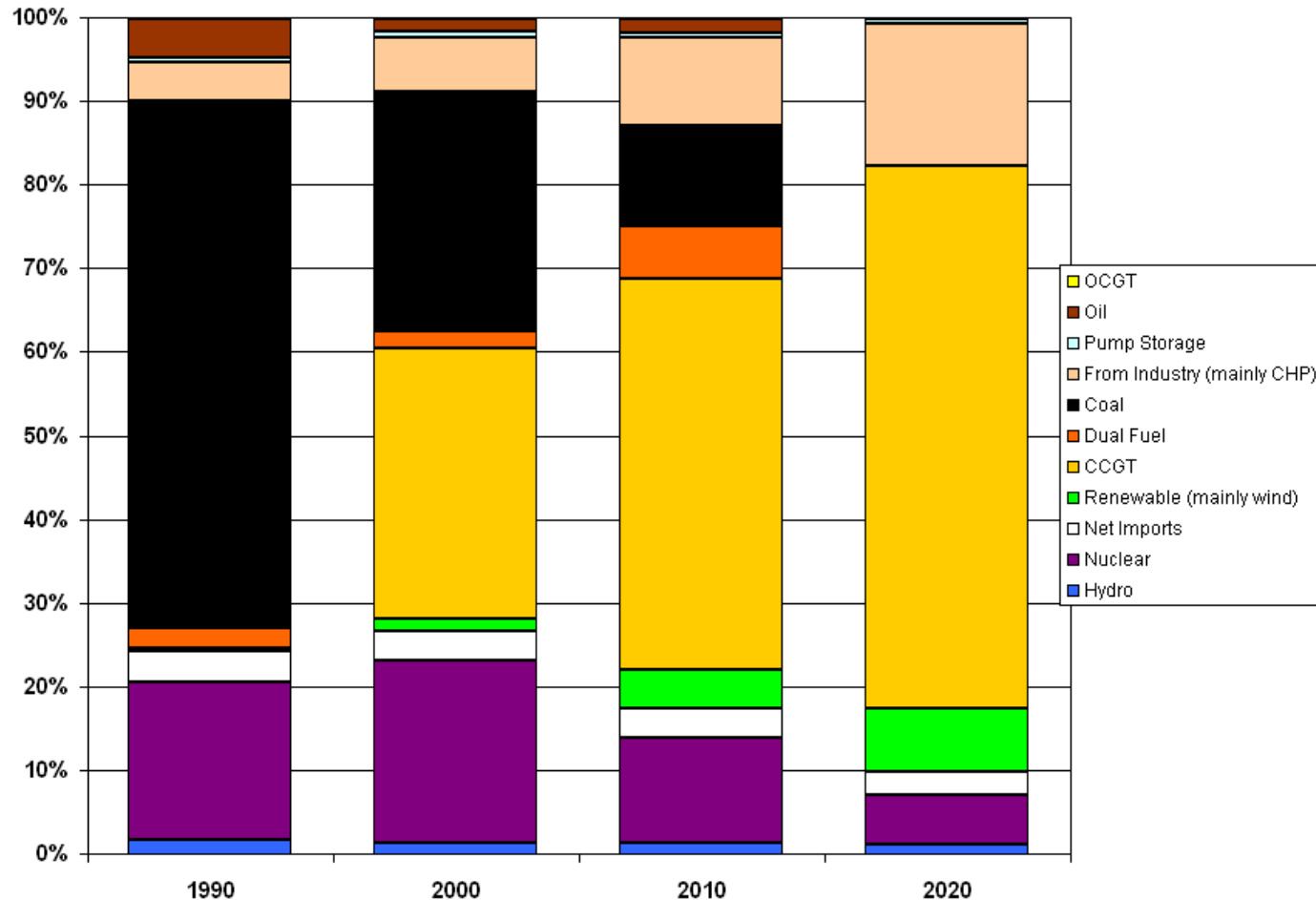
ACTUAL AND LIKELY FUTURE PLANT MIX 1990 - 2020



Source: DEFRA data and author's estimates

.... and renewable will only reach 10% of generation output but CHP will grow rapidly

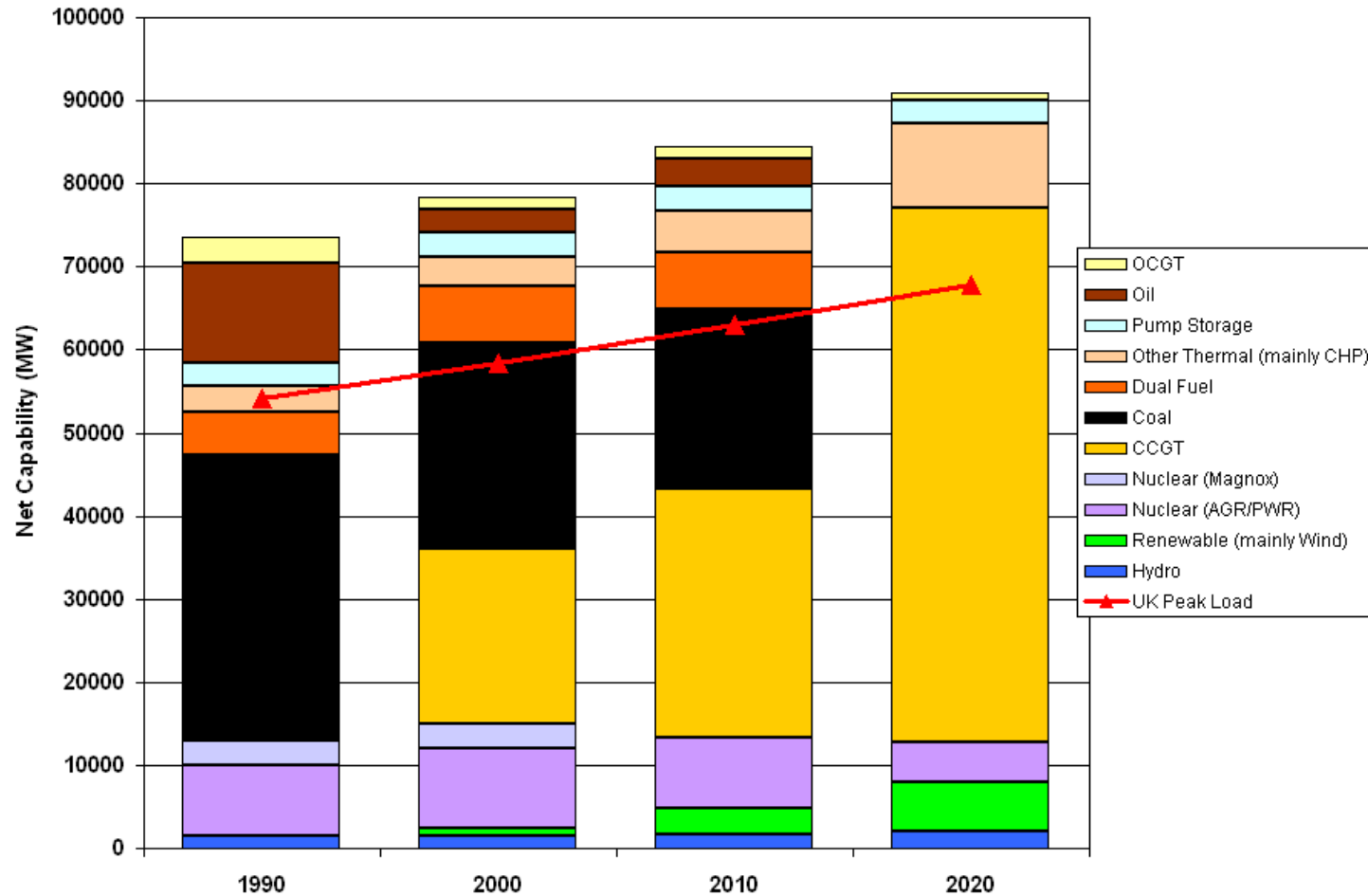
ACTUAL AND LIKELY FUTURE OUTPUT MIX 1990 - 2020



Source: DEFRA data and author's estimates

Future demand growth will offset falling CO2 emissions intensity in power sector...

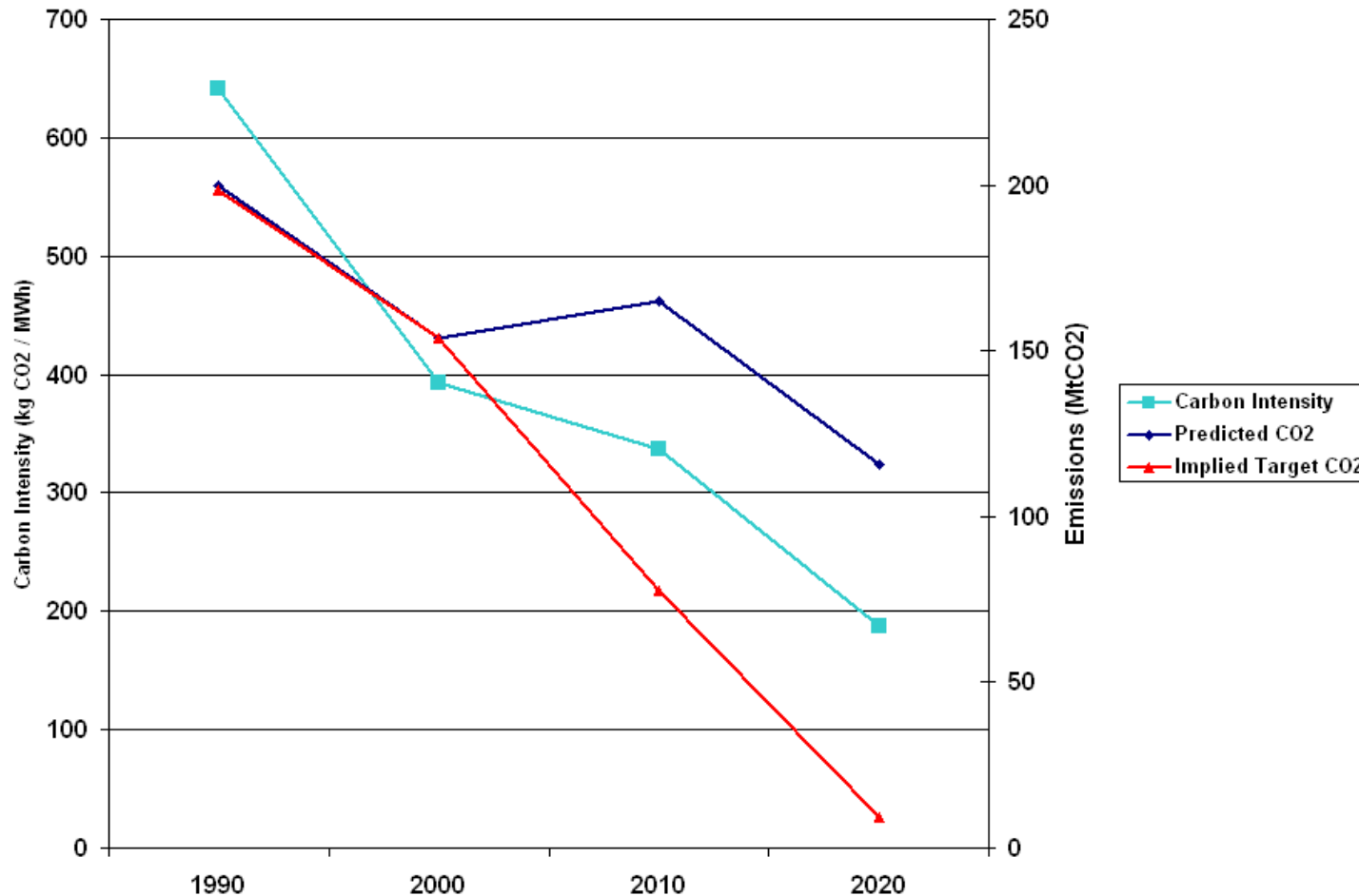
ACTUAL AND LIKELY FUTURE PLANT MIX 1990 - 2020



Source: DEFRA data and author's estimates

.... so HMG must stop pretending power generators can deliver the UK EWP at zero cost

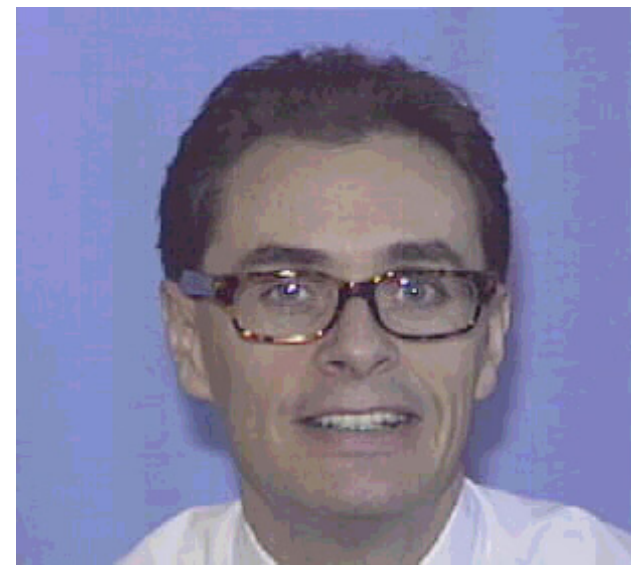
ACTUAL AND LIKELY FUTURE POWER SECTOR EMISSIONS AND INTENSITY 1990 - 2020



Source: DEFRA data and author's estimates

John Bower is a Senior Research Fellow at the Oxford Institute for Energy Studies which is an independent research charity affiliated to Oxford University and dedicated to advanced research in the social science aspects of energy. John joined OIES in November 2001 and his research interest is in the emergence and evolution of integrated cross-border electricity and gas markets. Specifically; the development of efficient pricing and investment mechanisms for energy, transmission capacity, and emissions.

Before joining the OIES, John completed his PhD at London Business School and his previous career was in the commodity industry. His experience ranges from energy trading, at Marc Rich & Co, to risk management consultancy, with Coopers & Lybrand, advising commodity traders, producers and processors in base metal, precious metal, 'softs' and energy markets. Immediately prior to his PhD he was Global Controller Metals/Commodities at Deutsche Morgan Grenfell.



Oxford Institute for Energy Studies
57 Woodstock Road
Oxford OX2 6FA
United Kingdom

Telephone: +44 (0)1865 889 125

Facsimile: +44 (0)1865 310 527

Email: john.bower@oxfordenergy.org

URL: <http://www.oxfordenergy.org>