

UK Energy Policy 1980-2010

A history and lessons to be learnt

A review to mark 30 years of the
Parliamentary Group for Energy Studies

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Cardiff University

and

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Parliamentary Group for Energy Studies

An Associate All Party Parliamentary Group

The Group was founded in 1980 to:

analyse energy supply and current demand, in consultation with industry and academia, and draw attention to current and future problems with the long lead times facing successive Governments.

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Introduction

Access to energy is fundamental for modern societies. It underpins much of our daily lives, from the buildings we live in, to the products and services that support our economy, the transport we rely on and the leisure activities we enjoy. Whilst this has always been the case, energy issues have become particularly prominent in the last ten years. The increasing evidence for anthropogenic climate change, together with concerns about the security of energy supplies, has led many governments to re-examine their energy policies – and to make significant changes. The UK is no exception. Over the past few years, policy activity has accelerated almost breathlessly, with a succession of White Papers, consultations, Acts of Parliament and new institutions.

In the midst of all this activity, it is sometimes easy to forget that to some extent, we've been here before. Whilst the current drivers of policy are different from those of the past, the focus on fundamental questions, such as where we will get our energy from, how we can use energy more efficiently and how we can protect the environment, is not new.

The aim of this short pamphlet is to take a longer term perspective on UK energy policies since 1980, the year in which the Parliamentary Group for Energy Studies was founded. Of course, the history of energy policies did not start then – but a three decade period is sufficient to place current debates in a wider context. The pamphlet will identify some key trends in the development of UK energy policies. It will also offer some reflections on what has changed (and what has not), and what lessons might be learned. It will do this by focusing on four issues.

First, it will chart the significant changes the UK has experienced in the structure of energy supply and demand since 1980. We have seen notable shifts away from coal and towards natural gas,

and a transition from net energy importer to net exporter and back again. Prices have fluctuated widely – from the highs of the period after the 1970s oil shocks to the lows of the late 1980s and then to the more recent period of rapid increases. The structure and governance of the energy industry have undergone profound change – with a much diminished role for the state and the advent of competition in industries where it was not previously thought to be practical or desirable.

Second, it will demonstrate that trends in energy policy cannot be analysed in isolation from the broader trends in politics and political philosophy that underpin successive governments. The last thirty years includes long periods in which both of the two dominant political parties have been in power – first, the Conservatives from 1979 to 1997, and then Labour from 1997 to 2010. Their approach to fundamental issues such as the role of the state, the extent to which markets are best placed to achieve social goals, and the relative importance of sustainability and security, have all had important effects on energy policies.

Third, this brief history of energy policies will show that successive governments have been faced with a difficult task of balancing multiple policy objectives and policy instruments. The key objectives include ensuring the competitiveness of the UK through low energy prices, securing sufficient reliable supplies of energy from home and abroad, addressing the environmental impacts of energy use, and dealing with the social implications of fuel poverty. This balancing act was not always possible – and trade-offs between objectives were inevitably required.

Fourth, it will show that energy policy has had a chequered history of salience over the past three decades. It was very important in the 1980s because of the dominance of state-owned firms which were chosen for flagship privatisations.

But once the sales were complete, there was a perception by many that energy markets were now to be treated like those of many other goods and services – subject to safeguards, but not in need of special attention. It is no accident that the position of energy within Whitehall was downgraded – from having its own department in 1980 to being part of a wider portfolio of one junior Minister in 1997. The advent of climate change and the return of security concerns reversed this decline. Once again, energy has a department of its own, albeit now combined with climate change.

To illustrate these issues, the remainder of the pamphlet is divided into four periods, with the title of each taken from a speech of a prominent political figure or a phrase from a key document during that period. Following the analysis within each phase, the pamphlet ends by returning to the issues set out here and offering some reflections on the challenges ahead.

Of course, the story we are seeking to tell in this pamphlet is not wholly original. We have been influenced by – and have aimed to acknowledge – the work of academic colleagues and others who have analysed some periods of this history in much more depth. Any errors of fact or interpretation remain our responsibility.¹

Rolling back the frontiers of the State,² 1980–1989

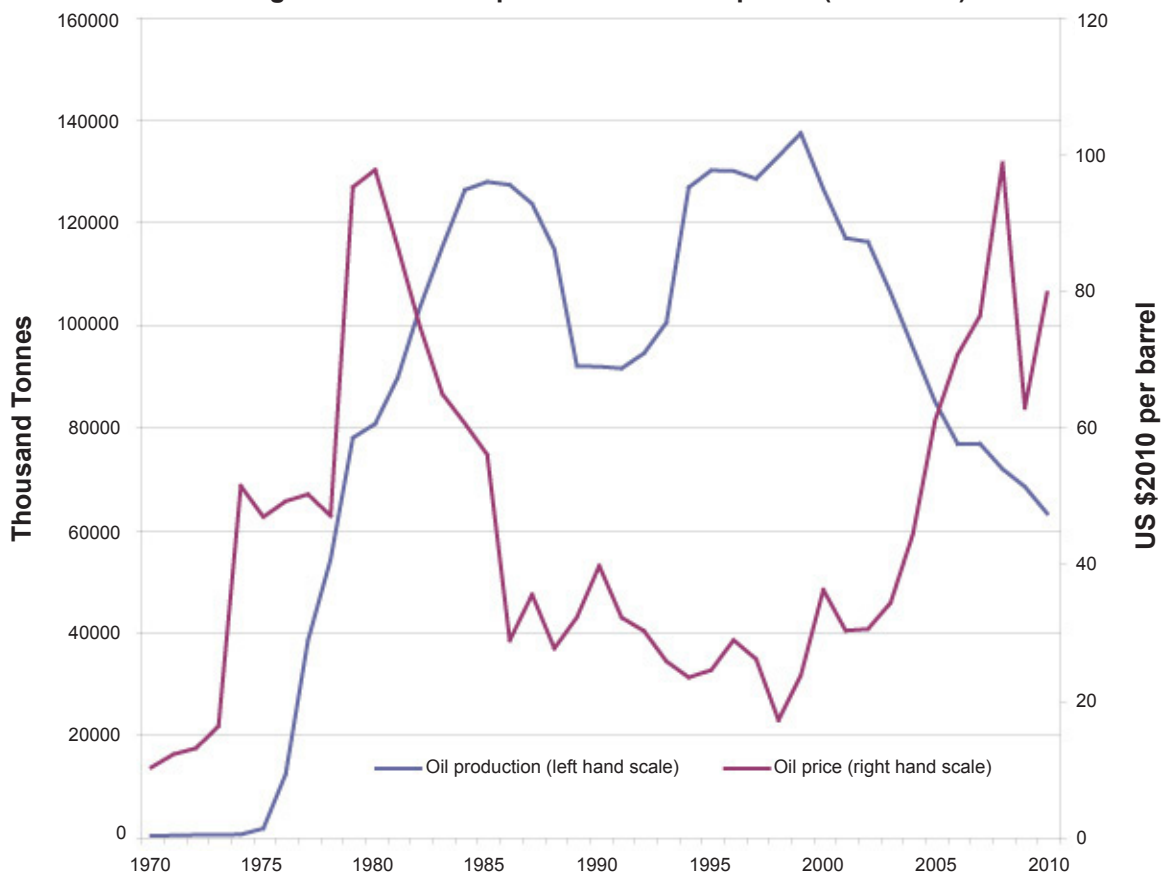
Trouble with nuclear and coal

This first phase of our history begins in the wake of two major developments. The Conservatives had just regained power in May 1979 under Prime Minister Margaret Thatcher, in the wake of widespread strikes and the 'The Winter of Discontent'. The second is the international oil price shocks of the 1970s – first in 1973/4 and again in 1979. The first oil shock had raised the status of energy policy in the UK and in governments worldwide. It led the UK government to establish the Department of Energy and the OECD states to set up the International Energy Agency. As shown in Figure 1, by 1980, crude oil

prices had risen to well over US \$30 per barrel in money-of-the-day (around \$95 in 2010 prices),³ around ten times their early 1973 value.

In December 1979, the incoming Secretary of State for energy, David Howell, announced a new nuclear power programme to Parliament. He said that supplies of North Sea oil and gas were likely to decline in the 1990s, and 'there must be continuing nuclear power station orders if our long-term energy supplies are to be secured and current industrial uncertainties are to be resolved.' The electricity industry had advised him that 'on cautious assumptions it would need to order at least one new nuclear power station

Fig. 1: UK crude oil production and oil prices (1970-2010)



Data sources:

- (i) Crude oil production: DECC spreadsheet Crude oil and petroleum products: production, imports and exports 1890–2010. <http://www.decc.gov.uk/assets/decc/11/stats/energy/energy-source/2336-crude-oil-imports-exports-1890-2010.xls>.—(Published 28/07/11).
- (ii) Crude oil prices: BP Statistical Review of World Energy 2011, Statistical Workbook – <http://www.bp.com/sectiongenericarticle800.do?categoryId=9037130&contentId=7068669>

a year in the decade from 1982, or a programme of the order of 15,000 megawatts over 10 years'. The government took this opportunity to resolve a long-running debate about UK reactor designs. The announcement signalled a move away from a medley of home-grown reactor designs in favour of the Pressurised Water Reactor (PWR), licensed from Westinghouse. The UK's National Nuclear Corporation (NNC) was to complete the remaining UK-designed Advanced Gas Cooled Reactors (AGRs) and to complete a PWR design, ready for safety scrutiny.⁴

In February 1981 the Select Committee on Energy reported on this policy change. This report was followed by a Monopolies and Mergers Commission (MMC) report on the investment decision making record of the Central Electricity Generating Board (CEGB). The Select Committee supported the cancellation of two further AGRs at Heysham and Torness and were 'unconvinced' that the CEGB and the Government had made out a solid case for such a big nuclear programme. They were joined by the MMC in criticising the CEGB's investment appraisal and demand forecasting assumptions and procedures. However, the government did not immediately change tack. Howell reaffirmed the government's commitment to nuclear power.⁵ By 1982, however, it became clear that the government was no longer committed to a 15 GW, ten-year programme. In 1983 Nigel Lawson claimed that there had never been such a programme.

The inquiry into the first PWR station planned for Sizewell in Suffolk ran for two and a quarter years. It produced a mammoth eight-volume report in December 1986 and cost more than £25 million. It did not reflect favourably on the CEGB's management of either its nuclear or its non nuclear programmes.⁶ Nevertheless, despite the major flaws in the CEGB's case and forecasts and the April 1986 Chernobyl nuclear accident, the inquiry found in favour of Sizewell B.

The government then gave the go-ahead. As it turned out, this was the only PWR constructed from the original programme. It was not commissioned until 1994. With hindsight, this experience highlights the challenges of long-term planning for energy systems. CEGB planners wrongly assumed that the future could be predicted with precision. As Dieter Helm noted, 'The Sizewell process assumed the only options were coal or nuclear, failing to anticipate the dash for gas, and that fossil fuel prices would rise not fall.'⁷

The new nuclear programme was not the only challenge for the incoming government. There were also widespread worries about high gas and electricity prices. However, it was not clear whether the UK energy industry's structure was contributing to this. In fact, some argued that the opposite was true – i.e. that prices were artificially low. Two reasons were given for this: the UK's monopoly energy industries with administered prices meant that there were no domestic market prices with which they could be compared; and arrangements between these industries, such as the 'joint understanding' between the National Coal Board (NCB) and the Central Electricity Generating Board, offered opportunities for fixed price contracts unresponsive to changing economic conditions.⁸

To tackle these issues, David Howell announced a multi-pronged programme.⁹ The first was to be greater efficiency in the nationalised industries. The second was to increase competition through new legislation. The third was to encourage investment in new energy resources using North Sea oil revenues. Howell asserted that these revenues were providing industrial and regional assistance, research support, reduced pressure on Government borrowing – and tax reliefs to industry. He observed presciently that Japanese firms were 'tearing out oil-fired or inefficient high energy-consuming systems and replacing them

with entirely new equipment', and said that if the UK did not follow suit, it would be unable to compete in the late 1980s.

The fourth prong was 'to sustain heavy investment in coal'. Howell offered a ringing endorsement of coal's prospects: 'In spite of all the immediate difficulties, my long-term confidence in the coal industry as a successful and profitable energy industry is complete.' However, this endorsement sits uneasily with the broader political battles over the future of coal that became so prominent later in the decade. Mike Parker, former Director of Economics at British Coal, argues that the government's agenda on coal was clear from their election in 1979: to break the power of the National Union of Mineworkers (and other unions) to 'hold the country to ransom'; and radically to change an inefficient public sector monopoly, through transforming the industry into a viable private enterprise.

Little progress was made in the Conservatives' first term, however. The accelerated pit closures that were announced in 1981 to meet the tough cash limits imposed on the state-owned National Coal Board (NCB), led to strike threats from the National Union of Mineworkers (NUM). The government capitulated and put the pit closures on hold.¹⁰ Once re-elected in 1983 with a big majority, and amidst a growing economic recovery, the government pursued its agenda more forcefully. To avoid repeating its earlier climbdown, the government made significant changes. Industry leaders thought to be less likely to bow to union demands were appointed, in particular Ian MacGegor at the NCB and Walter Marshall at the CEGB. Trade union laws were reformed, with curbs on secondary picketing, union balloting and the legal immunity of unions and their assets.

The 1984-85 strike by the National Union of Mineworkers, led by Arthur Scargill, proved a

watershed for the coal industry. The strike began in March 1984, after an overtime ban and against a backdrop of renewed NCB proposals for pit closures. It started without a ballot, saw a split in the union, picketing, extensive police action and violent confrontations, increasing use of oil by the CEGB and sequestration of the NUM's assets by October. After much bitterness and hardship, the strike ended by Spring 1985. Kim Howells, who had worked for the NUM and became a Labour MP, later wrote 'After a disastrous and harrowing conflict, both sets of leaders emerged more or less as convinced of their righteousness as when the year-long strike began.' He also wrote that 'the British labour movement is now reaping a bitter harvest for its reluctance since the late 1950s to come to grips with the possibility that there may be an acceptable alternative to the centrally-controlled, bureaucratic nature of ownership and management of the nation's publicly owned enterprises.'¹¹

Colin Robinson, though a strong academic proponent of the government's radical programme of liberalisation, later suggested that the miners had real grievances: the failure to realise the 'grandiose' plans laid for the industry in the mid-1970s was a key factor in their growing disillusionment. These plans included an increase in British Coal output to 135 million tonnes in 1985 and 170 million tonnes in 2000, on assumptions that Robinson dismissed as 'far-fetched'.¹² Output in 2000 turned out to be 31 million tonnes, less than a fifth of what had been planned. As Mike Parker has argued, the decline of the UK coal industry, especially its deep mines, needs to be set in a longer-term context (see Figure 2). By 1980, the industry was increasingly dependent on the demand for electricity because it had lost its market in gas production and most of its sales in the industrial and domestic markets. Furthermore, the economics of deep-mined UK coal were not favourable. Parker avers that it

was inevitable that the size of the UK industry would decline once markets were opened up to competition, irrespective of changes in demand.

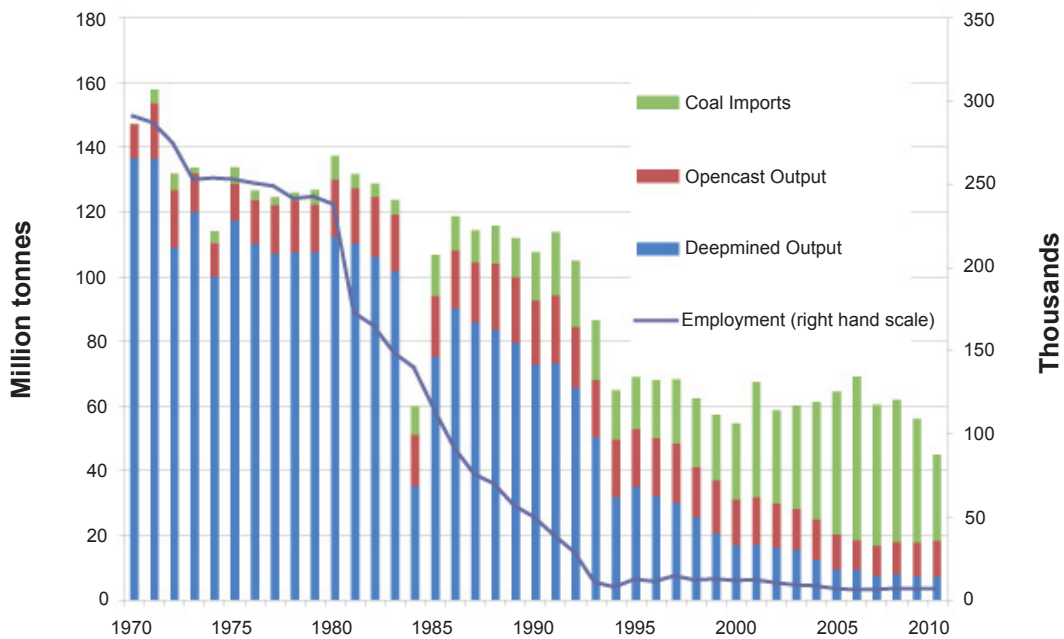
The seeds of privatisation and liberalisation

In the cabinet reshuffle of September 1981, Nigel Lawson became Secretary of State for Energy. He was a key architect and advocate of the unfolding privatisation strategy that became a centrepiece of the government’s programme. In October 1981, he made a statement on the government’s plans to legislate for the oil and gas industries. They included: the transfer of the upstream oil-producing business of the British National Oil Corporation (BNOC) to the private sector; the privatisation of the British Gas Corporation’s (BGC) offshore oil business and the disposal of its showrooms; and the abolition of BGC’s statutory rights over the purchase of gas and its sale to industry. In November 1981, he declared that ‘No industry should remain under

State ownership unless there is a positive and overwhelming case for it so doing,’ reminding MPs that in 1977 the Labour Government had sold a substantial block of shares in BP.¹³ In January 1982, he went further, stating that ‘the proper business of Government is not the government of business.’ He also laid down another plank of the privatisation process, ‘[...] I hope to see ownership of the shares in the new company [Britoil] spread as widely as possible.’¹⁴

Lawson’s speech to the British Institute of Energy Economics Cambridge conference in June 1982 is widely regarded as the most significant statement of the Conservative government’s approach to energy policy. The government’s role was not to plan energy. ‘Our task is rather to set a framework which will ensure that the market operates with a minimum of distortion and energy is produced and consumed efficiently.’ He questioned the pervasiveness of ‘natural monopoly’, until then a

Fig. 2: UK coal production, imports and employment (1970-2010)



Source: DECC spreadsheet: Historical Coal Data: Coal Production 1853 to 2010. <http://www.decc.gov.uk/assets/decc/11/stats/energy/energy-source/2331-coal-production-1853-to-2010.xls> (Published 28/07/11)

key argument for state ownership and regulation of vertically integrated energy industries with wire and pipe networks.¹⁵ He also argued strongly for competition within these industries. As Dieter Helm suggests, Lawson changed the functions of the state, assailing most of the Department of Energy's sacred cows. 'Only the faith in nuclear power survived the Lawson attack, which, given Thatcher's strong views on the subject, was probably wise.'¹⁶

Lawson's approach was founded on 'new right' ideas from Milton Friedman and Friedrich von Hayek, but carrying with them what Helm calls 'the pragmatic, market-based Conservatism which had developed from the eighteenth and nineteenth centuries.' Economists associated with the Institute of Economic Affairs had an influential role, and included Eileen Marshall and Stephen Littlechild who would later become senior figures in electricity and gas regulation.¹⁷ As proponents of Hayek's thinking, they were sympathetic to notions of 'government and bureaucratic failure' that questioned the objectivity and efficiency of government intervention aimed at addressing the 'market failures' identified by neoclassical economics. There was also an expectation that once privatisation and full competition were achieved, the regulatory role would 'naturally' wither away.

The Energy Act of 1983 was designed to put Lawson's rhetoric into practice. It received Royal Assent in May, shortly before he became Chancellor of the Exchequer and passed the energy portfolio to Peter Walker. In a move to liberalise the vertically integrated electricity supply industry, it allowed private producers to sell to the Area Boards, who were responsible for serving final consumers. It also permitted these producers access to the transmission and distribution system. Whilst this Act had little effect, and did not lead to a significant increase in private power generation, it set the scene for more radical reforms later in the decade.

Falling oil prices and gas privatisation

From the mid 1970s to the early 1980s, many thought that oil prices were on a permanent upward trajectory. This consensus influenced both national and international decision-making, from investments in oil and gas exploration in the North Sea and other areas beyond the Middle East, to research and development (R & D) into alternatives to oil, to major national initiatives like the French investment in Electricité de France's (EDF) major fleet of PWRs and the Brazilian ethanol programme.

The period of high oil prices ended in 1985-86, however. Saudi Arabia decided that instead of restricting output to help OPEC maintain prices, it would now expand production to regain market share. This triggered a rapid oil price decline (see Figure 1), from nearly \$30 in 1984 to about \$14 in 1986 in money-of-the-day. In real terms, prices had more than halved. Oil prices would then remain reasonably stable through the decade, until a brief surge to around \$24 (\$40 in 2010 prices) in 1990-91, at the time of the first Gulf War, and falls to as low as \$13 in late 1998 (\$17 in 2010 prices). These longer term trends demonstrate again how difficult it is to predict energy prices – and that received wisdoms about high or low prices can quickly be overturned. As Colin Robinson observed in 1987: '[...] the consensus contains the seeds of its own destruction. Eventually it is overwhelmed by the supply and demand movements which it helped to cause and at that stage there tends to be a sudden shock as a large adjustment is compressed in a very brief period.'¹⁸ This insight offers an enduring message to actors in energy markets and policy.

Against this background of falling oil and gas prices, the ground was prepared for the first of the big energy privatisations – that of British Gas in 1986. The gas industry had already been through

substantial change in the preceding decades. It had been dependent for more than a century and a half on town gas, processed from feedstocks of coal. This was later augmented by oil, then liquefied natural gas (LNG), first imported in 1964 from Algeria via the Canvey Island terminal. The exploitation of British North Sea supplies of natural gas in the late 1960s transformed the state-owned industry. It undertook challenging programmes to set up a new national pipeline network and refit or replace all domestic and commercial gas-using appliances.

The government at that time not only owned the Gas Council, which had the first option to buy the gas landed, it also held the licenses needed by the oil companies and had discretion over taxing their profits. It wanted rapidly to exploit the oil and gas resources, both to address the persistent balance of payments problem and to raise revenues. Long-term take-or-pay contracts between gas producers and the Gas Council transferred risk from producers to consumers. This enabled North Sea gas to develop via what Helm calls a ‘massive public private partnership.’ He comments, however, that the legacy of the contractual and pricing structure, ‘bedevilled the subsequent privatisation, and, more importantly, the introduction of competition in the second half of the 1990s.’ While Petroleum Revenue Tax (PRT) had been introduced in 1975 to tax oil companies in the North Sea, gas contracts were exempt from such taxes. Therefore, customers at first got significant benefits as a result of low prices – but these prices were initially too low to ensure that demand would not outstrip supply.

Despite its absence from the government’s 1983 election manifesto, British Gas was privatised intact in 1986 following the rapid passage of the required legislation.¹⁹ Much has been written about the struggles between Nigel Lawson and an alliance between Energy Secretary Peter Walker and the formidable British Gas Chairman,

Denis Rooke. Walker and Rooke wanted to keep British Gas as a vertically integrated transmission, distribution and retailing monopoly, while Lawson argued for a competitive, regional model. Walker and Rooke prevailed. The initial public offering valued the integrated utility at around £9 billion.

The new industry regulator would be James McKinnon, heading a small staff at the newly created Office of Gas Supply (Ofgas). The regulatory approach involved the use of a price cap to mimic competition and encourage the new private monopoly to become more efficient. This was applied to the ‘tariff sector’, which accounted for 70% of sales revenue and included all domestic and some commercial and industrial customers. The initial price cap was set to run for five years from April 1987 – and allowed prices to rise at 2% below increases in the Retail Price Index (RPI). This cap was further adjusted to allow British Gas to pass through gas purchase costs. The remaining 30% of the market, the ‘contract sector’, was to be handled via contracts and without price control, although with published maximum prices and reassurances about limits on future increases.

There were pragmatic political reasons for maintaining the monopoly. They included the desire for a successful privatisation before the next general election, which would smooth the path for future sales and encourage wider share ownership from the so-called ‘Sids’ targeted by widespread advertising. It was also feared that a disaggregated structure might bring extra risks and costs. Nevertheless the privatisation (and its ‘light-handed’ regulatory regime) was seen by many as a missed opportunity to institute more fundamental reforms from the outset. This is exemplified by the Parliamentary Select Committee on Energy inquiry conducted during the passage of the Gas Act. Despite an in-built Conservative majority, the Committee was heavily critical of the creation of a ‘powerful and ineffectually restrained monopoly.’²⁰

The Gas Act allowed competitors to supply gas to very large industrial customers, using British gas pipelines, and gave the regulator the power to set terms for use of the British Gas network if the parties could not agree them. Eileen Marshall, who later became a senior figure in Ofgem, wrote of the failure to develop competition in the contract market after privatisation:

[O]pen and equal access to the British gas pipeline network had not been established, competing suppliers did not have access to wholesale gas which was all contracted to British Gas, and British Gas' authorisation under the Gas Act 1986 did not guard against predatory pricing by British Gas.²¹

The regulator had a duty to enable effective competition in the contract market, while competition legislation meant that the Director General of Fair Trading (DGFT) now had discretion over the potentially competitive contract market to supply very large industrial loads. Within a year the DGFT had referred British gas to the MMC, after complaints from large consumers. The 1988 MMC report found that British Gas had engaged in price discrimination and had also been unwilling in some cases to supply gas on interruptible terms. It recommended measures to promote competition and was, according to Marshall, a key early milestone in developing competition. Nevertheless a 1991 Office of Fair Trading (OFT) report would question the effectiveness of these measures and recommend further measures to open up competition.

Preparing for electricity privatisation

After the 1987 election victory, Margaret Thatcher gave Cecil Parkinson the energy portfolio. With Nigel Lawson at the Treasury, they took up the next major challenge: electricity privatisation. The vertically integrated electricity supply industry was larger and more complex than British Gas (the assets of the CEBG were valued at £32

billion). The challenges included: its mix of fuels and technologies, including nuclear; its duty to maintain the security of supply of a non-storable commodity and so 'keep the lights on'; no prior experience of electricity trading, and a track record of some success in developing the national grid and the consolidation of a previously fragmented industry before nationalisation.

In contrast with the gas privatisation, the Energy Secretary and the Chancellor were now aligned. Their enthusiasm for the free market and competition was not matched, however, by that of Walter Marshall, CEBG Chairman. Committed to the monolithic CEBG and its planned, technological approach to electricity investment, he also maintained a strong belief in nuclear power. Economists argued that a competitive model would require the generating capacity to be split into at least five or six separate companies. This had the added attraction that it might limit union power in electricity and loosen the ties with the NCB and its unions: competitive pressures would limit the pass-through of coal costs. Starting with a competitive structure might also avoid some of the regulatory struggles that had become so troublesome after gas privatisation. Nuclear proponents recognised, however, that the scale, inflexibility and risks of nuclear sat more comfortably with a large integrated utility like the CEBG or EDF. By contrast the companies in a competitive market might be too small to allow a balanced portfolio of assets that included large nuclear stations. They might worry about stranded assets should oil (and gas) prices fall, about waste and decommissioning liabilities, and about the poor operating and construction records of the existing stations.

There was too the matter of the grid and its control. In the event, an independent company, the National Grid Company (NGC), was separated from the generators and owned by the regional electricity companies (RECs), the successors of

the former Area Boards. It would be responsible for an innovative market mechanism, the Pool, a spot market into which virtually all electricity would be bought and sold on a daily and half-hourly basis. This involved bidding and payment processes intended to perform three of the functions of an integrated, planned system. It should approximate efficient scheduling (as in the CEBG's 'merit order'), through prices that signalled the system marginal cost, give incentives for a margin of reserve capacity to meet demand peaks, and stimulate timely long-term investment in the system.

A March 1988 cover of the satirical magazine *Private Eye* reflected the vigorous debate and suspicions about whether the industry was being fattened up for privatisation: it pictured a smoothly smiling Cecil Parkinson, with the caption 'Cecil's Triumph' and a bubble that said, 'Higher prices mean cheaper electricity for everyone.' The 1988 White Paper, *Privatising Electricity*, proposed to split generation into two companies, National Power and PowerGen, with the former big enough to have the nuclear stations in its portfolio and the latter there to compete with it. The Electricity Act 1989 set up the legal framework. The primary duties of both the Secretary of State and the new Director General of Electricity Supply (who would be Stephen Littlechild) included securing the satisfaction

of reasonable electricity demands, duties on finance and the promotion of competition in generation and supply. The secondary duties, however, covered a spectrum of other concerns, including the protection of consumers' interests, the promotion of R & D, and the protection of the public from dangers from the industry. While both regulator and government would argue that competition promoted consumer interests, this ranking and the fact that the Act did not clearly address environmental concerns, would lead to problems later.

From July 1989, however, the proposed generation structure changed when the true scale of the CEBG's nuclear liabilities became clear – and investors balked at the idea of owning a generating company that included them. Cecil Parkinson withdrew the Magnox Stations. (John Wakeham, his successor, withdrew the rest of the nuclear assets and created Nuclear Electric and Scottish Nuclear.) The government by-passed the opportunity to promote more competition, although the justification for only two large players had gone. That left a non-competitive duopoly – a structure that would take years of regulatory and other efforts to open up. The flotation timetable prevailed because it was feared that any delay would take the process beyond the date of the next General Election and increase the risk that the plans would be derailed.²²

In search of the full disciplines of the market,²³ 1990–1996

Electricity privatisation and the 'dash for gas'

The privatisation of the electricity industry started in November 1990 with the sale of the Regional Electricity Companies. Ironically, this coincided with the resignation of Margaret Thatcher as Prime Minister – and her replacement by her Chancellor, John Major. The process of privatisation was completed in 1991, with the flotation of the NGC, the CEBG (as two separate firms: National Power and PowerGen) and two Scottish Companies (Scottish Power and Scottish Hydro-Electric). The ordinary shares in the NGC were transferred to the RECs, and initial price controls were set for NGC's transmission business and the RECs' supply and distribution businesses.²⁴ As in earlier flotations, the government retained golden shares in these companies for several years. Three nuclear companies remained in State hands: Nuclear Electric (NE) took over the English and Welsh stations and Scottish Nuclear (SN) those in Scotland. British Nuclear Fuels, would contract to handle the supply and disposal of fuel and decommissioning. At privatisation, the nuclear stations produced about one sixth of all power produced.

While the initial structure and regulatory regime in electricity was much more conducive to developing competition than in the case of gas, implementation was similarly complex and lengthy. This included much activity by the regulator, big changes in electricity company ownership and the eventual replacement of the wholesale power market (the Pool) by the New Electricity Trading Arrangements (NETA). Major investments in combined cycle gas turbine (CCGT) generation were made as European and UK legal restrictions on the use of gas in power generation were lifted. As a direct result, the UK coal industry's decline accelerated.

In 1990, British Coal had managed to enter into three-year contracts with the electricity generators at prices above those of imported coal. National Power and PowerGen were committed to buy 70 million tonnes for two years, falling to 65 million tonnes in 1992/93. They also had related contracts to sell the power generated to the RECs. The RECs passed the extra costs compared with imported coal (estimated by the regulator to be more than £2 billion) through to their captive customers. When British Coal came to renegotiate these contracts in 1992, the situation had changed.

Coal's competitive position had deteriorated, through the increased availability of imported coal and natural gas at (initially) falling prices, and the improved performance of nuclear stations. The government wished to stimulate competition in electricity. Both National Power and PowerGen had signed gas contracts for their CCGTs, in which interest had been growing in the run-up to privatisation. The RECs, wanting to limit the major players' market power, contracted for electricity from CCGTs operated by the new independent power producers (IPPs), part owned by the RECs themselves and the oil companies. The regulator, keen to encourage new company entry to promote competition, allowed the RECs to include power purchase costs from the IPPs in their regulated price caps and so, to pass them through to customers. This was a controversial decision – and was taken despite evidence that the new CCGTs could be more expensive than the plants they were replacing. By 1995, fifteen CCGTs were expected to come on stream, displacing some 20–25 million tonnes of coal as the RECs and the large incumbents made a 'dash for gas' (see Figure 5 later in this pamphlet).²⁵

More trouble for coal

Thus, in October 1992, and despite significant productivity improvements since the strike, it was announced that 31 of British Coal's remaining 50 deep mines would close within six months, with nearly 30,000 compulsory redundancies from the remaining workforce of 54,000. At the end of the 1984-85 strike, there had been 169 mines and over 220,000 employed. Within a week, in the face of political outcry, the President of the Board of Trade, Michael Heseltine, announced a moratorium on closure of 21 of the pits. Heseltine's Department, with Tim Eggar as energy minister, had become responsible for energy after the Conservative Party's re-election for a third term earlier that year. The Department of Energy had recently been abolished. By January 1993, the House of Commons Trade and Industry Select Committee (TISC) had produced its report into the closures.²⁶ The report not only made suggestions about how to ensure the industry's difficult future but also addressed energy regulation and the conduct of energy policy.

John Major's government responded in March with a White Paper on The Prospects for Coal.²⁷ It said that the coal industry must take its place in a competitive energy market, and that coal demand for electricity generation would decline significantly, not least because of competition from gas. While reiterating its intention to privatise what remained of the industry, it also said that some continued five-year contracts for coal would be offered by National Power and PowerGen. It also said that British Coal had received nearly \$18 billion in assistance between 1979 and 1992. Mike Parker notes that 'restructuring' grants and redundancy schemes had encouraged the 'voluntary' reduction of workers, without significant protests against the loss of more than 100,000 jobs between 1985 and 1990. He also suggests that even without the dash for gas, and had there been a free market in imported coal

instead, it is doubtful whether the output of deep-mined coal would have been any bigger, partly because investment in replacement capacity had appeared uneconomic from the mid-1980s.

Dieter Helm notes that for coal (and later, nuclear), and in contrast with gas and electricity, the task was not to privatise the whole industry but to privatise as much as financially possible, keeping the remainder for the state and the taxpayer. British Coal's outstanding debt was written off. Under the Coal Industry Act 1984, liabilities for subsidence were transferred to the Coal Authority, whilst health liabilities remained with the government. The Authority also owned the UK's coal reserves and had other regulatory and non-commercial duties. RJB Mining (which was to become UK Coal plc in 2001) emerged as the dominant bidder for the operation of the English mines, with others taking up pits in Wales and Scotland. Parker notes that the profits of RJB mining depended mostly on the price premiums (against imported coal) embedded in the inherited contracts.

The 1993 coal White Paper devoted a chapter to a review of the government's energy policy. In wording that would broadly recur in later governments' policy statements, the aim was 'to ensure secure, diverse and sustainable supplies of energy in the forms that people want, and at competitive prices,' and it was emphasised that competitive markets were the best means of ensuring this. The review declared that 'Government should not attempt to impose all-embracing plans about how much energy of what kind should be produced or consumed by whom,' asserting that such plans were doomed to failure.

An explicit element of the policy, however, was 'to have full regard to the impact of the energy sector on the environment including taking measures to meet the government's international

commitments.' The White Paper acknowledged that the burning of fossil fuels in power stations was a major source of harmful emissions and that in the longer term environmental concerns were likely to constrain coal burning in the UK.

In 1988, after 5 years of resistance, the UK had finally and reluctantly accepted the targets of the EC's Large Combustion Plant Directive (LCPD), aimed at addressing national and trans-boundary environmental damage from acid deposition. This required challenging and potentially costly phased reductions of sulphur and nitrogen oxide emissions (SO_x and NO_x) from fossil fuels, with significant implications for coal-fired power plants. In striking contrast, in the same year, Margaret Thatcher spoke to the Royal Society on climate change and by 1990 her government produced the White Paper, *This Common Inheritance*. It acknowledged climate change as a major global challenge and endorsed the use of economic instruments to address pollution. Whilst it took a long time for this acknowledgement of the science to give way to action, there has been a growing acceptance by successive UK and European governments of the need to use energy policy as the principal means of addressing greenhouse gases – including a gradual return to co-ordination and planning.

In the month that saw the coal White Paper's publication, the March 1993 Budget set a timetable for VAT to be imposed for the first time on domestic energy. It was to be applied at 8% from April 1994, rising to the standard 17.5% a year later. The Chancellor introduced the measure as an economic instrument of environmental policy that would send a price signal for greater energy efficiency, consistent with the UK's signing of the UN Framework Convention on Climate Change (UNFCCC) at Rio in June 1992. The main motivation, however, was to raise revenues that would rise to £3 billion per year, to allay growing

concerns about the financial sustainability of the public sector deficit. Although the tax would have some effect on energy use and hence emissions, it was criticised because it taxed energy use rather than carbon emissions. Some commentators saw it as less efficient than an EU wide carbon tax which was the subject of significant policy attention at the time.

The main controversy, however, was about the impacts of VAT on poorer households: simulations at the Institute of Fiscal Studies showed that they would bear the brunt of the induced cuts in energy spending.²⁸ After widespread public concern, as well as protests in Parliament, by December 1994 the government abandoned the second stage rise of 9.5%, suggesting that the revenue would be found through extra taxes on alcohol and road fuel. This episode was to bring to the fore concerns about affordability and energy prices that would recur later, and also foreshadowed the much more targeted protests over fuel duty that would climax in September 2000 with blockades of oil refineries and distribution centres.

UK policy was also influenced at this time by other European Union environmental policy measures than the LCPD. From 1993, all new petrol-engined cars sold in the UK were fitted with three-way vehicle exhaust catalytic converters (VECs), to comply with European Commission Stage I limits on emissions of the regulated pollutants: carbon monoxide, hydrocarbons, and oxides of nitrogen. This also meant the growing demise of leaded petrol, which poisons catalysts, a demise hastened by differential tax rates on leaded and unleaded petrol. A cost benefit analysis of the introduction of VECs, found that the estimated health benefits (net of costs) of this regulatory measure would grow to as much as £2 billion by 2005.²⁹

Extending competition in electricity and gas

Meanwhile, there were ongoing efforts to improve competition in both electricity and gas. A 1993 MMC report made major recommendations about the separation of British Gas' trading business from its transportation and storage business, and the removal of the British Gas supply monopoly. The government instead decided to rely on Ofgas to impose regulatory separation, leading to a decision by British Gas to 'demerge' in 1997. This created two companies: Centrica for gas trading and retail, and Transco which owned and operated the pipeline network. The Gas Act 1995 had provided for the opening up of the domestic market to competition, which was completed in May 1998. Marshall cites a 1999 National Audit Office (NAO) report that suggested that the benefits to consumers of domestic gas competition were around £1 billion per year.³⁰ An NAO report in 2001 that reached a similar conclusion about the opening up of retail electricity markets from 1998 to 1999 was, however, severely criticised by Gordon MacKerron, on the grounds that it overstated benefits and omitted significant 'transaction costs' experienced by consumers in making their choices.³¹ As noted in the next phase of this pamphlet, the claim that competition has been the primary driver of benefits for consumers has been contested by those that highlight the primary influence of regulation.

In the nuclear industry, Nuclear Electric (NE) faced financial challenges because it owned eight Magnox stations (one of which had closed) and 5 AGRs, including the poorest performers. The Fossil Fuel Levy, effectively a 'nuclear tax', was authorised by the Electricity Act 1989. It was to provide funds to meet liabilities for reprocessing and waste management. It would also, however, help NE's cash flow and enable the costs to be passed directly to consumers rather than in the first instance to the Treasury. To make this work, the RECs faced a Non Fossil Fuel Obligation

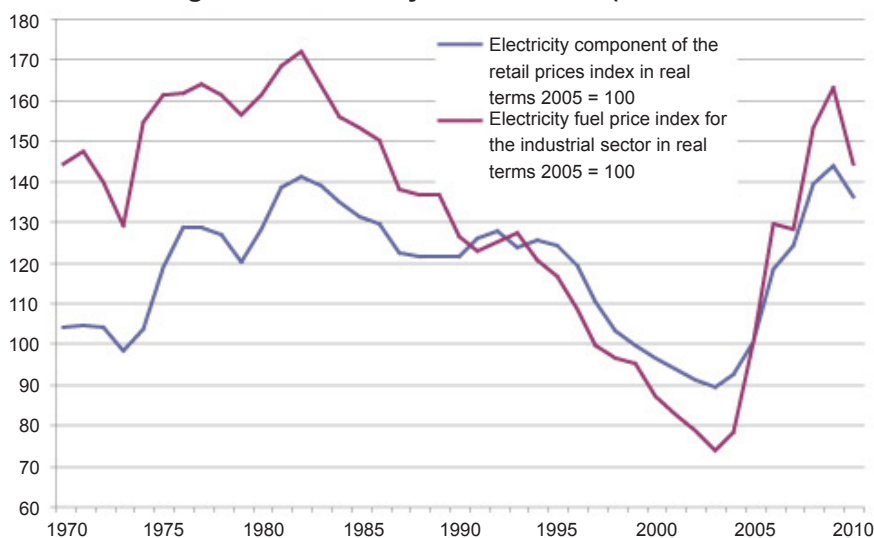
(NFFO) which meant they had to source a fixed percentage of their power from non-fossil sources. In practice, most of this Obligation was met by purchasing nuclear power, with some of it being fulfilled through purchasing renewable electricity. Gordon MacKerron has argued that despite the rapidly improving technical and financial performance of the AGRs, NE received £6.6 billion from the Levy in the period to March 1995, but made profits of only £1.55 billion.³²

In May 1995, the government published its long-promised review: *The Prospects for Nuclear Power in the UK*.³³ In phrases that addressed both environmental and energy security objectives, it said it could find 'no evidence to support the view that new nuclear build is needed in the near future on emissions abatement grounds', and no 'reasons why the electricity market should not of its own accord provide an appropriate level of diversity'. Nor was there evidence that new nuclear stations were commercially attractive. They were unlikely to be built with private sector finance (NE had earlier indicated that it would not invest without public support) and government intervention to support new build was not justified. While a forthcoming flotation in 1996 would see the privatisation of most of the nuclear generating capacity, the Magnox stations, burdened with over £7 billion of estimated net liabilities, would remain in public ownership (and would be eventually transferred to British Nuclear Fuels (BNFL) in 1998). The seven AGRs and the now operating Sizewell B PWR and some of their liabilities were privatised in July 1996 as British Energy (BE). The performance of the company's assets would improve significantly, and it would also undertake contracts in the US, as well as less successful hedging forays into coal generation and electricity supply. When electricity prices fell by the end of the decade, however, it would face severe financial problems.

The electricity privatisation process included the phased opening up of competition in supply. The RECs' licenses provided for this, such that customers with a maximum demand of more than 1 MW, accounting for around one third of total demand, could choose their suppliers from 1990. Those with maximum demands between 100 kW and 1 MW were able to choose from April 1994. The achievement of this target involved a challenging development of IT and other elements needed for the switching processes, and took over a year to complete. About two fifths of the 1 MW customers switched on market opening, while around a quarter of the 100 kW to 1 MW customers switched supplier when they were able to do so in 1994. The licenses later allowed domestic and small consumers to choose their supplier from April 1998. As shown in Figure 3, this liberalisation process occurred against a backdrop of steadily falling electricity prices. As the later phase of this history will note, the extent to which liberalisation drove price reductions continued to be hotly debated.

At the margins of this liberalisation process, energy efficiency began to receive more attention following a long period of neglect. Energy efficiency obligations on electricity and gas utilities were introduced, which were summed up by analyst Nick Eyre as 'very little, very late.'³⁴ In the case of gas, an 'E factor' in the regulatory formula was introduced by James MacKinnon in 1991 which was designed to direct up to £50m into energy efficiency programmes.³⁵ This was administered by a new body, the Energy Saving Trust, established in 1992. The E factor was the subject of significant controversy and was opposed by MacKinnon's successor, Clare Spottiswoode, on the grounds that it had regressive effects on poorer consumers. Because of this, its impact was much smaller than planned – generating just £2m. Her counterpart at the head of OFFER, Stephen Littlechild, took a different view – and implemented energy efficiency standards of performance (EESOP) for suppliers, which ran from 1994 to 1998 and generated £100m.

Fig. 3: UK Electricity Price Indexes (1970-2010)



Data Source: DECC spreadsheet: Historical electricity data: 1920 to 2010
<http://www.decc.gov.uk/assets/decc/11/stats/energy/energy-source/2332-historical-electricity-data-1920-to-2010.xls> (Published 28/07/11)

In addition to the focus on competition to supply final consumers, there was a continuing debate about competition in electricity generation. While the new CCGTs, mostly commissioned by the RECs, weakened some of National Power and Powergen's market power, they and the nuclear plants tended to run as baseload. This left the big two with much of the plant to meet daily and seasonal peaks and consequent opportunities to set prices in the spot market, thus raising concerns about Pool prices and attracting the regulator's attention. In February 1994, following an Offer investigation, National Power and Powergen agreed to divest a total of 6 GW of plant, which were sold to a newly established rival, Eastern Group. The prices at which they could bid into the Pool were also capped. Despite these changes, significant concerns remained about Pool prices and the passing-through of benefits from liberalisation to suppliers and customers. Eileen Marshall has suggested that the history of Pool prices in the 1990s bears out the absence of a 'simple direct link between aggregate measures of market concentration and the strength of competition.'³⁶

By the end of this phase of UK energy policy, most of the assets of the major energy industries had been moved into private ownership. There had also been substantial efforts, particularly by the gas and electricity regulators, to promote liberalisation. Exposure to the market had also shone an unflattering light on the hitherto obscured costs of coal and nuclear power, while oil prices had fallen from their earlier peaks. Coal, the industry that in 1913 had employed well over a million people and exported to the world, had imploded, through a complex mix of politics, economics and the legacies of past decisions and non-decisions. A new technology, the CCGT, had diffused with remarkable speed and with positive environmental consequences. European environmental legislation and the agreement of a new UN Framework Convention on Climate Change (UNFCCC) in Rio in 1992 had set the scene for more intimate relations between energy policy and environmental policy.

Secure, diverse and sustainable,³⁷ 1997–2002

Making liberalisation work better?

The new Labour government was elected in May 1997, with an agenda for reform following consultations in Opposition. In his first speech after the election, the new Energy Minister John Battle MP set out the main principles of Labour's approach to energy policy. In hindsight, these turned out to be a very accurate description of the government's priorities for the following few years. He emphasised the new government's 'commitment to competition and determination to ensure that the unbundling of costs does not hit hardest those least able to pay.'³⁸ He also made a point of highlighting the government's 'commitment to tackling our environmental objectives.'

In essence, the first term of the Labour government was concerned with making liberalisation work 'better', with a particular emphasis on how it could better serve social objectives. One of the government's first acts was to impose a windfall tax on the privatised utilities. This had been called for following evidence that they were making large profits – perhaps not surprising, as in many cases they faced minimal competition and risk of losing market share. Furthermore, there was a media campaign against so-called 'Fat Cat' Directors of these companies, who were receiving large increases in their pay and bonuses. The windfall tax raised £5.2bn in all, and the proceeds were used to fund the Welfare to Work programme, which was mainly designed to tackle youth unemployment.

This focus on the more social dimensions of energy policy also led to the introduction of Winter Fuel Payments for those over 60. These were initially low, but were quickly increased in subsequent years. They started at £20 per person in winter 1997/98, with a higher rate of £50 being paid to those on low incomes. In addition, the Labour government's first budget reduced the rate of VAT on domestic fuel bills to 5%.

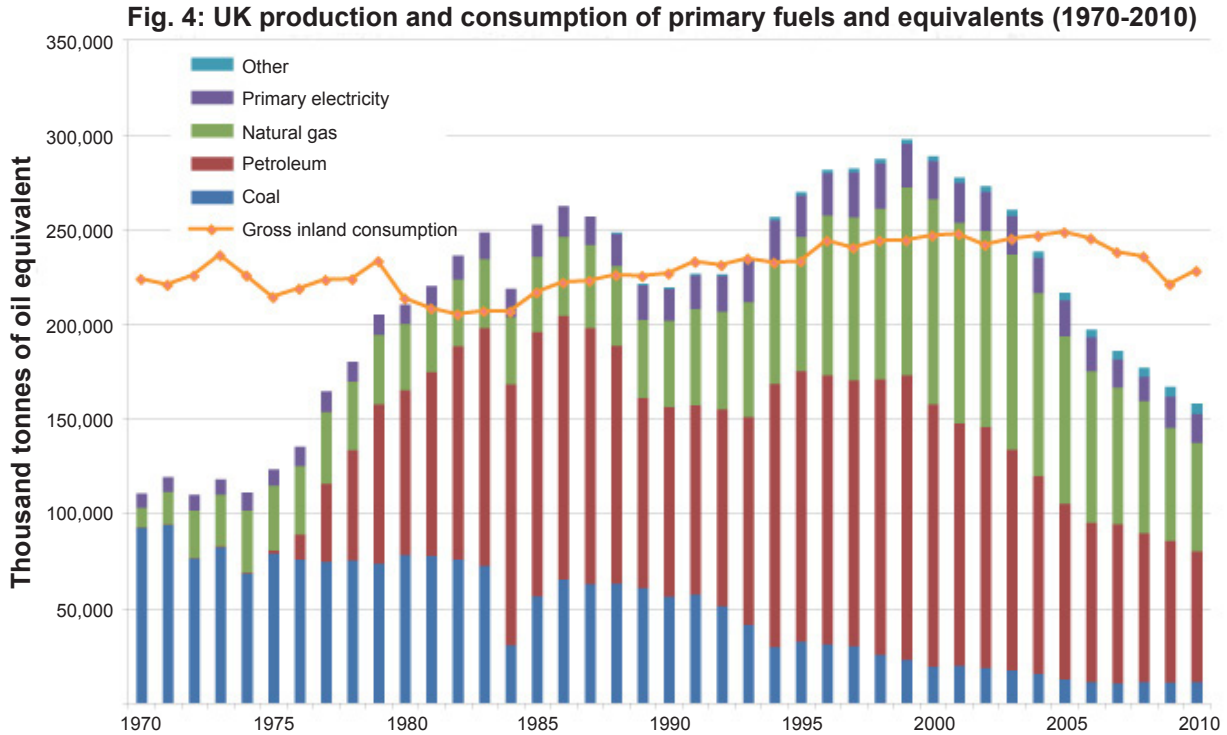
The politics of coal were a further early priority for the new government. Whilst the coal industry was now a shadow of its former self, the Labour Party's association with mining communities remained strong. The dash for gas showed no signs of slowing down. By 1997, around 15GW of gas-fired combined cycle gas turbine capacity was in operation. In just six years, the share of gas-fired power had increased from zero to 27% of electricity generation, largely at the expense of coal. This prompted the government to launch a Review of Energy Sources for Power Generation.

The timing of this Review is interesting. Whilst it was launched in response to a particular set of worries about UK energy security (i.e. the diversity of sources of electricity generation), UK energy security by some other measures was relatively strong. For example, domestic oil production in the North Sea increased throughout the 1990s, reaching a peak of 137 million tonnes in 1999 (see Figure 4). The UK remained a net exporter of crude oil during this period – and only rejoined the club of oil importing countries in 2005. Similarly, domestic gas production had risen to the point where the UK became a net exporter in 1997.

At the launch of the White Paper that set out the conclusions of the Review, the Secretary of State for Trade and Industry Peter Mandelson MP said:

I am convinced that competitive markets are the best way of stimulating efficiency in industry, of providing consumers with real choice and bringing down prices. They are the cornerstone of our approach to energy and power generation.³⁹

The central message was clear: that there would be a continuing strong commitment to the liberalisation agenda. However, the White Paper's conclusions were more wide-ranging than originally intended. With respect to the initial focus



Data source: Digest of United Kingdom Energy Statistics Table 1.1.2: Availability and consumption of primary fuels and equivalents (energy supplied basis), 1970 to 2010.

http://www.decc.gov.uk/assets/decc/statistics/source/total/dukes1_1_2.xls (Published 28/07/11)

Note: 'Other' includes solar and geothermal heat, solid renewable sources (wood, waste, etc) and gaseous renewable sources (landfill gas, sewage gas) from 1988.

on gas-fired power, the White Paper argued that 'it is necessary to put in place a stricter consents policy in order to protect diversity and security of supply.'⁴⁰ This policy had already been adopted as an interim measure, and meant that some gas-fired power projects were refused permission under Section 36 of the Electricity Act 1989. However, it was also made clear that plants designed to deliver both heat and electricity would be viewed more favourably. Furthermore, a strong signal was given that this measure was temporary – and would only apply 'in the interim while the [electricity market] reform programme is underway.'

The White Paper also confirmed that the government was convinced of the need for

further electricity market reforms. Despite the arrival of new entrants in the dash for gas, the older coal-fired plants that tended to set prices in the wholesale market remained in the hands of two incumbent utilities – National Power and Powergen. The White Paper proposed that each of them be asked to divest at least 4GW of this plant in return for consent for their acquisition of some of the RECs. Furthermore, the government and the regulators initiated a review of the wholesale market.

In 1999, the Director General of Gas and Electricity supply published a report on prices in the Pool and concluded that the current trading arrangements facilitated the exercise of market power. The Utilities Act of 2000⁴¹ was a response

to this – and was the new government’s first major energy legislation. It eventually led to the introduction of the New Electricity Trading Arrangements in 2001. Unlike The Pool, this reformed market, known as NETA, was voluntary and was more closely modelled on conventional commodity markets such as that for oil. The Act also included many other provisions – including several focusing on the environment (see below), changes in the regulation of the gas and electricity industries, and the formation of new consumer bodies. The regulators for electricity and gas had already been merged in 1999 to form a new body: Ofgem.

In 1988 and 1989, the process of liberalisation – at least as originally envisaged – was completed. All retail consumers of electricity and gas were progressively allowed to choose their supplier. Switching away from incumbent suppliers accelerated. In May 1999, the process was complete for electricity – and all 25 million household electricity consumers were able to choose supplier. In its announcement that this milestone had been achieved, the regulator OFFER stated that 1.5 million of these consumers had already switched suppliers. Full gas liberalisation was achieved more quickly – with full competition for all 21 million household consumers completed by April 1998. By April 1999, around 20% of these consumers had switched away from British Gas to an alternative supplier.

Retail prices for most classes of consumer continued to fall as full liberalisation was completed. Average household electricity bills fell by 15-17% in real terms between 1990/91 and 1997/98 (see Figure 3 in the previous section of this pamphlet).⁴² The impact of liberalisation on these falls remained a key area of debate. Whilst there were claims that the falls in retail prices were the result of liberalisation, a closer analysis revealed a more complex picture. Steve Thomas pointed to the contribution made from steep

falls in regulated charges for transmission and distribution. These falls were due to the impact of stronger regulation rather than competition. Other contributory factors were a fall in the price of coal (and hence, coal-fired generation) as the post-privatisation contracts with British Coal and its successors expired, and a large reduction in the Fossil Fuel Levy. Following the implementation of NETA and plant divestment by the two incumbent fossil generators, further falls in wholesale prices occurred after 1998 – but they were only partly passed through to final consumers.

Enter the environment

During this period, the environment received progressively more attention in energy policy. Whilst it was not yet a central driver of policy, environmental concerns were taken increasingly seriously. The dash for gas that had caused the new government to worry about the impact on coal had significant (though unintended) advantages from an environmental point of view.⁴³ As early as 1995, it was clear that large falls in overall SO₂ and CO₂ emissions – which were primarily due to falls in the electricity sector – had been achieved. This suggested that CO₂ emissions in 2000 would be below the UK’s 1990 baseline, even without the effects of the 1994 Climate Change Programme.

This shift in performance had already prompted the former Conservative environment secretary to proclaim that the UK was no longer the ‘Dirty Man of Europe’. Interviewed in the run-up to the 1997 General Election, John Gummer argued that this was not an accidental outcome but the result of a deliberate policy to reduce emissions:

[W]e have stopped subsidising fossil fuel. Now, that was a tremendously tough thing to do. We very nearly lost the Government because of that. Yet, Germany is still subsidising fossil fuels. The United States and Canada are still subsidising fossil fuels. We have made that

huge change at enormous political damage to ourselves, because we believed it was right ... [Germany] didn't have a dash for gas because the [German] Government did not stop its wicked – in my view – subsidy to the coal industry but [it] moved to a situation in which energy – cleaner energy – was used. That was Government action. And, Germany is the only country that has got anywhere near us.⁴⁴

Whilst this statement does not reflect the whole picture – particularly the fact that the dash for gas was an outcome of privatisation and liberalisation – it demonstrates how the UK's efforts to be seen as a leader on climate change issues date back at least a decade. Coincidentally, the UK was given a new target for reducing greenhouse gas emissions in 1997 due to the signing of the Kyoto Protocol to the UN Framework Convention on Climate Change. The new Deputy Prime Minister John Prescott was acknowledged to have played a crucial role in the 11th hour negotiations to agree specific targets for all industrialised countries. The EU came away from the Kyoto conference with an overall target of an 8% reduction in greenhouse gas emissions by 2008–2012 when compared to 1990. Within this, the UK was given a national target of a 12.5% reduction in emissions within the same period.

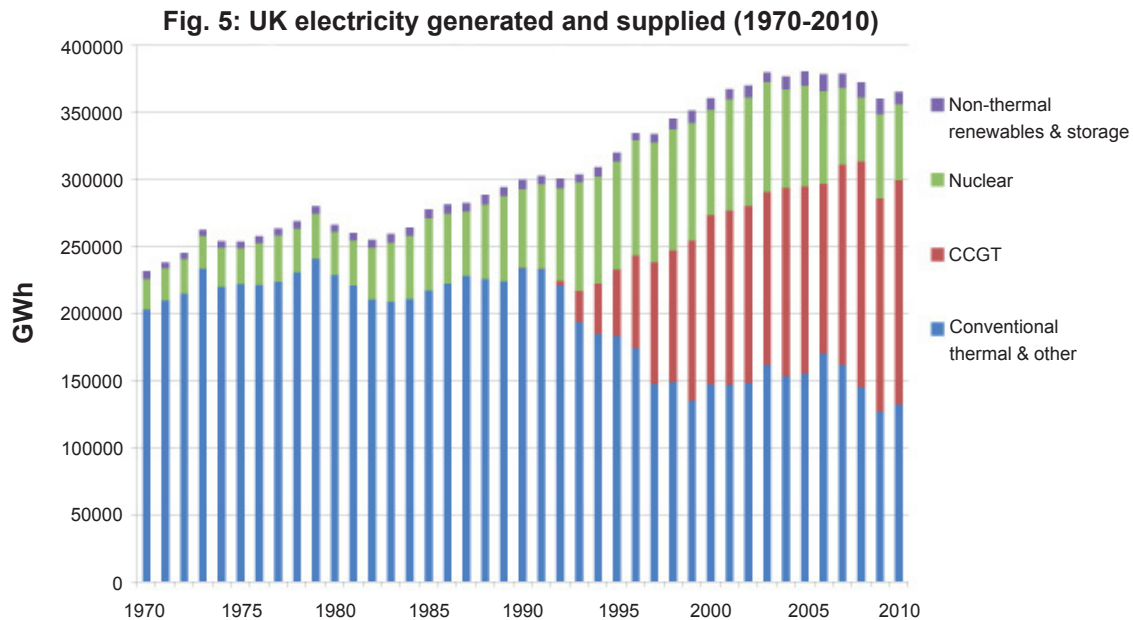
The Blair government was not content simply to reap the serendipitous benefits of the 'dash for gas' in reducing emissions, although it can be argued that the ease with which CO₂, sulphur and nitrogen emission targets were met encouraged some complacency. An early commitment was made by the new government to shift taxation from 'goods' like labour to 'bads' such as pollution.⁴⁵ Against this background, Gordon Brown's first budget increased the fuel duty escalator from 5% to 6%. The escalator was first introduced by Norman Lamont in 1993, and initially meant that

road fuel taxes would rise by 3% above inflation each year. His second budget in 1998 announced a review of business energy taxation led by Lord Marshall. The recommendations eventually led to the implementation of the Climate Change Levy on businesses in April 2001, which was offset by a reduction in National Insurance contributions. Some of the proceeds were used to set up a new body – the Carbon Trust – which was founded to help businesses reduce their emissions.

Whilst these developments represented a serious attempt to internalise the environmental costs of energy use, implementation was not trouble free. The fuel duty escalator in particular was subject to a serious challenge in September 2000.⁴⁶ The combination of rising taxation and a rapid increase in the underlying oil price from \$10 per barrel in late 1998 to \$33 in September 2000 led to a blockade of oil refineries by truck drivers. These fuel protests shut six of the UK's eight refineries in two days, and led to the closure of half of the country's petrol stations. The knock-on effects in areas such as food availability were also rapid and serious. The fuel duty escalator was subsequently frozen for several years as a result.

The climate change levy also attracted criticism on the grounds that it did not properly tax the carbon content of fuels, and that it let many industries off lightly through voluntary agreements in exchange for hefty cuts in the amount they had to pay. Reflecting on progress with environmental taxation in 2005, the Environmental Audit Committee concluded that the 1997–2001 period had seen 'considerable progress' in realising the goals of environmental tax reform.⁴⁷ However, the impact of the fuel protests led the Committee to give a much less positive assessment of progress in the period after 2001.

Environmental measures were also prominent in the Utility Act of 2000. Whilst the Act had



Data source: Digest of United Kingdom Energy Statistics Table 5.1.3: Electricity generated and supplied, 1970 to 2010. http://www.decc.gov.uk/assets/decc/statistics/source/electricity/dukes5_1_3.xls (Published 28/07/11)

a major focus on energy market reform, it also sought to bridge the economic and environmental dimensions of energy policy. It introduced a new mechanism which allowed the Secretary of State to issue social and environmental guidance to the energy regulator from time to time. This guidance was first issued in November 2002. The aim was to put pressure on the regulator to include these considerations more explicitly in decisions. However, results were mixed, and the regulator continued to focus on its primary duty to protect the interests of consumers. This duty was interpreted narrowly, and led to a continuing focus on prices and competition rather than any wider 'social issues'. It was only in the late 2000s (see later section of this pamphlet), following a more comprehensive overhaul of Ofgem's duties, that environmental issues moved towards the centre of Ofgem's decision making.

The Utilities Act also enabled a new financial mechanism for renewable energy to replace the Non Fossil Fuel Obligation (NFFO) and Fossil Fuel

Levy. Whilst the NFFO had been in place since 1990, it had not led to a rapid deployment of renewable energy. As noted earlier, this was partly because it was originally designed to support nuclear power. Over the period in which the NFFO was in place (1990–2002), the Fossil Fuel Levy provided £800m of support to renewables and £7.8bn to nuclear power.⁴⁸ Renewable electricity generation grew very slowly – from 2% to 3% of the UK total during this period (see Figure 5). The Utilities Act introduced the Renewables Obligation, which was a more market-based incentive, based on 'green certificates'. The theory was that this market would ensure compliance with a steadily increasing target for renewables at the lowest overall cost. However, as experience would show, it was also far from successful in practice.

Energy efficiency policy was a third environmental focus within the Utilities Act. The standards of performance, established in 1994, were continued following the formation of Ofgem under the leadership of Callum McCarthy.

These developments laid the foundation for a significantly expanded programme known as the Energy Efficiency Commitment, under the Utilities Act. Its first phase ran from 2002 to 2005 and obliged energy suppliers to achieve 62TWh of energy savings in their customers' homes (the equivalent of a 1% reduction in household CO₂ emissions each year). The actual savings in this phase exceeded the target. 86TWh of savings were made through energy efficient lighting, appliances, insulation and heating.⁴⁹

Perhaps the most important environmental policy development during this period did not originate from government at all. In 2000, the Royal Commission on Environmental Pollution (RCEP) released a new report: *Energy – The Changing Climate*.⁵⁰ In what would prove a very influential conclusion, it said that UK carbon emissions should fall by 60% from current levels by 2050. The number was carefully chosen, and reflected the Commission's view that the UK should reduce emissions in a way that was consistent with global action to stabilise CO₂ concentrations at 550 parts per million (ppm).⁵¹ Their reading of the climate science at the time was that this upper limit was necessary to avoid the worst impacts

of climate change. Subsequent developments in climate science have suggested that a much lower limit is necessary to avoid them.⁵²

The Commission's report had a rapid and significant impact on UK energy policy. Tony Blair set up a semi-autonomous team in the Cabinet Office Performance and Innovation Unit (PIU) to review energy policy in 2001. One of the remits of this 'Energy Review' was to analyse how the RCEP's recommendation of a 60% reduction in emissions by 2050 could be realised.⁵³ The report of the Energy Review, published in 2002,⁵⁴ placed most emphasis on the environmental dimension of energy policy – specifically the need to reform policy so that the UK would be able to achieve the cuts in emissions recommended by the RCEP. It also downplayed energy security risks, and concluded that any international security threats would be best tackled by strengthening international energy markets. As the next phase of our history will show, the PIU's report was only the next step in a policy process that was to lead eventually to one of the most radical pieces of environmental legislation in the world.

Back on the agenda with a vengeance,⁵⁵ 2003–2010

Responding to climate change

The Energy Review's emphasis on climate change as the primary driver of future energy policies was taken up directly in the government's response: the energy White Paper of 2003. It endorsed the RCEP's emissions reduction target for 2050. Furthermore, it sent a strong signal about the priority strategies for moving towards this target:

In reducing carbon dioxide emissions, our priority is to strengthen the contribution of energy efficiency and renewable energy sources. This white paper sets out the policies we believe are necessary to achieve that. They mean energy efficiency and renewables will have to achieve far more in the next 20 years than they have until now.⁵⁶

By contrast, the possible contribution of nuclear power was played down. The White Paper stated that: 'its current economics make it an unattractive option for new, carbon-free generating capacity and there are also important issues of nuclear waste to be resolved'. This lack of support for nuclear power came on top of the near-bankruptcy of nuclear generating company British Energy in late 2002. Faced by a drop in revenue due to low power prices, British Energy was only saved by a government bail out.

The White Paper also announced that 'we will continue to support relevant research projects' in new carbon capture and storage (CCS) technologies that could remove the majority of carbon dioxide from fossil fuel power stations. This signalled that these technologies were not seen as centrally important in the short to medium term.

Despite the apparent coherence of the White Paper – and its endorsement of the key conclusions of both the Energy Review and the Royal Commission report – it soon became clear that policy remained in flux. Because it was mainly concerned with establishing the

principle that emissions reduction was now the key energy policy challenge, the White Paper left many detailed questions unresolved. It did not say enough about what combinations of policies would deliver increasing emissions reductions over time. In addition, its conclusions on nuclear power were not popular in some quarters. This led to an intensive effort by some in the energy industry and key figures such as the government's Chief Scientific Advisor David King⁵⁷ to convince the government to take a more pro-active stance.

It was not long before energy policy began to shift ground again. This was partly due to a change in attitude to nuclear power, and partly because it was felt by some in government that the 2003 White Paper's relatively relaxed approach to energy security was misplaced. Soon after his re-election for a historic third term, Prime Minister Blair made a speech to the CBI in November 2005. In it, he confirmed a significant change of direction with respect to overall strategy, and the position of nuclear power:

The issue back on the agenda with a vengeance is energy policy. Round the world you can sense feverish re-thinking. Energy prices have risen. Energy supply is under threat. Climate change is producing a sense of urgency. I can today announce that we have established a review of the UK's progress against the medium and long-term Energy White Paper goals ... It will include specifically the issue of whether we facilitate the development of a new generation of nuclear power stations. Next year too, building on Britain's Kyoto commitments, we will publish proposals on energy policy.⁵⁸

The new review of energy policy started work immediately, and produced a consultation document in January 2006 – a very short period of time. Unlike the Cabinet Office review

that preceded the energy White Paper, the 2005/06 version did not include extensive public consultation.⁵⁹ Indeed, it became very controversial when the Prime Minister gave a second speech to the CBI in May 2006 which appeared to pre-empt the outcome of the statutory consultation process. He emphasised that nuclear power would now be positively encouraged. This pre-emptive strategy backfired, however. Following the publication of the review's conclusions as *The Energy Challenge*⁶⁰ two months later, Greenpeace successfully took the government to court on the grounds that the consultation had not been thorough enough. A further period of consultation followed – though it was made very clear that this would not alter the final outcome.

In parallel with the new Energy Review, the government was also seeking to take a leading role with respect to the international climate change agenda. In July 2005, the Chancellor Gordon Brown had commissioned Sir Nicholas Stern to lead a review of the economics of climate change. This was driven by the need to build an economic case for climate change mitigation to reinforce the increasingly strong scientific arguments for action coming from bodies such as the Intergovernmental Panel on Climate Change.

The lengthy final Stern Report described climate change as 'the greatest and widest-ranging market failure ever seen',⁶¹ and argued that 'the benefits of strong, early action on climate change outweigh the costs.' The report made international headlines, and was subsequently used to galvanise governments and businesses around the world to act. There were, however, many critics of Stern's methods and conclusions. Dieter Helm argued that Stern's conclusions were likely to be over-optimistic on the costs of mitigation because of the simplifications used in the economic modelling work for the

review.⁶² Others such as Paul Baer and Clive Spash criticised Stern's reliance on cost benefit analysis and environmental valuation techniques that are subject to very large uncertainties.⁶³ The Stern team responded vigorously to their critics. Despite these areas of controversy, the central message that early climate change action makes economic sense had a powerful impact on the debate.

The 2007 White Paper: energy security returns

As trailed by Prime Minister Blair's CBI speech in November 2005, energy security had now joined climate change mitigation at the top of the energy policy agenda. This was not only due to a perception that the 2003 White Paper did not treat energy security seriously. It was also because of a collection of factors that had pushed security up the agenda. The fuel protests of 2001 and the electricity blackouts that affected Europe and North America in summer 2003 are just two examples. But perhaps the biggest psychological impact came from the UK's return to the group of energy importing nations in 2004 following two decades as a net exporter. This came at the same time as fossil fuel prices started to rise after 15 years at relatively low levels (see Figure 1).

It was therefore not surprising that the new energy White Paper of 2007 started with a chapter entitled 'Climate and energy security – A global challenge.'⁶⁴ But within this, the policy approach to security remained firmly market-led. There were pledges to work towards more open markets in the European Union, and to improve transparency beyond the EU. Energy market liberalisation at the EU level had, however, been a work in progress since the early 1980s.⁶⁵ Furthermore, experience had shown that other Member States did not always share the UK's enthusiasm for the liberalisation agenda despite much activity to reinforce this by the European Commission.

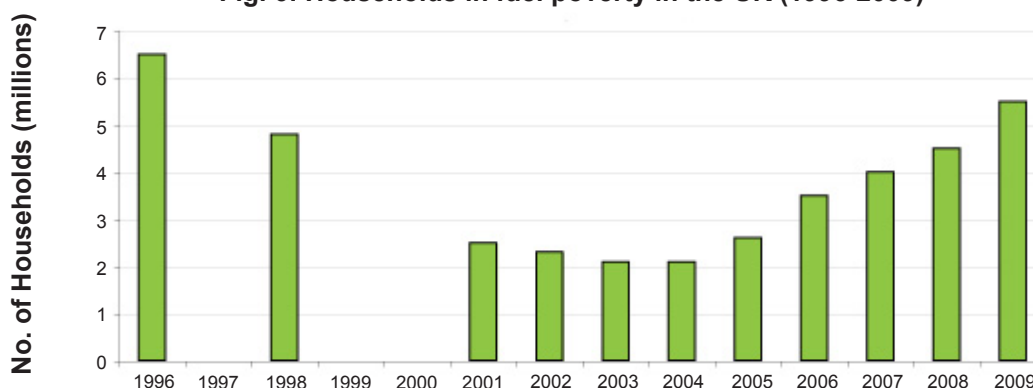
As with the 2003 White Paper, energy efficiency was given a lot of emphasis in 2007. It included detailed discussions of measures to ‘save energy’ in households, businesses and the transport sector. These included more ambitious plans for utility actions to reduce consumption in households and a new emissions trading scheme for small organisations not covered by the main EU emissions trading scheme (see below). In both the 2003 and 2007 White Papers, transport was given its own chapter – but still seemed semi-detached from the main energy policy agenda. Indeed, it continued to be overseen by its own government Department. Domestic UK action remained almost solely focused on fuel and vehicle taxes. Policies beyond this (e.g. standards for vehicle efficiency) were left for the EU as a whole to deal with.

At the time the 2007 White Paper was published, action to promote renewables had also been the focus of attention in EU energy policy discussions. In March 2007, EU leaders agreed a set of policy targets which included a binding commitment to source 20% of the EU’s energy from renewables by 2030. This had not yet been translated into

national targets (the UK’s was subsequently set at 15%). But it was clear that a rapid increase from the UK’s poor position of less than 2% renewables would be required. Despite this, the White Paper argued that ‘significant progress’ had been made in renewables deployment. The share of renewable electricity had begun to rise significantly after years of near-stagnation. Reforms of the Renewables Obligation were mooted to take into account the differences in costs and technical readiness between renewable sources. However, calls by many for a switch to the feed in tariff policies in operation in many other countries were resisted. Catherine Mitchell was scathing about this decision, calling the analysis that supported it ‘poor in the extreme.’⁶⁶

As previously trailed by the Prime Minister, these strategies were joined by a shift in position on nuclear power, with the White Paper stating that ‘the Government’s preliminary view is that it is in the public interest to give the private sector the option of investing in new nuclear power stations.’⁶⁷ This rather careful language was due to the previous legal challenge by Greenpeace which meant that yet another consultation

Fig. 6: Households in fuel poverty in the UK (1996-2009)



Data source: FPAG Annual reports; DECC statistical press release to announce the publication of the Annual Report on Fuel Poverty Statistics 2011 (14th July 2011).
<http://www.decc.gov.uk/assets/decc/Statistics/fuelpoverty/2203-pn062.pdf>
Please note: Data for 1997, 1999 and 2000 is not available.

was launched alongside the White Paper that specifically addressed nuclear new build.

In addition, the new White Paper announced that the UK was going to take the next step with respect to the emerging field of CCS technologies. A competition to build the UK's first full-scale demonstration project for CCS was announced. This concluded a long battle between the Department of Trade and Industry and the Treasury to commit funding to demonstrations of cleaner fossil power plant technologies: a battle which dated back years, if not decades. The White Paper makes clear that the rationale for this demonstration was at least partly international. The breathtaking rate of construction of Chinese coal-fired power stations was hitting the headlines. The prospect that the UK might use this demonstration to persuade China to follow suit may therefore have helped overcome Treasury resistance.

Energy prices continued to rise throughout the 2000s, with oil prices hitting a high of \$147 per barrel in summer 2008. One of the more immediate impacts was an increase in fuel poverty (see Figure 6). In England, the number of households spending more than 10% of their income on energy rose from 1.2 million in 2004 to 4.6 million in 2010.⁶⁸ This steep rise occurred despite the existence of a policy target to eradicate fuel poverty by 2016, which had been adopted in the 2001 Fuel Poverty Strategy. Significant investments in energy efficiency through schemes such as Warm Front were insufficient to counter the impact of such large fuel price rises. The House of Commons Environment, Food and Rural Affairs Select Committee criticised the 'weaknesses' in the overall policy response, and argued that a more strategic approach was needed which focused on energy prices, incomes of fuel poor households and more action on energy efficiency.⁶⁹

Achieving carbon reductions: from principles to a plan

Despite the reframing of energy policy heralded by the 2007 White Paper, climate change mitigation continued to drive much of the agenda for the rest of the decade. In the years since 2007, there has been an increasing emphasis on detailed policy implementation. As has already been noted, some of this has stemmed from a series of EU agreements in March 2007. In addition to the ambitious renewable energy target, EU leaders agreed to a 20% reduction in emissions from 1990 levels by 2020. They also committed to making more progress in promoting energy efficiency.

These new agreements did not start from a blank sheet of paper, however. They were agreed in addition to a strong continuing commitment to the EU emissions trading scheme which had been in operation since January 2005. This scheme was regarded by many as the centrepiece of climate policy. This included the UK government which had pioneered carbon trading in a pilot national scheme from 2002. The EU scheme was mandatory for power stations and other large emitters which accounted for around 45% of total carbon dioxide emissions. Crucially, it put a price on each tonne emitted, and therefore (in theory at least) gave companies an economic incentive to reduce their emissions. The first phase of the scheme which ran from 2005 to 2008 was subject to considerable criticism: free allowances led to windfall profits in the power sector of some EU countries.⁷⁰ Prices were low and volatile, leading to questions about its effectiveness as driver of low carbon investment. In the 2007 White Paper, the UK government echoed some of these shortcomings and proposed a tighter cap for the second phase of the scheme (2008 to 2012) and the use of permit auctioning.

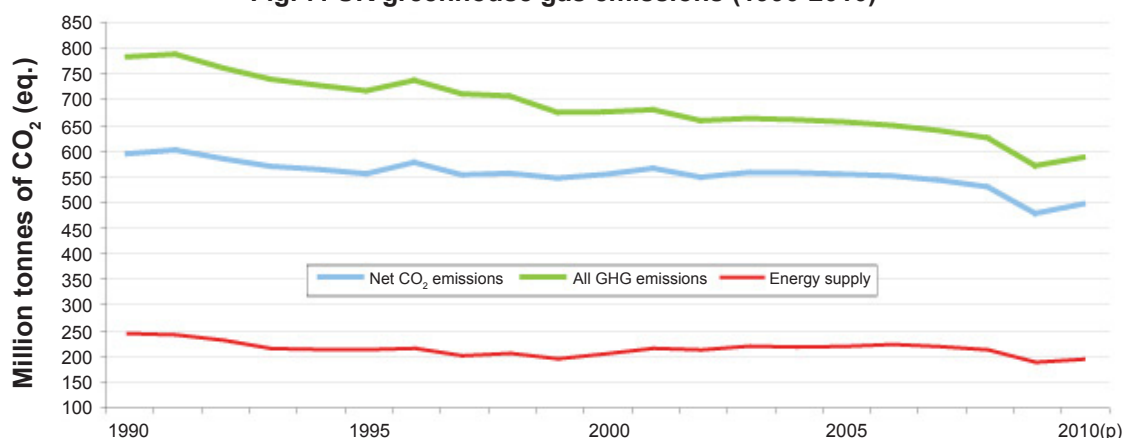
This record of concerted EU action on the climate change agenda contrasts sharply with the experience with respect to energy security. The EU failed to implement a co-ordinated response to the impacts of Russia's repeated disputes with neighbouring states over gas supplies. Despite some very serious impacts on several EU Member States due to the 2009 dispute between Russia and Ukraine, the European Commission's response was criticised as ineffective.⁷¹ The UK was not directly affected, though price effects clearly fed through via interconnected markets. Despite being a net gas importer, increasing investment in a range of pipeline routes and LNG terminals meant that the UK had access to a diverse range of sources and supply routes which other Member States did not enjoy.

In the UK itself, energy policy continued to be dominated by the need to respond to climate change. In the wake of the Stern Review, the Labour government was under pressure from other Parties to do more to reduce UK emissions. The rapid falls in emissions of the 1990s had begun

to run out of steam. In 2006, the Conservative Party and a coalition of other organisations started to campaign for a new climate change legislation. This would commit the UK to annual targets for emissions reductions, backed up by an Independent Climate Change Commission which was likened to the Bank of England's Monetary Policy Committee.⁷² David Cameron had become Conservative leader in late 2005 and was keen to establish the green credentials of his party.

There was a consequent political race by all parties to be seen as the most serious about climate change. The Labour government published a Draft Climate Change Bill in March 2007. When it became an Act of Parliament in 2008, this new legislative framework put in place many of the campaign's original demands. Targets were present – though averaged as five-year 'carbon budgets' – and the independent Climate Change Committee was established to advise government on the level of these budgets. The original long-term emissions reduction target from the Royal Commission was written into the

Fig. 7: UK greenhouse gas emissions (1990-2010)



Data source: DECC 2010 Provisional GHG Emissions Statistical Tables
http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/2010_prov/2010_prov.aspx
 (Published 31/03/2011)

Draft Bill. But this was strengthened to become an 80% reduction in emissions by 2050 in the final Act. Following the recommendations of the Climate Change Committee, a more politically demanding target for 2020 was also adopted – a cut of at least 34% from 1990 levels.

In tandem with the Climate Change Act, energy policy was once again given its own government department. The Department of Energy and Climate Change (DECC) was created in October 2008 as part of a major Cabinet reshuffle by new Prime Minister Gordon Brown. DECC brought together policy functions covering energy supply from the Department of Business, Enterprise and Regulatory Reform with functions covering environmental policy and energy demand from the Department of the Environment, Food and Rural Affairs. A close ally of Prime Minister Brown, Ed Miliband (later to succeed Brown as leader of the Labour Party), was appointed as DECC's first Secretary of State.

A further round of policy activity followed, largely driven by the need to respond to the Climate Change Committee's recommendations for the first three carbon budgets which would run from 2008 to 2022. The UK Low Carbon Transition Plan was published alongside an avalanche of supporting papers and strategies in July 2009.⁷³ This provided a much more detailed picture than either the 2003 or the 2007 White Papers about what measures would be used to reduce UK emissions to 2020. Ed Miliband placed particular emphasis on what he called the 'trinity' of low carbon energy supply options: nuclear power, renewables and carbon capture and storage.⁷⁴ It was no accident that these options (or groups of options in the case of renewables) were mainly focused on electricity generation. A new received wisdom had started to take hold within government and many other institutions that the most plausible way to meet ambitious climate targets would be through low carbon electricity.

Electricity generation could be 'decarbonised' first, thereby allowing low carbon electricity to be used for transport and heating. If successful, this strategy would also be likely to require a much larger electricity sector than ever.

New 'offices' were set up in DECC to oversee progress with respect to each of these areas of electricity supply – though clear differences remained in the policy approach to each of them. Renewables policy continued to be based on the Renewables Obligation, though a feed in tariff was announced for smaller generators. The carbon capture and storage competition continued its slow progress, and was expanded to include up to three additional demonstrations. Nuclear power remained the subject of lively debate – but was not granted any upfront financial assistance from the state. Support for nuclear new build was provided in other ways, not least through reforms to the planning regime in an attempt to avoid the protracted enquiries that surrounded the Sizewell B and Hinkley C plans in the 1980s.

Alongside this preoccupation with large-scale low carbon supply, there was increasing support – albeit at the margins – for a more strategic focus on decentralised energy. The low carbon communities challenge was launched, which offered local sustainable energy projects the chance to bid for small amounts of seed funding. The advantages of decentralised energy had been discussed favourably in successive White Papers. But practical progress had been slow for a range of technical, economic and institutional reasons.⁷⁵ Some progress was made with respect to micro-generation, the generation of electricity and heat within the home. This had become particularly popular amongst politicians of all Parties – and fitted into broader political narratives that emphasised 'localism'. The Conservative leader, David Cameron, emphasised the virtues of people 'doing their bit', and famously planned to have a small wind turbine installed on his house.

The Secretary of State for Trade and Industry Alan Johnson told the TUC in 2006 that he wanted to see micro-generation become the 'ipod of the energy world.'⁷⁶

Another potentially radical departure in energy policy crystallised alongside the Low Carbon Transition Plan – a return to industrial policy. The financial crisis of 2008 had led to a lot of discussion about the possibility of a 'Green New Deal' in which jobs could be created in environmentally more beneficial sectors. In a break with past practice of both Labour and Conservative governments since the 1970s, a Low Carbon Industrial Strategy was published. Its architect was Business Secretary Peter Mandelson who argued that:

Our focus must ... be on the immediate economic benefits of the shift to low carbon, especially for those economies that are able to capture the first mover benefits. The politics of climate change need to both stress the business benefits of the transition to low carbon, and actively seek to prepare companies and workers to compete for and benefit from the opportunities that will come from that transition. This means seeing the transition to low carbon as a problem for industrial policy in the broadest sense.⁷⁷

Whilst the Low Carbon Transition Plan and the Industrial Strategy did not herald a return to central planning in the energy sector, they did demonstrate a new willingness by government to intervene comprehensively in an effort to meet policy objectives. However, this did not end criticism that too little was being done. In October 2009, the Climate Change Committee called for a 'step change'⁷⁸ in the rate of emissions reduction and warned against complacency because of a short term drop in emissions due to the financial crisis. The Committee also said that incentives for low carbon investment needed to

be reviewed, a call that was echoed by regulator Ofgem in its Project Discovery Report⁷⁹ and by government itself.

The May 2010 General Election brought about a change of government. Labour's thirteen years in office came to an end, and a coalition between the Conservatives and Liberal Democrats came to power. The Coalition Agreement published after the election showed a large degree of continuity with the policies of the previous government.⁸⁰ The Agreement and the subsequent Annual Energy Statement included an emphasis on both emissions reductions and energy security. Key targets were retained, including that for renewable energy, and the appetite for electricity market reform remained strong. Nuclear power also remained of central importance. Indeed, perhaps one of the more interesting consequences of the change of government was the return of the former Secretary of State for Energy, David Howell, to public office – this time as a Foreign Office minister. In a speech in September 2010, he echoed his announcement of a nuclear programme in 1979, stating that 'the Coalition is committed to a new generation of ten nuclear power stations.'⁸¹

Some new policies have since been announced to make these plans more concrete. The Green Deal offers a potentially radical approach to financing energy efficiency in homes. The aim is to spread the upfront costs of efficiency measures over a number of years so that they are offset by reductions in bills. A Green Investment Bank will be established, despite Treasury resistance, with an initial injection of £3bn of public money. The electricity market reform process started under the previous government yielded a package of proposals published in a White Paper in July 2011.⁸² These include a carbon price floor, new long-term contracts for low carbon generation, an emissions performance standard, and a capacity mechanism.

At the same time, the Coalition has started to carry through its controversial commitment to deep cuts in public spending to reduce the UK's budget deficit. Spending is due to be reduced at rates not seen for many decades. If these cuts continue, some impacts on energy policies and plans will be unavoidable. The first signs of this are already emerging. Levels of feed in tariff available for some larger solar installations have been reduced because the amount of investment took government by surprise. The Green Investment Bank has been denied full borrowing powers until at least 2015 because the Treasury didn't want its debts to inflate public borrowing figures. Perhaps more important, the public debate about energy has started to focus on the costs of the low carbon transition. Household energy bills have continued to rise fast, leading to a war of words about the causes. Whilst some have sought to link higher bills to the costs of government policies for low carbon energy,⁸³ the main driver has been sharp rises in global fossil fuel prices. However, the current combination of rising prices, tightening public spending and low economic growth are bound to keep this debate alive – and to provide a much greater challenge to the implementation of a low carbon future.

Returning to four key issues highlighted in the introduction to this pamphlet, what lessons are suggested by our history of energy policy? There are clear lessons with respect to each of these: UK energy trends, energy policies and philosophies, balancing energy policy objectives and policy instruments, and the salience of energy policy.

Lessons for Energy Policy

UK energy trends since 1980

The past thirty years have seen significant movements in the fortunes of the UK economy, with consequent impacts on energy markets and policy. The movements range from the recessions of the 1980s and the decline of heavy and manufacturing industry, to periods of relative prosperity and the current recession in the fallout from the banking crisis.

The economy and the energy industries have also been influenced by movements in oil and gas prices, from the 1970s oil price shocks, to the 1986 price collapse and the price rises and volatility of the last decade. North Sea oil and gas production has peaked and fallen. We have seen growing concerns about oil depletion and the costs and environmental impacts of unconventional oil; and the successes (with seismic techniques, horizontal and deep water drilling), as well as the failures of new oil exploration, notably the 2010 BP Deepwater Horizon spill in the Gulf of Mexico.

This period saw significant shifts in energy supply and demand in the UK. On the supply side, there has been the decline of the British coal industry and coal's diminished role in electricity generation. This was hastened by the 'dash for gas', which led to a much greater role for gas in the UK energy system than most observers would have predicted in 1980. In lower carbon technologies, after early enthusiasm new nuclear investment stalled but has seen growing recent interest. There has been gradual growth in onshore and offshore renewables, but after two decades of economic incentives the UK's record against increasingly stringent targets looks disappointing. Alongside renewed efforts to accelerate the pace of renewables deployment (which are starting to pay off), there has also been increasing policy attention on making fossil fuels compatible with climate change mitigation. The technical and

economic challenges of carbon capture and storage technologies are significant, and should not be underestimated.

On the demand side, the UK has also seen changing patterns of appliance ownership and energy use in the workplace, the home and for national and international travel, alongside major shifts in energy-using lifestyles, behaviour and expectations. The current emphasis on reducing and managing energy demand will be very familiar to the energy analyst from 1980. At that time, demand management and energy efficiency were also seen as high priorities. Yet demand has continued to grow in many sectors, though it would have grown even faster in the absence of mitigating policies. This suggests that policies need to go much further than they have done to date if they are to make significant impacts.

The key components of the energy supply industries have undergone privatisation, re-regulation and liberalisation. Meanwhile energy supply, technology and finance have become increasingly international. European policy has exercised a growing influence, in promoting market liberalisation in industries and networks, in applying the rules of State Aid, in addressing the environment through directives and targets for sulphur emissions linked to acid deposition, greenhouse gas emissions, and renewables, and through the European Emissions Trading Scheme.

This history of change shows very clearly how difficult it is to predict the future. Dominant views about the likely evolution of energy prices have undergone rapid swings as prices have risen, fallen and risen again. Grand plans for coal and nuclear power from the 1970s and early 1980s have not been realised. Furthermore, the privatisation of state-owned industries has not turned electricity and gas into 'normal' commodity products. Regulatory institutions put in place at

privatisation that were thought by some to be temporary have become more important – not less. As the focus of policy moves back towards some form of planning (or at least, towards more government intervention and co-ordination), it will be important to remember that singular views of the long-term future are rarely accurate.

Energy policies and philosophies

The period since 1980 has seen striking changes in the thinking about energy policy. These changes have been influenced by developments in economic and political thought. The successful emergence of a dominant policy paradigm brings with it an increasingly taken-for-granted mindset about what objectives and instruments are appropriate and discussable and what may become effectively taboo. It is in the interests of policy-makers to frame energy policy as a broadly rational, objective process, in which there is consensus about the goals of the journey and the means of travelling there. The reality is much messier, since the selection of policy objectives, instruments and institutions involves ethical, political and economic judgments and attempts to enrol others into a prevailing logic. As David Newbery and others have observed, energy has always proved fertile ground for interest group lobbying. Furthermore, this process does not stop once objectives and policy instruments have been chosen. History shows that political horse trading and the need to deal with inherited legacies have a substantial effect on implementation. Implemented policies rarely conform to their text book ideals.

In the 1980s, the neo-liberal thinking at the heart of the approach of Margaret Thatcher and her key ministers, not least Nigel Lawson, became a new and dominant frame for energy governance. In this paradigm, deriving its authority from the writings of Hayek and others of the ‘Austrian School’, the privatisation and liberalisation of previously state-owned industries and a constellation of

attitudes about people, society and politics were to transform the energy policy landscape and the instruments used to shape it.

In the first two phases discussed in this pamphlet, the government and the industry regulators’ tight focus on economic efficiency as the destination and private ownership and competition as the means of getting there, did not properly embrace some key features of the energy system. These features included unpriced ‘externalities’ such as greenhouse gas emissions. They also included the provision of ‘public goods’, such as investments in energy system security and energy research, which are underprovided by the market because the private actor often cannot ‘capture’ and be rewarded for benefits that accrue to wider society. These issues were not fully addressed in the privatisation process, partly from misplaced optimism about the market’s ability to adjust automatically, in some cases from scepticism about their importance, and in others from a view that, even if they were serious, government and bureaucratic failure would make the cure worse than the disease.

Although from 1997 successive Labour administrations maintained much of their predecessors’ approaches, recent years have seen a gradual return to targets and plans. Growing concerns about climate change, returning worries about energy system security, resilience and affordability, and scepticism about the vision and responsibility of key market players and their regulators (including in the financial sector) have increased pressure for significant change. It has taken time, nevertheless, to acknowledge that this would mean changes not only in targets and technologies (e.g. to reduce emissions) but also in institutions, incentives, behaviours and lifestyles. One of today’s key challenges is therefore the engagement of civil society.⁸⁴ This means treating people not simply as passive energy consumers whose energy-using

behaviours and lifestyles need modifying. It also means regarding them as potential leaders and even entrepreneurs, who might drive towards a more sustainable low carbon energy system. For policy makers, it also means recognising that people are part of heterogeneous groups, with differing mindsets, behaviours and expectations of entitlement to energy, whose values shift over time and circumstance.

Clear manifestations of the turn away from liberalisation can already be seen, for example, in the language and content of the Climate, Planning and Energy Acts of 2008, the 2009 Low Carbon Transition Plan, the Energy Act 2010, and the 2011 White Paper on electricity market reform. It is also evident in the approach and Directives of the European Union. The challenge is how to retain the positive features of markets whilst also managing the achievement of societal goals that the market alone can't provide. Recent experience suggests that the approach of the 1980s and 1990s, founded on market liberalisation and individual choice, will not always sit comfortably and effectively with a more quantitative, plan-based, centrally directed approach to implementation.

There are many reasons why the return to a form of planning may not and should not mean a return to the situation prior to the privatisation programmes of the 1980s. The re-creation of a CEEB is clearly implausible, for example. It is almost impossible to imagine that major parts of the energy system will return to State ownership and control, not least because of the very poor state of the public finances (although before the banking crisis, many would have said the same about the banks). However, there are potential similarities and risks that past mistakes might be repeated. For example, new capital-intensive investments – particularly in the electricity system – will need to be managed carefully to avoid the

cost overruns and delays that characterised the previous nuclear programme. It will also be important to ensure that the emerging opportunities for individuals and other local actors to contribute to the low carbon transition will not once again be frozen out if the policy process were to return to a more centralised model. Learning and evaluation will therefore be essential to ensure that any shift towards a more co-ordinated approach will not also mean the return of its most undesirable side effects.

Balancing energy policy objectives, instruments and tensions

As we have made clear, one of the reasons for the shifts in thinking about energy policy since 1980 stems from shifting priorities within energy policy. However, it is also remarkable how the key drivers of policy have remained similar over this period. We noted earlier that the 1993 coal White Paper said that the aim of energy policy was 'to ensure secure, diverse and sustainable supplies of energy in the forms that people want, and at competitive prices.' This wording has much in common with that in more recent statements, though the emphasis has clearly changed. The differences lie partly in the narrower current focus on climate change as the key environmental objective. Energy security has also risen up the agenda, particularly in the last five years. So has affordability as higher prices have led to rapid increases in the number and proportion of households in fuel poverty.

It is also clear that there can be real tensions and trade-offs between energy policy objectives. New coal-fired power plants might make sense to maintain diversity in the electricity system, but would be disastrous from the point of view of climate change mitigation unless they are fitted with as yet untested carbon capture and storage technology. Economics suggests that in order to reduce energy demand – and therefore help

tackle climate change – energy prices should rise. However, such rises can seriously exacerbate fuel poverty and reduce affordability.

These two examples show that it is not always possible to avoid tensions between policy objectives. Past policy documents which contend that all objectives can be met fully and simultaneously seem naïve or intentionally misleading. However, it is possible to anticipate these tensions – and to devote attention to resolving them, at least partly. For example, as policies to decarbonise the energy system are implemented, it will be important to ensure that this system retains sufficient resilience. If done successfully, this will ensure that suddenly pressing concerns about energy security do not end up closing off key climate change options. This also suggests that the type of longer-term thinking appropriate for climate change policy should also be applied to energy security and affordability, not least to promote policy synergies and minimise antagonisms. Moreover, the debacle over the attempted introduction of VAT on domestic energy showed the danger of not being ready to draw on several harmonised policy instruments in situations where objectives conflict.

The last two decades also saw a move towards economic instruments, both for environmental policy and to promote low carbon technologies. Yet in some circumstances the older command and control style of regulation has been shown to be effective (e.g. in mandating condensing boilers and vehicle exhaust catalysts), while in others voluntary agreements work well. Experience also suggests that influencing household behaviour and energy-using lifestyles is much more challenging than picking from a toolbox of policy instruments to influence technology or fuel choices. It is to be hoped that future instrument mixes will draw on accumulated evidence,

both national and international, on what works well or badly, both singly and in combination, in a crowded policy space. Moreover, it will be increasingly important that the evidence needed for ‘evidence-based policy’ is actively collected and objectively analysed.

The salience of energy policy

At a British Institute of Energy Economics Conference in Oxford in 2003, John Chesshire averred that ‘Energy Policy is back in fashion, at least in the United Kingdom.’ He argued that while various documents had addressed specific topics such as power station fuel choice, full-scale energy White Papers had become rare beasts. The previous full White Paper of 1967 had been produced more than a generation earlier. Seven years after Chesshire’s talk, this return to fashion seems to have endured, with numerous White Papers, consultations and Acts of Parliament in a short space of time.

Our history shows that this was not always the case – and that the status of energy policy within government has changed several times over the past three decades. Shifting departmental and ministerial responsibilities (see details in Annex 1) have been very significant. Energy has had its own government department. It has also been reduced to the part-time responsibility of a single junior Minister.

In 1974, after the first oil price shock and in light of the growth of North Sea oil and gas, Edward Heath detached the energy portfolio from the Department of Trade and Industry (DTI) and created the Department of Energy. James Callaghan’s and Margaret Thatcher’s governments retained it until 1992. John Major then returned the portfolio to the ranks of the DTI, after the privatisation of gas and electricity, with market regulation passing to Ofgas and Offer, while other functions were abandoned or absorbed into other bodies.

The portfolio remained in the DTI during Tony Blair's regime, until Gordon Brown's creation in 2007 of the Department for Business, Enterprise and Regulatory Reform (BERR). In October 2008, however, Brown responded to a growing recognition of the scale of the challenges posed by climate change, energy security and affordability, and set up the Department of Energy and Climate Change (DECC) and the Committee on Climate Change (CCC), the latter to advise on legally binding greenhouse gas targets. The new Coalition Government retained DECC and agreed 'to implement a full programme of measures to fulfil our joint ambitions for a low carbon and eco-friendly economy.'⁸⁵ However, it remains to be seen whether the Coalition will produce another new overarching policy statement on energy to match the recent White Papers of 2003 and 2007.

The lesson from this is that the continued salience of energy policy is far from assured. While the priority currently placed on energy policy might seem permanent, this can change rapidly. Nevertheless, there remains strong evidence that energy policy is not about to wither away soon. Energy policy is not only at the top of UK agendas, but is also prominent internationally. Energy security and climate change regularly appear on the agendas of international forums such as the G8 and G20, and the International Energy Agency's annual forecasts and pronouncements make global headline news. Furthermore, international discussions and developments are increasingly influential on UK policy – from EU policies on emissions trading and renewables to international agreements on climate change finance.

Future challenges for UK energy policy

Finally, it is important to use this brief history to look ahead. We would like to draw particular attention to three sets of challenges that confront the energy policy community in the UK. They are, of course, primarily challenges for government and Ministers. But they are also challenges for the many other participants and practitioners within the energy sector: including firms, regulators, public agencies, analysts, communities and individuals.

First, history reinforces the sheer scale and ambition that is associated with the planned low carbon transition for the UK. Not only is the UK committed to reduce its greenhouse gas emissions by 80% by 2050, there is also a need to successfully respond to other energy policy imperatives: particularly energy security and fuel poverty. Furthermore, it is one thing to establish targets – but quite another to meet them successfully. In the past thirty years, many targets and plans have been disrupted by what Harold Macmillan called 'events'. Fuel poverty targets set in 2001 are now much more difficult to meet due to high fuel prices. The original 2010 renewable energy target (10% of electricity) was not achieved due to the difficulty of overcoming barriers concerned with planning, grid connection, and financial risk. The original 1979 programme of ten nuclear power plants yielded just one Pressurised Water Reactor at Sizewell B.

Having said this, this history also shows that far-reaching change can be achieved. The privatisation and liberalisation of the utility industries had profound consequences for investment behaviour, consumers and (indirectly)

for emissions. The low carbon transition is likely to require an equally ambitious reform of markets and institutions – and it remains to be seen whether the plans outlined in the electricity market reform White Paper will be enough to achieve this. It will also require a sea change in the capital stock within the energy sector, in consumer behaviour and in business models. This may well make the UK privatisation and liberalisation processes seem to be relatively straightforward by comparison.

A second challenge is that energy policy is not confined to the domain of the energy ministry – currently the Department of Energy and Climate Change (DECC). It cuts across multiple departments. The recent financial crisis and the current government plans for deficit reduction illustrate how powerful the role of the Treasury is in energy policy. Added to this, there are energy policy dimensions to the work of several other departments: Business, Innovation and Skills, Transport and the Foreign Office, to name a few. Whilst ‘joined up government’ became a rather tired cliché in the Blair years, successful co-ordination of policy will be essential to the low carbon transition. This is especially the case with respect to associated job creation and industrial policy, an area which all political parties now

emphasise as a priority. But the UK has not been as successful as many other OECD countries at achieving this during the past 30 years.

Finally, the low carbon transition will be full of tensions which policy will need to manage and, where possible, resolve. Within this, a key issue is the relative contributions of centralised, top down action (such as electricity market reform to support investment in large low carbon energy sources) and decentralised, bottom up initiatives (such as community energy projects or action by Local Authorities). As DECC’s 2050 Calculator shows, there are many ways in principle that the UK can achieve the low carbon transition – at least in a technical sense. But if the ambition is to have a low carbon energy system that includes both top down and bottom up contributions, there will need to be careful thought with respect to the implications for institutions, policies and market rules. Such implications will be important at international, national and local levels. Our history shows that one constant (but understandable) feature of the UK energy policy of the last 30 years has been a focus on large-scale supply infrastructures, particularly in electricity. Recognising this ‘comfort zone’ is very important if the low carbon transition is to be achieved through a more plural approach.

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Annex 1: Departments and Secretaries of State responsible for energy

The Ministry of Fuel and Power was created in 1942 from functions previously in the Board of Trade. It was responsible for coal production, allocation of fuel supplies, control of energy prices and petrol rationing during World War II. In 1957 it was renamed the Ministry of Power and then in 1969 became part of the Ministry of Technology., Edward Heath's government formed the Department of Trade and Industry in October 1970, through a merger between the Board of Trade and the Ministry of Technology.

Secretary of State for Trade and Industry and President of the Board of Trade (1970–1974)

Secretary of State	Period	Prime Minister
John Davies	15 October 1970–5 November 1972	Edward Heath
Peter Walker	5 November 1972–4 March 1974	

In January 1974, Edward Heath's government transferred the DTI's energy responsibilities to the new Department of Energy.

Secretary of State for Energy (1974–1992)

Secretary of State	Period	Prime Minister
Lord Carrington	8 January 1974–4 March 1974	Edward Heath
Eric Varley	5 March 1974–10 June 1975	Harold Wilson
Tony Benn	10 June 1975–4 May 1979	Wilson/James Callaghan
David Howell	5 May 1979–14 September 1981	Margaret Thatcher
Nigel Lawson	14 September 1981–11 June 1983	
Peter Walker	11 June 1983–13 June 1987	
Cecil Parkinson	13 June 1987–24 July 1989	
John Wakeham	24 July 1989–11 April 1992	

John Major's government merged the Department of Energy back into the DTI in 1992.

Secretary of State for Trade and Industry and President of the Board of Trade (1992–2007)

Secretary of State	Period	Prime Minister
Michael Heseltine	10 April 1992–5 July 1995	John Major
Ian Lang	5 July 1995–2 May 1997	
Margaret Beckett	2 May 1997–27 July 1998	Tony Blair
Peter Mandelson	27 July 1998–23 December 1998	
Stephen Byers	23 December 1998–8 June 2001	
Patricia Hewitt	8 June 2001–6 May 2005	
Alan Johnson	6 May 2005–5 May 2006	
Alistair Darling	5 May 2006–27 June 2007	

In 2007, the energy responsibilities of the Department of Trade and Industry moved to the new Department for Business, Enterprise and Regulatory Reform.

Secretary of State for Business, Enterprise and Regulatory Reform and President of the Board of Trade (2007–2009)

Secretary of State	Period	Prime Minister
John Hutton	28 June 2007–3 October 2008	Gordon Brown

Gordon Brown's government created the Department of Energy and Climate Change (DECC) in October 2008, to bring together energy policy and climate change mitigation policy (previously with the Department for Environment, Food and Rural Affairs).

Secretary of State for Energy and Climate Change

Secretary of State	Period	Prime Minister
Ed Miliband	3 October 2008–11 May 2010	Gordon Brown
Chris Huhne	12 May 2010–	David Cameron

List of Abbreviations

Technical

AGRs	– Advanced Gas Cooled Reactors
CCGT	– Combined Cycle Gas Turbine
CCS	– Carbon Capture and Storage
LNG	– Liquefied Natural Gas
PWR	– Pressurised Water Reactor
ppm	– parts per million
VECs	– Vehicle Exhaust Catalytic Converters

Politics and Economics

BE	– British Energy
BERR	– Business, Enterprise and Regulatory Reform (Department of)
BIS	– Business, Innovation and Skills
BGC	– British Gas Corporation
BNFL	– British Nuclear Fuels Limited
BNOC	– British National Oil Corporation
CBI	– Confederation of British Industry
CEGB	– Central Electricity Generating Board
DECC	– Department of Energy and Climate Change
DGFT	– Director General of Fair Trading
DTI	– Department of Trade and Industry
EC	– European Commission
EdF	– Electricité de France
EESOP	– Energy Efficiency Standards of Performance
IPPs	– Independent Power Producers
LCPD	– Large Combustion Plant Directive
MMC	– Monopolies and Mergers Commission

NAO	– National Audit Office
NCB	– National Coal Board
NE	– Nuclear Electric
NETA	– New Electricity Trading Arrangements
NFFO	– Non Fossil Fuel Obligation
NGC	– National Grid Company
NNC	– National Nuclear Corporation
NUM	– National Union of Mineworkers
OECD	– Organisation for Economic Cooperation and Development
OFT	– Office of Fair Trading
OFFER	– Office of Electricity Generation
Ofgas	– Office of Gas Supply
Ofgem	– Office of Gas and Electricity markets
OPEC	– Organisation of the Petroleum Exporting Countries
PIU	– Performance and Innovation Unit (Cabinet Office)
PRT	– Petroleum Revenue Tax
R&D	– Research and Development
RCEP	– Royal Commission on Environmental Pollution
RECs	– Regional Electricity Companies
RPI	– Retail Price Index
SN	– Scottish Nuclear
TISC	– Trade and Industry Select Committee
TUC	– Trade Union Congress
UNFCCC	– United Nations Framework Convention on Climate Change

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