REFORM

How to run a country: energy policy and the return of the State

Rupert Darwall

November 2014

Reform Research Trust
A Company Limited by Guarantee
Registered in England no. 5064109
Registered charity no. 1103739

How to run a country:

energy policy and the return of the State

Rupert Darwall

November 2014

Reform

Reform is an independent, non-party think tank whose mission is to set out a better way to deliver public services and economic prosperity. *Reform* is a registered charity, the Reform Research Trust, charity no. 1103739. This publication is the property of the Reform Research Trust.

We believe that by reforming the public sector, increasing investment and extending choice, high quality services can be made available for everyone.

Our vision is of a Britain with 21st Century healthcare, high standards in schools, a modern and efficient transport system, safe streets, and a free, dynamic and competitive economy.

The views expressed in this report are those of the authors and not those of *Reform*, its Advisory Board, Trustees or staff. If you would like more information regarding *Reform's* independence please do not hesitate to get in touch at info@reform.co.uk.

Author

Rupert Darwall is a former Treasury special adviser. He was involved in drafting two of Reform's earliest reports, *Spending without Reform* (2002) and *A Better Way* (2003), as well as writing *Reluctant Managers* (2005) on the need to reform Whitehall. For the Centre for Policy Studies, he wrote *Paralysis or Power?* (2003) on Conservative Party renewal and *A Better Way to Help the Low Paid* (2005) on reforming tax credits and is the author of *The Age of Global Warming: A History* (Quartet Books, 2013).

As a business strategist, Rupert Darwall provided expert advice to BAA in its appeal to the Competition Appeal Tribunal (2011) and acted for Virgin in providing the analysis that formed the basis of its appeal against the Department for Transport's award of the West Coast train franchise (2012). As a regulatory expert, he has also provided analysis to airlines in the periodic reviews of airport charges.

Acknowledgements

The author is indebted to Professor Stephen Littlechild, Professor Gordon Hughes, Sir Ian Byatt, David Henderson and Alex Henney for their comments on earlier drafts. Any remaining errors, as are the conclusions, are the author's.

Contents

Executive Summary

The looming policy disaster

Energy policy represents the biggest expansion of state power since the nationalisations of the 1940s and 1950s and is on course to becoming the most costly domestic policy disaster in modern British history. By committing the nation to high cost, unreliable renewable energy, its consequences will be felt for decades to come. Energy is an iceberg policy: its implications for the demise of a competitive market in electricity – the final achievement of the Thatcher years – are poorly understood and tend to be consigned to footnotes and annexes of policy documents.

Like its predecessor, the Coalition Government has three policy objectives:

- Keeping the lights on;
- Keeping energy bills affordable; and
- Decarbonising energy generation.[1]

These do not require the policies the Government is implementing. Indeed, energy policy militates against having cheap, reliable energy. Worries about the lights going out have intensified as the country becomes more dependent on the weather for its electricity. The market is the best way of providing reliable and affordable electricity. Converting the electricity system to wind and solar power does neither. Even on favourable assumptions, these are inefficient ways of reducing carbon dioxide emissions.

In reality, the over-arching goal of Britain's energy policy is an arbitrary form of decarbonisation in the form of an extremely costly European target for renewables generation (principally wind and solar energy) which Tony Blair negotiated at his last European Council in 2007. Because policymakers have not been honest with themselves and the public about the implications of the renewables target, policy has not been assessed against potentially more efficient options, notably the state providing the finance to achieve its objectives and putting

1 DECC (2012), *Electricity Market Reform: Policy Overview*.

the investment it deems necessary onto its balance sheet. The result is that the energy sector is being transformed into a vast, ramshackle Public Private Partnership combining the worst of all worlds – state direction of investment funded by high cost private sector finance, with energy companies being set up to take the rap for higher electricity bills.

The politics of high and rising electricity prices make it convenient for policymakers to blame market failure for what in reality are policy-driven outcomes. Political and media attention has focused on retail competition culminating in Ofgem's reference to the Competition and Markets Authority. Compared to generation, the retail market is a sideshow, but it too is subject to increased regulation, narrowing the choice of tariffs suppliers offer.

In terms of costs, wholesale competition in generation (around 50 per cent of costs) is far more important than retail competition (around 7 per cent of costs). Indeed, a key justification for retail competition is to drive wholesale competition between competing generating companies and competing generating technologies. Adopting a fixed target for the amount of energy to be derived from renewables requires the Government to take control of electricity generation. This is because subsidising zero marginal cost, weather-dependent electricity destroys the ability of the market to function properly. Thus in thirty years, the wheel of energy policy has turned full circle, reverting to what it was before Nigel Lawson's seminal speech in 1982 which argued that the market should replace central planning.

Although less dramatic than privatisation, the return of state control is as important. With one caveat, the restructuring and privatisation of the electricity industry in the last two years of the 1980s represent the Gold Standard of public service reform. It delivered what its proponents promised:

- Investment in efficient generating capacity;
- Huge increases in labour productivity; and
- Once the regulator and the market had broken the generating duopoly, a sharp fall in prices.

Lawson had criticised central planning because it involved "guessing the unguessable" – energy demand and energy prices decades into the future. This view remained axiomatic in subsequent government policy papers, notably Alistair Darling's 2007 Energy White Paper and a joint Treasury/DECC assessment published in the final months of the Labour Government. It was finally jettisoned by the Coalition in its Electricity Market Reform (EMR). It justifies the return of state control on the basis of presuming to know that the price of fossil fuels will rise continuously, a view rapidly overtaken by falling coal prices and opportunity opened up by fracking and the shale gas revolution in the United States.

Unlike privatisation, the EMR hybrid of state control and private ownership is far from optimal and is structurally unsound. In response to the narrowing margin between peak demand and generating capacity, the Government is using sticking plasters to keep the lights on, principally by paying businesses not to use electricity unless they generate it themselves. The fundamental problem is structural. Whilst the public focus is on the profits the Big Six energy companies derive from supplying electricity, their losses from generating electricity from conventional power stations tend to be over-looked – indicating the under-water economics of the sector.

The Government's answer is to create a Capacity Market to provide price supports for the generating capacity needed to keep the lights on. Thus virtually all forms of electricity generation – zero, low and high carbon – end up benefitting from subsidies and price supports in one form or another. However the political sustainability of this is questionable. At a time of public concern about the cost of energy, when energy company profits can easily become a lightning rod for public anger, the optics of indefinite price supports and subsidies for all electricity generators do not bode well for the longevity of the policy. Even the perception of investor doubt about its durability undermines the policy's effectiveness by deterring investment, raising the cost of capital and electricity prices, further exacerbating political risk. It is hard to see EMR's hybrid form of state control lasting as many years as the market-based policy it replaces.

The evolution of energy policy is an object lesson in the impact of poor policymaking. A flaw in the original design of electricity

privatisation – the creation of a generating duopoly – undermined confidence in the way prices were set in the wholesale market. The decision by the Prime Minister in 2007 to adopt a demanding top-down target resulted in a cascading sequence of policy mistakes with ever more serious unintended consequences. Four key policy lessons can be drawn from this experience:

1. There is a big political premium in getting the initial conditions right. Although privatisation worked, uncompetitive initial conditions helped create the impression that the benefits went overwhelmingly to shareholders. Securing competitive conditions at the outset improves the post-privatisation politics, reducing the political incentives to intervene.

2. Using economic regulation as a tool of government policy is incompatible with having a competitive market. Instead economic regulation should be tightly focused on expanding competition and providing a substitute for competitive pressure via periodic price cap reviews.

   A better way is to treat electricity as if it were entirely competitive and not subject to economic regulation, and use policy instruments such as taxation, welfare, public spending and traditional forms of regulatory interventions.

3. On energy security, there needs to be a compelling justification to override the economics of free trade. Historically, appeals to energy security have resulted in the very energy shortages energy security was meant to avoid. In the case of EMR and its precursor policy, the failure to evaluate stockpiling as a means of boosting energy security is evidence that energy security is used as a cover for other objectives, as it was when it was first used by the Government to try to prop up the coal industry.

4. Policy needs to take account of the dynamics of the whole system and the location of cost along the value chain. Competition-based remedies for distortions created by ongoing policy interventions are not a substitute for changing those interventions.

1.
The mirage of competition

On 27 March 2014, Ofgem, the energy regulator, announced that it was consulting on whether to refer the electricity market to the Competition and Markets Authority (CMA), deciding to do so three months later. The aim of a reference would be to establish "if there are market features which are having an adverse effect on competition."[2] According to Dermot Nolan, Ofgem's Chief Executive, a referral would offer the opportunity "to once and for all clear the air."[3] Ofgem's move followed a public intervention by Ed Davey MP, the Energy and Climate Change Secretary, who called for an investigation into the profits of the Big Six energy companies and urged Ofgem to "think radically" and consider breaking up the vertically-integrated Big Six.[4]

Separate from the emergence of the Big Six, the Government embarked on massive interventions in the electricity market to subsidise a huge increase in wind and solar generating capacity. In 2007, Britain adopted the most onerous renewables target of any EU member state. No market – whatever its structure – could have continued to function efficiently in the face of these policy-created distortions.

Nonetheless, the Climate and Energy Secretary chose to focus attention on the market structure of the sector, not the policy impacts. Indeed, the structure of the market is radically different from the rigid vertical separation of the industry when it was privatised:

- Entirely different companies were responsible for generation and supply (that is, selling electricity to end customers); and
- All generators had to sell their output to the Pool, a centralised wholesale market which determined the prices they would get and the amount they could sell.

During the last Labour government's first decade, vertical separation was progressively eroded:

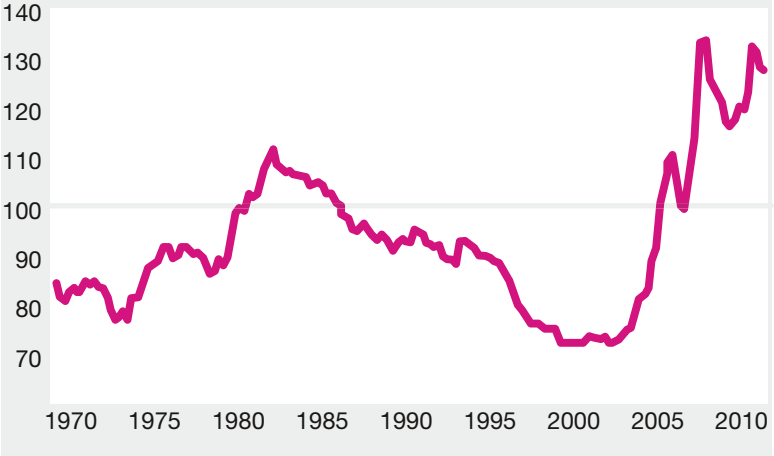
- The Pool was replaced by bilateral trading, which encouraged vertical integration; and

2 Ofgem (2014), *Consultation on a proposal to make a market investigation reference in respect of the supply and acquisition of energy in Great Britain*.
3 Ofgem website (2014), *Ofgem proposes a reference to the CMA to investigate the energy market*, https://www.ofgem.gov.uk/press-releases/ofgem-proposes-reference-cma-investigate-energy-market. Accessed September 2014.
4 Farrell, S. and Rankin, J. (2014), "Ed Davey calls on Ofgem to investigate energy firms' gas profits", *The Guardian,* 10 February.

- There was vertical and horizontal industry consolidation, which led to the emergence of the Big Six by 2008.

These developments, reviewed and analysed in Annex I, could in principle be fully or partially reversed, as trailed by Mr Davey and proposed by the Labour Party in its Energy Policy Green Paper, which went a step further and called for the re-establishment of a wholesale Pool.[5] From 2005, they occurred against the backdrop of a sharp reversal in a 20-year trend of declining energy prices. As shown in Figure 1, twenty years of price falls were erased in around two years. This fuelled widespread concern that the market wasn't working for the benefit of consumers, eventually inducing Ofgem in 2008 to launch its Energy Supply Probe.

Figure 1: Real domestic fuel and light prices 1970-2013
Source: DECC, Graph extracted from House of Commons Library Note (2014) "Energy Prices", 31 January , p.2.



5 Labour Party (2013), *Powering Britain: One Nation Labour's plans to reset the energy market.*

Although Ofgem concluded the 2008 Probe by expressing overall satisfaction that the market was working, the evidence it documented also suggests that, at the very least, this might have been a complacent judgment (see Annex II). The conclusion Ofgem drew from the Probe was that retail competition wasn't working because consumers were insufficiently engaged as they found tariffs too confusing. The policy response of Ofgem and the Government has been to regulate the way suppliers compete against each other and restrict the number of tariffs they can offer. But as Stephen Littlechild, the first electricity regulator has pointed out, the supply profits of the Big Six increased from £233 million in 2009 to £1.1 billion in 2012.[6]

Six years on from the Probe, intensifying concerns about high prices and the functioning of the market culminated in Ofgem's reference to the CMA. A market investigation by the CMA presupposes the existence of a market and the purpose of the reference is to see if there are reforms which could make competition more effective. Essentially, the CMA is being asked:

1. Whether, as suggested by the Energy and Climate Change Secretary Ed Davey and by the Labour Party, that imposing vertical separation on the sector is a necessary step to improve the functioning of the market;

or

2. Whether over time, competitive pressures in the market are sufficient.

However such a debate is academic. The time for implementing the outcome of such a debate is long past: the Government itself has brought about the end of the market.

6 Gribben, R. (2014), "Energy regulator rejects being to blame for high profits and prices", *The Daily Telegraph,* 11 August.

2.
EMR – the State takes over

An investigation by the CMA which does not examine these policy-induced factors would amount to little more than political window-dressing. In framing the reference, Ofgem was in a conflicted position as it has been a party to the policies that have led to these outcomes and can no longer be considered a truly independent regulator; since the Utilities Act 2000, Ofgem has been obliged to follow government guidance issued to it.

Electricity Market Reform (EMR), embodied in the Energy Act 2013, has the explicit goal of replacing the market with government control. Downstream competition between electricity suppliers driving upstream competition between generators provides the strongest economic justification for supply competition. Unless it drives upstream competition, supply competition is harder to justify. The costs of retail competition amount to over a quarter of suppliers' non-pass-through costs, making it a challenge to generate sufficient value from the supply part of the value chain alone.

"Market reform" is something of a misnomer as EMR is not about reforming the market, but ending it. Under EMR, the electricity sector will be subject to no less than three consecutive five-year plans (2014-2018; 2019-2013; and 2024-2028). Only after 2028 does the Government anticipate returning to a "fully competitive and open electricity market."[7]

Under EMR, the Government:

- Sets prices for producers of low carbon electricity via contracts for differences (CfDs);
- Decides on the mix of generating capacity, thereby taking control of the most fundamental capital allocation decisions in the sector;
- Allocates CfDs to low carbon electricity producers, which are a form of government spending, as the Government itself concedes

  "There are a handful of technologies that have the potential to have a disproportionate effect on *the rate of spending by the*

7 DECC (2012), *Electricity Market Reform: Policy Overview*, Annex E, Fig. 1.

Government under CfDs" (emphasis added);[8]

- Levies taxes which are not subject to a parliamentary approval, as this spending is financed by a levy which is paid by electricity suppliers and passed on to all consumers (except certain energy intensive industries). The Government acknowledges this amounts to a tax on electricity.

  "The supplier obligation is a compulsory levy and *is likely to be classified as a direct tax* for the purposes of the Government administering its taxation programme" (emphasis added);[9]

- Imposes new regulations (Emissions Performance Standard) set initially to stop new coal-fired power stations being built, which will be reviewed every three years and in future could be used to prevent gas-fired power stations being built;

- Has taken powers to create a capacity market, under which it will make forecasts of future peak capacity demand, sets the spare capacity margin and determines how much capacity is required, with ministers deciding how much capacity to contract for.[10]

It is virtually pointless for the CMA to conduct a market investigation when the Government has suspended the market and put itself in charge. As the Government baldly states,

> "The framework, set out in figure 2 below [which outlines the EMR institutional framework], ensures Government control."[11]

Rather like Engels and the withering away of the state under communism, EMR envisages that state control is but a necessary prelude to its eventual disappearance or at least curtailment:

> "Our long-term vision for the electricity market is for a decreasing role for the Government over time, and to transition to a market where low-carbon technologies can compete fairly on price … EMR provides the tools for transition to get to this vision."[12]

8 Ibid., Annex A, p.28.
9 Ibid., Annex A, p.75.
10 Ibid., Annex C, pp.16-17.
11 Ibid., Annex D, p.6.
12 Ibid., p.25.

The Government's view that EMR is merely a temporary phase is deeply flawed for two reasons.

First, it assumes that the price of hydrocarbons and the cost of renewable energy converge. As Dieter Helm, professor of energy policy at Oxford University, wrote in December 2013, there is a huge flaw in the assumption, one held by the last three climate and energy secretaries, that the price of oil would keep going up (Box 1).

Box 1: Excerpt from Dieter Helm "The lost gamble forcing up our energy bills"

Source: Helm, D. (2013) "The lost gamble forcing up our energy bills", *The Times,* 20 December.

"By about 2020 it was assumed that expensive technologies such as wind farms and solar panels would be competitive against what would by then be much more expensive fossil fuels. Add in a bit of energy efficiency, and ministers could confidently predict that household energy bills would be 8 per cent lower by 2020 than they would have without their policies.

Almost everything that could be wrong with this is in fact wrong, and it explains the mess that British energy policy has got itself into. There is no shortage of oil, gas or coal. We are not running out of any of them. There is enough to fry the planet many times over. There is no reason to assume that oil and gas prices will go on ever upwards, and it is as at least possible they will fall, joining the sharp fall in world coal prices. If so, renewables are unlikely to become cost-competitive by 2020. The subsidies will not then wither away."

Helm's criticism highlights an important truth: the economics of decarbonisation are driven by changes in the relative prices of fossil fuels on the one hand and low carbon technologies and energy efficiency technologies on the other. This means the lower the prices of fossil fuels, the higher the cost to the British economy of decarbonisation. Thus EMR assumes, requires and is designed to deliver higher energy prices.

Second, the Government's assumption that state control will be temporary ignores the different cost structures between conventional power stations and wind and solar renewables. The former have variable costs, principally fuel costs, whereas the latter are effectively zero marginal cost producers. The output of wind and solar farms do not respond to price signals but to the weather, potentially leading to a glut of electricity when weather conditions are favourable. When they are not, demand must be met from conventional generators which require cross-subsidy because their economics are severely impacted by renewables. In response, EMR creates a government-run capacity market to support conventional capacity. Thus the commitment to generate a significant proportion of electricity from renewables implies that state control of the electricity sector is here to stay for as long as the commitment to renewables remains in place.

Britain's farewell to its market for electricity and its embrace of state control did not happen because the market failed. Neither is it driven by the UK's international commitments to reduce carbon dioxide emissions. Instead EMR is driven by the UK's commitment to derive 15 per cent of the UK's energy from renewables by 2020. Because this includes heating and transportation, which are more difficult to decarbonise, the Government expects that meeting the renewables target requires that 30 per cent of the UK's electricity be generated from renewables.[13] As the Government puts it in justifying EMR,

> "Since electricity privatisation, the current electricity market has worked well, delivering reliable and affordable power … Yet the current market will not deliver the huge investment necessary to meet new challenges."[14]

Importantly, this challenge was not necessitated by the 1997 Kyoto Protocol, which remains the only binding international agreement to limit emissions of carbon dioxide and other greenhouse gases. Although the European Union (EU) signed up to an 8 per cent cut at Kyoto, under the so-called EU bubble, the UK negotiated a larger one for itself and is committed to cut emissions by 56 per cent more than the EU as a whole, with a 12.5 per cent cut – the fourth largest

13 Ibid., Box 1.
14 Ibid., p.9.

percentage reduction in the EU.[15] Even so, changes in the economy and in the electricity market took this cut in their stride. In 2005, Greenpeace put out a press release noting that the UK was the only country that had already out-performed its Kyoto target, having reduced CO_2 emissions by 14 per cent.[16]

Indeed, during this period, the Government took an essentially pragmatic approach towards the impact of climate change on energy policy. A May 2007 Energy White Paper, when Alistair Darling was trade and industry secretary, stated the case for the market in terms which is antithetical to the statist philosophy of EMR. Discussing whether the private sector should have the option of developing nuclear power, the White Paper commented on the difficulty of predicting future energy demand and future fossil fuel, raw materials and carbon prices.[17] Uncertainty about the future, it said, was inevitable, which argued against a *dirigiste* approach.

> "We believe a market-based approach within a clear policy framework provides an effective way to help us manage this uncertainty and deliver our energy policy goals. This is because companies are best placed to weigh up and manage the complex range of interrelated factors affecting the economics of energy investments."[18]

By the time the White Paper had been published, its incrementalist approach was history. Attending his last European summit two months earlier, Tony Blair agreed to the EU legislating a mandatory target to derive 15 per cent of its energy consumption from renewables by 2020. To the horror of the Treasury and the Department of Trade and Industry (DTI, now the Department for Business, Innovation and Skills), Blair committed Britain to a 15 per cent target, representing the biggest percentage increase of any

15 Only Denmark (21 per cent cut), Germany (21 per cent cut) which benefited from the economic collapse of the former East Germany, and Luxemburg (28 per cent cut) have higher emissions reductions targets.

16 Greenpeace website (2007), *Great Britain: Climate killer No. 6*, http://www.greenpeace.org/international/PageFiles/24827/GBenglfinal010607.pdf. Accessed September 2014.

17 Ironically the White Paper's one firm prediction illustrates how uncertain the future can be: "we do know that oil and gas supplies are increasingly concentrated in countries which are in less stable parts of the world."(p.16) Evidently, seven years ago the potential of hydraulic fracturing of shale deposits (fracking), its transformation of US energy production and its potential to do the same for the UK were unknown in Whitehall.

18 DTI (2007), *Meeting the Energy Challenge: A White Paper on Energy*.

member state and, according to DTI calculations, requiring the UK to incur a quarter of the cost of meeting the EU's targeted carbon reduction.[19]

Before the Council, the European Emissions Trading Scheme (ETS) had been the EU's and Britain's principal tool to meet carbon reduction targets. The decision to adopt a mandatory renewables target undercut the ETS and risked depressing the price of carbon credits. According to a leaked DTI post-summit briefing paper, the costs of increasing renewable energy to reduce carbon emissions was around three times higher than allowing flexibility through emissions trading.

The mandatory renewables target came from German chancellor Angela Merkel because, Whitehall believed, of strong German anti-nuclear sentiment and her belief that it would help Germany's renewables industry. There is considerable irony in Blair committing to a highly aggressive target for the UK. In terms of public service reform, Blair became a fervent champion of choice and competition. Electricity privatisation was the last, the biggest and the most ambitious privatisation of the Thatcher years. As we shall see, by and large, it produced the benefits its advocates claimed it would. Yet it was Blair's decision at that European Council that paved the way for the re-imposition of state control. This was not a question of the *scale* of investment involved: deep state intervention would be required to obtain the *type* of generating capacity required by the state to meet the state's arbitrary renewables target.

Renewables such as wind and solar are highly disruptive, high-cost generating technologies that damage the economics of conventional generating technologies required to keep the lights on when weather conditions are not favourable for renewables. Because of this, it is wishful thinking to base policy on the assumption that state control of the energy market will be transitory. It is safe to assume that state control of the electricity sector will last for as long as the state wishes to have substantial intermittent generating capacity connected to the grid.

19 Henney, A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition*.

This paper first examines the original rationale for privatisation and how it worked in practice. After New Labour's energy policy, it reviews the evidence in Ofgem's 2008 Probe updated with evidence from a 2014 joint Ofgem/CMA market assessment. It concludes by questioning the structural soundness of the sector. Returns are skewed towards supply, which is under political attack and subject to the current CMA investigation, whilst returns on capacity to keep the lights on are negative.

3. Privatisation and liberalisation

3.1 Bring on the market

In his authoritative 2003 book *Energy, the State, and the Market,* Dieter Helm dates the appointment of Nigel Lawson as Energy Secretary as marking "the real turning point" in post-war energy policy.[20] According to Helm, Lawson's speech the following year on the market for energy was revolutionary, influencing much of what followed.[21] In it, Lawson questioned the wisdom of what policy was based on and precisely what it is now to, that is,

> "guessing the unguessable – namely, what UK energy consumption will be in twenty, let alone fifty years' time – and then aiming to produce this amount judiciously divided up between the primary fuel sources."[22]

Lawson went on to reject the planning orthodoxy of the day:

> "I do *not* see the Government's task as being to try to plan the future shape of energy production and consumption. It is not even primarily to balance UK demand and supply for energy. Our task is rather to set a framework which will ensure that the market operates in the energy sector with a minimum of distortion and energy is produced and consumed efficiently."[23]

In a nutshell, the right approach was to treat energy as "a traded good", Lawson argued. If Lawson's critique about the folly of planning the electricity sector in the post-war years was right, it also constitutes a fundamental rejection of the entire basis of EMR (see Box 2).

20 Helm, D. (2003), *Energy, the State, and the Market*, p.57.
21 Ibid., p.7.
22 Lawson, N. (1992), *The View from No.11: Memoirs of a Tory Radical*, p.165.
23 Helm, D. (2003), *Energy, the State, and the Market*, pp.57-58.

Box 2: Excerpts from EMR (1) and National Policy Statement for Energy (2)

Source: DECC (2012), *Electricity Market Reform: Policy Overview,* p.10 & Box 1; DECC (2011), *Overarching National Policy Statement for Energy (EN-1),* pp.9-10.

1. "The Government's view is that we cannot rely on any single form of generation and instead we should pursue a portfolio approach.

   …

   "The Carbon Plan highlighted that even in 2050 unabated gas could still have an important role to play in ensuring a secure, flexible and low-carbon system, albeit operating much less than it does today."

2. "By 2050, we can expect that fossil fuels will be scarcer, but will still be in demand, and that prices will therefore be far higher. Further, the UK's own oil and gas resources will be depleting and, worldwide, the costs and risks of extracting oil in particular will be higher"

The timing of Lawson's rejection of planning was prescient. Sharp rises in oil prices in the 1970s convinced many that high energy costs would be a permanent feature of economic life. But as Professors Peter Pearson and Jim Watson point out in their review of UK energy policy, between 1984 and 1986, the price of oil nearly halved, from nearly $30 to $14. Prices remained reasonably stable until a surge at the time of the first Gulf War before falling to as low as $13 in late 1998 (all in money of the day prices). Pearson and Watson observe:

> "These longer terms in 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.' This insight

> offers an enduring message to actors in energy markets and policy."[24]

In addition to their belief in their ability to forecast energy prices, advocates of renewables cite energy security as an apparently new factor since the 1980s. In fact "keeping the lights on" was a major preoccupation of the Central Electricity Generating Board (CEGB). It also ignores the historical context. Ted Heath's Conservative government had fallen because the second of two miners' strikes led to power cuts and a three-day week. Ministers in the Thatcher government planned on the basis that another strike was all but inevitable.

Lawson's response was to stockpile coal at power stations. As the outcome of the 1984-85 miners' strike demonstrated, stockpiling is a pragmatic, low cost solution requiring minimal government intervention which worked.[25] Similarly the US established the Strategic Petroleum Reserve (SPR) in the aftermath of the 1973-74 oil embargo. According to the US Department of Energy, "The SPR's formidable size (capacity of 727 million barrels) makes it a significant deterrent to oil import cut-offs and a key tool of foreign policy."[26]

The carrying cost of stockpiling is orders of magnitude less than the Government intervening to change the basis on which electricity is generated, burdening the economy for decades to come. That it was not evaluated as an option to meet this or the previous government's energy security objective shows its spuriousness as a policy justification, one which weather-dependent intermittent renewables are singularly ill-equipped to meet.

3.2 Privatisation – the intention

Electricity privatisation had to wait to Thatcher's third term and publication of the *Privatising Electricity* White Paper in February 1988.

24 Pearson, P. and Watson, J. (2012), *UK Energy Policy 1980-2010: A history and lessons to be learnt*, p.8.

25 The Government also benefited from running big oil-fired plant that had been mothballed for a number of years. By contrast, today older coal-fired power stations, such as Didcot A, are being demolished, reducing the responsiveness of generating capacity to changes in the prices of primary energy sources.

26 US Department of Energy website, *Strategic Petroleum Reserve*, http://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve. Accessed September 2014.

The CEGB had been formed thirty years earlier as a system monopoly, generating, transmitting, supplying electricity and developing new electricity assets. Unlike the privatisation of British Gas in the Thatcher government's second term, which was only restructured once in the private sector, the Government proposed to restructure the CEGB into a transmission system operator (which eventually became National Grid), 12 regional electricity companies (RECs) and two generating companies separated by the Pool to set wholesale prices through rigorous auctions.

In his invaluable account of the privatised British electricity industry Alex Henney, who was appointed to the London Electricity Board in 1981, wrote:

> "As I got to know the industry I realised that it was politically managed to support expensive deep mined British coal; to support the development of expensive nuclear plants; to provide work for British plant manufacturing companies; was overmanned; and – provided the lights stayed on – was to a degree run for the benefit of the employees than its customers. In short, it was inefficient and expensive."[27]

Preparations for privatisation revealed what Whitehall had tried but could no longer ignore – the shockingly poor performance of the British nuclear industry. Long after the French had switched to American designed water cooled reactors, the British were pursuing the dead-end technology of gas-cooled reactors (AGRs), building some of the most expensive nuclear power stations in the world. a feat the Coalition Government is trying to repeat with the planned Hinckley Point reactor (See Box 3). For example, Dungeness B, the first of the AGRs took 22 years to build and cost more than five times its budget.

In fact, the deep systemic failures of British nuclear power policy were spelled out in 1967 by Duncan Burn, in his perceptive IEA study *The Political Economy of Nuclear Energy*. In 1976, David Henderson's University College London inaugural lecture presented a mid-term cost-benefit analysis of Concorde and the AGR programme under the title "Two British Errors." In a subsequent radio talk, Henderson

27 Henney, A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition*, p.viii.

suggested that they might come to be seen as "two of the three worst civil investment projects in the history of mankind."[28] Burn extended and updated his critique in 1982 in his book *Nuclear Power and the Energy Crisis*, but his work was disregarded in Whitehall.

Eventually the CEGB gave up on gas-cooled technology and switched to pressurised water reactor (PWR) for Sizewell B. After the longest and most expensive planning inquiry until then, the planning inspector came to the palpably absurd conclusion that "the probability that a coal station will be cheaper than Sizewell B is about one chance in forty" – such is the way nuclear power can dazzle people from seeing the obvious.[29] There had been plans for three more PWRs. Privatisation meant they were never built.

Box 3: Hinkley Point C nuclear project

Source: Liberum Capital (2013), *Flabbergasted – The Hinkley Point Contract;* Atherton, P. (2014), "Why has Britain signed up for the world's most expensive power station?", *The Spectator,* 22 February; Fennovoima website (2013), "Fennovoima and Rusatom Overseas signed plant supply contract", http://www.fennovoima.fi/en/news/news/fennovoima-and-rusatom-overseas-signed-plant-supply-contract. Accessed September 2014; European Commission website (2013), "State aid: Commission opens in-depth investigation into UK measures supporting nuclear energy" http://europa.eu/rapid/press-release_IP-13-1277_en.html. Accessed September 2014.

On 21 October 2013, the Government announced it had signed an agreement with EDF for the construction and operation of two 1,600 MW nuclear reactors at Hinkley Point C (HPC) for £16 billion. According to Peter Atherton, utilities analyst at Liberum Capital, the project's capital cost at £5 million per MW makes it the world's most expensive power station on a per MW basis (except for hydro schemes, where costs vary with terrain), describing HPC as "one of the worst ever signed by a British government."

28 David Henderson, "Plus ça change …" (29 March 2013) http://www.thegwpf.com/david-henderson-ca-change/
29 Ibid., pp.84-85.

- Atherton says HPC's 9-year construction period is also the longest of any power station. By comparison, the capital costs of a new gas-fired power station are around £0.7 million per MW and takes two years to build.
- Excluding fuel and other operating costs, for HPC's capital outlay, gas-fired power stations could generate more than eight times as much electricity.
- EDF will be paid an indexed strike price of £92.50 per MWh – 85 per cent higher than current wholesale – over-rewarding for inflation as once completed, a large proportion of HPC's costs are historic.
- The £92.50 per MWh strike price for HPC compares to "less than 50" (£40.83) per MWh for the planned Hanhikivi 1 nuclear power plant that is to be constructed in Pyhäjoki, Finland. Atherton estimates that HPC will generate annual profits of up to £2 billion (rising to £5 billion by the end of the 35-year contract period) for generating 7 per cent of the UK's electricity compared to the combined profits of all the power stations owned by the Big Six of only £2.1 billion in 2012
- The contract is structured so that EDF recovers the full value of its investment over 35 years, even though HPC is likely to have an asset life of 60 years
- Atherton calculates that HPC investors should be able to extract £65-80 billion in cash dividends as well as pay off all construction debt.

On 18 December 2013, the European Commission announced it had opened an in-depth investigation to examine whether the Government's plans to subsidise the construction and operation of HPC are in line with EU state aid rules. In particular, the statement said that the Commission doubted that the project suffered from a genuine market failure.

Instead of allocating the CEGB's power stations between ten or more companies, the Government created a generating duopoly. Big G (which became National Power), with 70 per cent of Britain's generating capacity, would be large enough to absorb the risks of

erratic performance of nuclear power and finance the construction of Sizewell, the balance being allocated to Little G (which became PowerGen).

Having created a generating duopoly to transfer the nuclear power stations and associated liabilities to the private sector, it was decided in late 1988 that the aging Magnox reactors were not floatable. A year later, the rest were pulled out of the package.[30] However there was not enough time to re-divide the power stations assets to create a competitive generating sector. Thus the impact of nuclear on electricity privatisation was to create a huge distortion that took the electricity regulator and the market more than a decade to overcome.

To pay for the higher cost of nuclear electricity and contribute to de-commissioning costs, the Government imposed a fossil fuel levy and a non-fossil fuel obligation forcing the RECs to buy nuclear power, a small proportion of which was also used to fund renewables. To protect the coal industry, the Government put in place three-year contracts at above-market prices – hardly the action of a Prime Minister intent on destroying the coal industry as is sometimes alleged.

The 12 RECs, each owning stakes in National Grid, were floated in November 1990 and 60 per cent of National Power and PowerGen four months later. Compared to the CEGB, the newly privatised companies had strong incentives for efficiency and were subject to much more transparent financial reporting. But competition was hobbled by the generating duopoly whilst the political focus was on opening the RECs to competition by 1998. Now it was up to the market and Stephen Littlechild, the first electricity regulator, to make a success of Britain's largest and most complex privatisation.

30 The financial performance of the nuclear power stations strongly improved and as British Energy, the nuclear assets were privatised in 1996 and for a time became Britain's largest energy company. However the company's high costs and the erratic performance of some of its reactors made it vulnerable to falling electricity prices. In 2002, the Government bailed out British Energy and in 2008, it was acquired by EDF.

3.3 Privatisation – the results

Freed from the CEGB, privatisation had a dramatic impact on productivity. Between 1991 and 1995, National Power and PowerGen cut staff numbers by two thirds and one half respectively.[31] (It should also be noted that the state-owned nuclear generating companies, led by commercially focused managers, also improved their performance in anticipation of their eventual privatisation). In addition, privatisation led to greatly improved capital allocation. Plans for additional nuclear PWRs after the completion of Sizewell B were abandoned, as were the CEGB's plans for a string of very large coal-fired power stations.

Coinciding with privatisation, in 1990 the EC revoked its 1975 directive restricting the burning of gas for power generation. Looking for ways to accelerate entry into generation, Littlechild permitted RECs to include power purchase costs from independent power producers (IPPs) in the allowable costs that could be passed on to customers. This sparked Britain's "dash-for-gas". RECs partnered with energy companies to form IPPs and contracted to buy electricity from them. By 1993, all but one of the RECs had signed 15-year power purchase agreement with IPPs and invested equity in a total of 5.5GW of Combined Cycle Gas Turbine (CCGT) plant. A further 5GW of CCGT capacity was developed by National Power, PowerGen and other investors. As a result, the share of gas as a primary energy source in electricity generation rose from nothing in 1990 to around one third by the end of the decade.

Rather than cut prices, the generating duopolists had a mutual interest in ceding market share to new entrants to maintain high prices. According to Henney,

> "Because their supply cost curves were very flat across the 1960s 500MW units which had similar thermal efficiencies hence marginal costs, both appreciated that to take market share from the other would lead to Pool price collapse. It was more profitable to allow new entry and keep up the Pool price. Also there was a tacit truce around building new CCGTs provided both closed old plant in step with each other."[32]

31 Henney, A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition*, p.20.
32 Ibid., p.18.

The resulting high electricity prices over-stimulated investment in CCGT and caused a faster run down in coal than would otherwise have occurred. Between 1990 and 1993, coal consumption halved, falling from 84 to 42 million tonnes.[33]

Littlechild quickly became concerned about the duopolists' Pool bidding behaviour. His first report in December 1991 found that PowerGen had gamed Pool rules. Three months later, the House of Commons Energy Select Committee urged the regulator to reduce the concentration of National Power and PowerGen and to decide whether to make a reference to the Monopolies and Merger Commission no later than 1995 to assess whether they were acting anti-competitively. In response to pricing and divesting undertakings from National Power and PowerGen, in 1994 Littlechild decided against making a reference to the MMC.

However both companies subsequently found ways of gaming the price cap. The divestment undertaking was frustrated by leasing generating assets to the same company, Eastern Electricity, which had been acquired by Hanson. A report by the Brattle Group economic consultancy subsequently found that "Eastern has engaged in the same type of strategic bidding behaviour that was cited as evidence of market power prior to the divestiture."[34]

Having electricity prices well above marginal costs wasn't primarily the fault of the Pool. It was caused by privatising a generating duopoly. As Littlechild explained in 2009,

> "The problem was that, by privatising the duopoly, the Government was asserting that this was (on balance) in the public interest, and the onus of proof was therefore on the regulator to show that conditions had changed, or evolved in a way that was not foreseen at privatisation. A significant issue is that it took time to accumulate such evidence."[35]

However Littlechild believes the Pool prolonged the duopolists' pricing power because old coal-fired power stations were marginal plant that set the Pool price, which enabled the duopoly to increase prices. The New Electricity Trading Arrangements (NETA), which

33 Ibid., p.3.
34 Ibid., p.22.
35 Ibid., p.37.

replaced the Pool, took this lever away from them. They could get more from selling plant, which they did – and quickly – before the price collapsed.[36]

Whatever the optimal arrangements for the wholesale market might be, the duopoly was created in order to achieve privatisation of the nuclear stations. In the event, it was realised that the nuclear stations were too costly and risky to privatise, but it was too late to undo the duopoly structure. If there had been no significant nuclear generation, privatisation would have been smoother and electricity prices would have fallen much sooner than they eventually did. Without privatisation, the huge costs and inefficiencies of nuclear power would have remained hidden.

A 1997 analysis by David Newbery and Michael Pollitt estimated a £4-10 billion range of net benefits from privatisation. A later reassessment by Stephen Littlechild and Geoffrey Horton, which assumed the CEGB would have built more nuclear and coal-fired power stations, yielded a higher net benefit estimate of £23 billion.[37] The political problem was that the efficiency gains from privatisation appeared to go overwhelmingly to shareholders and not to customers. Indeed, Newbery and Pollitt calculated that over 100 per cent of the privatisation benefits went to investors, whereas Littlechild and Norton's analysis, which takes account of the subsequent fall in costs and prices, reckon about half the benefits went to customers.

Between 1990-91 and 1993-94, the combined pre-tax profit of National Power and PowerGen rose by 60 per cent.[38] Having argued that they needed to spend £5 billion over the 5-year regulatory control period, the RECs were given a soft price control ahead of privatisation. Instead they spent £2.8 billion on dividends and share buybacks. Once exposed to the capital markets, investors and bidders saw that the RECs had been privatised with too little debt. Special dividends and debt-financed takeover activity in the mid-1990s helped fuel the Labour party's popular demand for a windfall tax on utilities. It seemed virtually everyone was benefiting from privatisation except for customers.

36 Stephen Littlechild, email to author, 21 July 2014.
37 Littlechild, S. (2014), "Competition and Regulation in the UK Electricity Market", *economique publique* (14), 1-12.
38 Ibid., Exhibit 5.

3.4 Assessment

Ultimately the duopoly's ability to maintain prices succumbed thanks to divestments, new entrants and surplus capacity. By April 2000, this had become evident when prices started falling by 10-20 per cent. The market, assisted by pro-competition interventions by the electricity regulator, solved the market distortion created by privatising the generators as a duopoly.

So too, it can be argued, price regulation worked as intended. RPI-X had been developed by Littlechild and applied by the Government to the regulation of BT as an improvement on US-style cost plus regulation. The purpose of RPI-X regulation is to give the regulated firms incentives to uncover efficiencies which the firm retains until the next price cap review. The regulator can then use this information in setting prices for the next control period, thereby benefiting customers.

The RECs' operating costs fell by about one quarter between 1994-95 and 1997-98 compared to the RECs' forecast of 7 per cent.[39] But regulatory techniques caught up over time and the RPI-X approach never claimed perfect foresight. The aim was to provide the incentive for companies to discover ways of increasing efficiency, which over time could be passed on to customers. That is precisely what happened. According to Henney, the 2005 review, led by the second regulator Callum McCarthy (responsible for gas and electricity with the creation of Ofgem), involved extensive preparatory work and greater rigour. "Finally fifteen years after vesting", Henney notes, "the 2005 distribution review achieved a reasonable procedure with reasonable data – RPI-X control in the electric industry had come of age."[40]

39 Ibid.,p.230.
40 Ibid.,p.238.

Policy Lesson #1

There is a big political premium in getting the initial conditions right. Although privatisation worked, uncompetitive initial conditions helped create the impression that the benefits went overwhelmingly to shareholders. Securing competitive conditions at the outset improves the post-privatisation politics, reducing the political incentives to intervene.

Many electricity economists, especially those with international experience, question the sustainability of the post-privatisation incentives to invest. The price reductions came from having wholesale electricity prices equal to marginal cost. As a result, plants were not generating a contribution to their capital costs for around 80 per cent of the time. Incentives for new investment are therefore driven by expectations of higher prices in less than 20 per cent of cases and in periods of high demand. In such a market, the only kind of power plants that are attractive are CCGTs with their very low capital costs and falling operating costs thanks to improvements in thermal efficiency.

According to Professor Gordon Hughes of Edinburgh University, the UK electricity system has been coasting off the investment decisions made a decade and more ago. The fall in prices following the introduction of NETA was a play on the surplus capacity built up in the 1990s which gave a temporary benefit to consumers at the cost of undermining the incentive to invest in replacement capacity. If there had been effective investment incentives, Hughes believes that until 2005, when gas prices rose, there would have been more investment in CCGTs, more repowering of older CCGTs with more efficient turbines and more coal-fired power stations would have been retrofitted with flue gas desulphurisation units. Investment in the latter would have enabled consumers to benefit from the recent fall in coal prices. Instead, the system was in effect saved by the 2008 recession which postponed growth in demand for six years or more.[41]

41 Gordon Hughes, emails to author, 3 & 12 September 2014.

4. Energy policy under New Labour

According to Helm, after enactment of the windfall tax, the Government under New Labour shared its predecessor's vision of competition and liberalisation transforming energy into a normal commodity market. The Government committed to low prices as policy objectives – set out by the Treasury in the DTI's Public Service Agreement and stated as a policy objective in the 1998 White Paper.[42] Despite New Labour's pro-market rhetoric, inadvertently its policies were to lead to the erosion of a competitive market in energy:

- Philosophically it viewed the market as a tool to deliver public policy objectives with the regulator acting as delivery agent and nominally competing private companies treated as the public sector's corporate partners;
- The concept of energy security gave ministers a new and powerful rationale to justify strategic interventions; and
- The likely consequences of abolishing the Pool and facilitating the vertical and horizontal consolidation of the industry were not systematically examined.

Whilst there is considerable cross-party policy continuity between New Labour and the Coalition on regulation and the politics of energy security, there are recent signs of rupture. Reversing vertical integration, as proposed in Labour's 2013 Green Energy Paper, implies a repudiation of how the industry evolved during New Labour's first decade, which is charted in Annex I. Indeed vertical separation has become something of a silver bullet for politicians as a way of shifting the focus from the consequences of Government policy. However the conditions for imposing such structural changes that might yield significant consumer benefits are long gone and would require reversing state support for renewables.

4.1 Regulation and the Third Way

For the privatisation pioneers of the 1980s, economic regulation should be targeted on the residual monopolistic parts of the market with the aim, as far as possible, of providing incentives to increase efficiency. Making regulation limited in scope and predictable in

42 Helm, D. (2003), *Energy, the State, and the Market*, p.386.

means would help reduce regulatory risk. This in turn would reduce the additional cost of capital and returns that investors would demand.

In Helm's view, New Labour struggled to come to terms with the Conservative legacy, embracing competition within its "modernizing", "new" agenda, but without appreciating how radically different markets could be.[43] Thus New Labour took a more expansive view of the role of regulation. As Helm explains, New Labour's central policy dilemma was to:

> "create a more predictable and essentially technical regime with a correspondingly low cost of capital, on the one hand; and to intervene more to ensure that the wider social democratic agenda on social, environmental, and other public concerns is properly taken into account, on the other. This dilemma is a powerful example of what has been described as the 'third way': take what turns out to be two apparently contradictory agendas and try to pursue them both through the same policy instrument – regulation."[44]

The Utilities Act 2000 – described by Helm as "one of the worst examples of poor drafting in recent times" – gave the Government power to issue guidance to Ofgem regarding social and environmental objectives.[45] It also enabled the Secretary of State to set energy efficiency targets and provided for penalties of up to 10 per cent of turnover for failure to meet them.

Although the first incentives for energy efficiency had been introduced by the gas regulator before New Labour, putting them on an explicit statutory basis led to their expansion. An Energy Efficiency Commitment was introduced in 2002 with an estimated cost of £486 million. But what a subsequent Prime Minister reportedly described as "green crap" only had a tendency to grow. By 2013, the Energy Companies Obligation (ECO) was estimated to be costing consumers £1,336 million a year.[46] According to Ofgem, ECO adds £27 a year to the typical consumer's electricity and a further £27 to gas bills.[47]

43 Ibid, p.9.
44 Ibid, p.274.
45 Ibid, p.292.
46 DECC (2013), *Energy Company Obligation (ECO) delivery costs*, Table 1.
47 Ofgem (2013), *Factsheet 98: Updated Household energy bills explained*, p.3.

Alistair Darling's 2007 Energy White Paper noted that since 1996, the number of households in fuel poverty had fallen from around 6½ million to around two million in 2004. Since then gas prices had increased by 45 per cent and electricity prices by 29 per cent after inflation, causing an extra 1.6 million households to fall into fuel poverty in England alone.[48] The Government pressed the Big Six to increase spending by an additional £225 million (making a total of £375 million) on fuel poverty initiatives between 2008 and 2011. Ed Miliband's Energy Act 2010 took this a step further by providing a statutory framework for energy suppliers to provide price support for vulnerable customers via social tariffs, in the process turning them into welfare organisations – a role that historically the nationalised electricity supply industry had resisted.

The 2010 Act also broadened Ofgem's statutory duties by requiring Ofgem to consider the reduction of greenhouse gas emissions and delivering secure energy supplies as in the interests of customers. At the same time, the Act relegated Ofgem's duty to promote effective competition. In deciding what the best means of protecting customer interests are, Ofgem must first consider alternatives to competition.[49]

The Third Way approach to regulation led to creeping corporatism whereby the dominant dynamic is no longer competition between firms and is superseded by partnership with government acting in concert to deliver policy objectives. The more mandated costs loaded onto the cost of supplying energy, the less scope there is for competition to reduce energy bills.

48 DTI (2007), *Meeting the Energy Challenge: A White Paper on Energy*, p.77.
49 Energy Act 2010, s.17.

Box 4: EMR on regulation and delivery of government objectives

Source: DECC (2012), *Energy Bill Provisions for Ofgem Strategy and Supply Statement.*

The Coalition's Energy Act 2013 carries forward where its predecessor left off. Labour's provisions for issuing social and environmental guidance to Ofgem, which an Ofgem review said was "ineffective" (p.5), are replaced by a new Strategy and Public Statement (SPS). The purpose of the SPS is to align the way Ofgem regulates the sector with the Government's strategic priorities and objectives. The Act requires Ofgem to carry out its functions in the manner best calculated to further the delivery of specified policy outcomes.

The Government states that the SPS respects "Ofgem's independence in making regulatory decisions" (p.4) and does not compromise its regulatory independence (p.6). In reality, the SPS renders Ofgem's independence a dead letter. "Independence" merely signifies that it is left to Ofgem to decide how best to regulate the sector to deliver the outcomes specified by the Government in the SPS.

Furthermore, the Act imposes strict reporting requirements on Ofgem:

- Before the start of each financial year, Ofgem must draw up a forward work plan setting out how Ofgem intends to promote the outcomes required by the Government; and
- In its annual report, Ofgem must cover the extent to which it has implemented its strategy and contributed to the furtherance of government policy.

To all intents and purposes, EMR makes Ofgem an arm of government.

Policy Lesson #2

Using economic regulation as a tool of government policy is incompatible with having a competitive market. Instead economic regulation should be tightly focused on expanding competition and providing a substitute for competitive pressure via periodic price cap reviews.

A better way is to treat electricity as if it were entirely competitive and not subject to economic regulation, and use policy instruments such as taxation, welfare, public spending and traditional forms of regulatory interventions.

4.2 Energy security

The coal crisis of 1997/98 and New Labour's desire to protect the coal industry led to its first Energy White Paper. By way of background, in 1992, expiry of the coal contracts signed at the time of privatisation had led the Major government to announce the closure of 31 of 50 of British Coal's remaining deep mine pits. In response to the public outcry, Michael Heseltine, the trade and industry secretary, induced the generators to enter into further 5-year contracts with British Coal. The expiry of these forced the new government into an unplanned policy shift executed by Peter Mandelson.

The 1998 White Paper was, Helm says, "a triumph of 'spin' over substance."[50] The coal crisis was first and foremost political – 5,000 workers in 6-10 pits, many of which would have survived as they were co-located with power stations, at least until the UK's rigid application of the EU's 2001 Large Combustion Plant Directive. "What the coal industry faced in 1998 was not a collapse, but rather a cut-back followed by the uncertainty of shorter-term contracts," Helm notes. There were no security of supply issues. "Notwithstanding that it was very hard to conclude that an economic case could be made for intervention to protect the coal industry, for political reasons the DTI made its best efforts to present one."[51]

50 Ibid., p.9.
51 Ibid., pp.298-299.

The expedient Mandelson came up with was a short-term halt on approving consents for new CCGTs, the White Paper taking pains to downplay its longer term policy implications:

> "The policy will be short-term, temporary and aimed specifically at protecting diversity and security of supply while the distortions [sic] in the market are removed, so that the final result is a competitive market that can operate more vigorously and effectively."[52]

The White Paper defined the central objective of energy policy as being to "ensure secure, diverse and sustainable supplies of energy at competitive prices."[53] But as Helm says, "lending support to a dirty fuel source such as coal whilst acting against a cleaner source such as gas required some additional spin." [54] This contradiction was rationalised with the contortion that the White Paper's definition of sustainable development was to include "social progress which recognises the needs of everyone."

This was by no means the first sleight of hand to get around an awkward corner of energy policy. At privatisation, the Government had come up with the non-fossil fuel levy on the grounds of "paying for the cost of diversity" when in reality it was about subsidising uneconomic nuclear power stations. Basing energy policy on appeals to national security also involves repeating the tried and failed policies of the 1970s. Reacting to the 1973 Arab oil embargo against the US, President Nixon announced Project Independence to reduce America's reliance on foreign oil and three and a half years later, President Carter launched a comprehensive energy plan as the market couldn't deliver energy security, which Carter called "the moral equivalent of war." As Americans discovered, policies based on autarky and the assumption of scarcity ended up creating shortages which ended when his successor deregulated energy markets.

52 DTI (1998), *Energy White Paper – Conclusions of the Review of Energy Sources for Power Generation*, para 2.43.
53 Ibid., para 2.2.
54 Ibid., p.302.

Policy Lesson #3

On energy security, there needs to be a compelling justification to override the economics of free trade. Historically, appeals to energy security have resulted in the very energy shortages energy security was meant to avoid. In the case of EMR and its precursor policy, the failure to evaluate stockpiling as a means of boosting energy security is evidence that energy security is used as a cover for other objectives, as it was when it was first used by the Government to try to prop up the coal industry.

5. From competition to oligopoly

In retrospect, the period from 1998 to the early 2000s was the high point of competition in the British electricity market. Thanks to the electricity regulator permitting RECs to pass-through CCGT costs, the "dash-for-gas" led to an abundance of generating capacity, triggering a collapse in prices. Even more ambitious was the opening up of retail electricity supply to competition. This enabled politicians and regulators to cite Britain's liberalised energy market as an example to be emulated in other EU member states. As noted above, the sharp reversal in energy prices from 2005 led to rising concern about the effectiveness of competition. At this stage, Ofgem's stance was that competition was working for consumers. This was countered very publicly by assertions from the consumer champion Energywatch (one of the few useful innovations of the Utilities Act 2000, which, however, disappeared in a 2008 reorganisation), culminating in the launch in 2008 by Ofgem of its Energy Supply Probe.

The achievement on introducing competition at the retail level tended to divert attention from the greater importance of upstream competition, which accounts for a much higher proportion of total costs. As Ofgem noted in the 2008 Probe, the energy supply business is characterised by its very high level of pass-through costs. It has very little capital and represents around 7 per cent of the added costs.[55] Around 20 per cent of costs relate to transmission and distribution, which are determined by Ofgem and not set competitively. Government-mandated costs account for a further 11 per cent (plus 5 per cent VAT on top), leaving around half represented by wholesale energy costs.

5.1 The introduction of retail competition

Preparation for privatisation revealed that in separating traditional bundling distribution of network delivery with supply, the supply margin was small and in 1988 the Government set targets for the phased opening of the customer market to full competition:

- From 1990, for sites with a load above 1MW (approximately 30 per cent of consumption)

55 Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, p.9.

- April 1994 all sites with load above 100kW (20 per cent of consumption)
- April 1998 (the remaining 50 per cent) – hence the 1998 project

Industry insiders and experts tended to be dismissive of the effectiveness of retail competition. In a 2008 paper, Littlechild recalls being told by two eminent US energy economists in around 1990 that retail competition wouldn't catch on. "The larger customers already get a good deal from special tariffs and the smaller customers won't be interested", they told him. To Littlechild's suggestion that consumers would choose their electricity suppliers, perhaps from the Yellow Pages, a chairman of a REC, who had been given responsibility for coordinating arrangements for retail, replied, "It will never happen."[56]

It did.

According to the National Audit Office (NAO), by June 2000, one quarter of all domestic customers (6.5 million) had changed their electricity supplier. Every month, some 400,000 customers were switching.[57] The NAO commented that,

> "the rate of switching in the gas and electricity markets is higher than in many other British markets and overseas electricity markets."[58]

Those 6.5 million saw their bills fall by £299 million since the start of competition, representing a 15 per cent reduction after inflation.[59] Because of the costs of competition, customers were paying on average an extra £4 a year and customers who had not switched had not benefited financially "to any significant extent" and some "may have lost out slightly." Even these customers had been able to benefit from a wider range of tariffs, including dual electricity and gas offers, the NAO said.[60]

Extending competition to millions of households presented enormous IT, logistical and operational challenges, requiring coordination of

56 Littlechild, S. (2008), "Retail competition in electricity markets – expectations, outcomes and economics", *Energy Policy*, p.760.
57 NAO (2000), *Giving Domestic Customers a Choice of Electricity Supplier*, p.1.
58 Ibid., p.3.
59 Ibid., p.2.
60 Ibid., p3.

business processes and systems across competing suppliers. Whilst there had been complaints from customers who had switched, according to the NAO, surveys suggested that those experiencing problems were "a relatively small proportion."[61] Overall the NAO judged the introduction of retail competition to be "a major achievement" by the energy regulator.[62]

In addition to suggesting that consumers wouldn't be interested in switching, critics argued against mandating competition to all households because average residential consumption was too small. In a submission to the DTI in 1995, Henney concluded that there was "no justification for developing an enormous system to force feed competition to small customers."[63] In *The British Electric Industry 1990-2010*, Henney argues that the outcome demonstrates that the benefits of retail competition are outweighed by its costs because of the modest size of average household electricity bills:

> "A fundamental reason for the lack of benefit is that residential consumption in Britain is modest at an average of 4,000 kWh p.a., representing in 2009 about £250 in energy costs together with the supply cost of about £75. In consequence competition is not worth the very significant transaction costs and the expensive infrastructure."[64]

When the Pool was operating, auction price-setting drove competition between generators and through them, between primary energy sources. Bilateral trading and vertical integration fundamentally altered competitive dynamics over the largest component of the electricity value chain. It meant that the driver of competition became customers shifting tariffs and switching supplier feeding back upstream to drive efficiencies in generation, accounting for around half of the cost of electricity. Vigorous competition between suppliers for customers provides the critical impulse animating the market.

To Littlechild, downstream competition driving upstream was an important part of the case for opening the market whilst critics of

61 Ibid., p.4.
62 Ibid., p.1.
63 Henney, A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition*, p.149.
64 Ibid., p.200 .

retail competition ignored the alternative. In all likelihood the regulator and/or the government would have stepped in to determine wholesale purchasing, hence in turn generation, Littlechild argues.[65] In other words, empowering consumers would be the best way of preventing a return of state control through the back door.

The debate on the purpose and value of retail competition has direct relevance today. With the renewables target and EMR, the state has stepped in to prescribe the generating mix. As a result, retail competition does not drive upstream competition and investment decisions in generating capacity. Thus EMR places a large question mark over the putative benefits of retail competition. Nonetheless, policymakers view fixing the retail market as the solution to high household energy bills when policy interventions in electricity generation, culminating with EMR, reduce the ability of retail competition to drive down wholesale prices.

5.2 The effect of competition

Competition spawned a wider range of tariffs, as suppliers competed to attract and retain customers with packages better suited to their preferences. These included fixed price 12-month deals, green tariffs and ones with no standing charges. In terms of customer take-up, the two most significant innovations were:

- Payment by monthly direct debit
- Dual fuel tariffs

The development of dual fuel tariffs were strategic responses by the RECs and Centrica to the legacy inherited at privatisation. In 1996, the residential gas market was opened up to competition. British Gas was over-supplied with over-market priced legacy supply contracts whilst RECs were encumbered with over-market priced power from project financed independent power projects conceived in the early 1990s. Thus the British Gas strategy was to offer “cheap electricity” to protect its expensive gas prices and the aim of the electricity companies was to do the opposite.

Initially electricity companies acquired customers through door-to-

65 Stephen Littlechild, email to author, 21 July 2014.

door marketing efforts. Beginning in 1999, the stronger electricity companies bought up RECs for as much as £300/customer even though annual profits were no more than a tenth of this amount. Buying customers by buying companies reflected the difficulties in prising away high margin/low switching customers from the incumbents, in turn highlighting their market power.

High levels of reported customer satisfaction persisted until February 2000 when Ofgem reported that many customers had difficulty in comparing different suppliers' prices. Four years later, Ofgem found that "despite often being the most expensive dual fuel supplier, British Gas supplies 44 per cent of all dual fuel customers."[66] There emerged evidence of two-tier pricing – former electricity incumbents were charging 10 per cent more to their in-area customers than to out-of-area customers.

In efficient markets, prices are set at the margin. Although switchers benefit, their switching shifts the market to the benefit of all consumers. In energy, evidence accumulated that switching was closer to a zero-sum game. Those who switched benefited, but non-switchers didn't. Even then, switchers had to keep switching and switching did not guarantee a better deal. A 2005 paper by Professor Catherine Waddams of the University of East Anglia surveyed 3,100 customers. It found that 32 per cent of customers switched to a more expensive tariff. According to Waddams, these switching mistakes were caused by "decision complexity" rather than by conventional theories of rational decision-making.[67] Not everyone was a clear winner from retail competition but, as the NAO pointed out, possible losers also benefited from a wider range of tariffs (Table 1).

66 Henney, A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition* p.168.
67 Ibid., pp.169-170.

Table 1: Retail competition: Clear Winners and Possible Losers
Source: Author.

Clear Winners	Possible Losers
Switchers via the internet	Switching induced by door-to-door sales
Dual tariff customers	Non-switchers
Paying by Direct Debit	Single tariff customers
	Pre-payment customers
	Rural dwellers not connected to the gas network

5.3 The 2008 Ofgem Supply Probe

In April 2007, Energywatch published a highly critical report on the state of the electricity market. Its principal conclusion was that "there is a growing body of evidence that suggests that competition is less robust in Britain than generally asserted by policy makers and regulators and that many features of energy markets in Britain are operating against the interest of customers."[68] It triggered a spat between the energy watchdog and the energy regulator. Pointing to a high level of switching between suppliers, Ofgem claimed that its "research shows that customers are punishing firms that do not deliver on price and service."[69] Energywatch countered: "No-one can seriously think that switching, by itself, provides the answer for Britain's besieged energy consumers."[70]

However, the evidence catalogued in the Supply Probe by Ofgem, which appears to have undergone a change of heart about the effectiveness of competition, tended to confirm Energywatch's scepticism about the supposed competitive benefits of switching:

- Only 17 per cent of domestic consumers actively seek out competing offers and typically make accurate switching decisions.[71]

68 Ibid., p.171.
69 Ibid., p.171.
70 Ibid., pp.171-172.
71 Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, p.7.

- Many customers acquired via online price offers are initially loss-making and are only profitable over a number of years as prices are subsequently increased.[72]
- As many as one-third of switchers "may not" achieve a price reduction and 40 per cent of switchers do not benefit from lower electricity bills.[73]
- An IPSOS Mori survey carried out for the Probe found that "a majority believe the savings are not worth the hassle of switching or that the savings will only last a short time."[74]
- Similarly focus group research suggested that consumers had much lower interest in engaging in energy markets compared to those for mobile phones, internet access or car insurance. For the most part, "consumers see relatively little differentiation in the products or services offered by energy suppliers compared to many other products and services."[75]
- Although 80 per cent of consumers surveyed by Ofgem stated price was the main reason for switching, statistical analysis of switching found that less than 15 per cent of observed churn was explained by relative prices. "This implies that 85 per cent of the change in customer numbers is explained by something other than price."[76]
- The analysis found that the level of marketing expenditure is "very similar" in its effect on a supplier's churn rate as price – the more it spends on marketing, the lower its churn rate.[77]

Aside from analyses of switching summarised above, the Probe presented a wealth of evidence that should have rung alarm bells which is summarised in Annex II. As part of its March 2014 consultation on its proposal to refer the industry to the CMA, Ofgem and the CMA produced an updated *State of the Market Assessment* (Box 4).

72 Ibid., p.8.
73 Ibid., p.7 & Table 4.1.
74 Ibid., p.56.
75 Ibid., p.57.
76 Ibid., p.48.
77 Ibid., p.50.

Box 4: Ofgem/CMA 2014 State of the Market Assessment

Source: OFT, Ofgem & CMA (2014), *State of the Market Assessment.*

The key findings of the 2014 Assessment confirm those of the 2008 Probe:

- It did not find evidence to support industry contentions that 5 per cent was a "fair" margin[78]
- Switching rates have been falling since 2008[79]
- Levels of consumer trust and confidence fell since 2008, with 43 per cent of customers not trusting energy suppliers to be "open and transparent"[80]
- The high degree of vertical integrations with the Big Six owning about 70 per cent of generating capacity and wholesale market illiquidity are barriers to entry[81]
- There had been little convergence in supplier indirect costs, "as one might expect if competition were driving down costs"[82]
- Since the Probe, sales margins had risen[83]
- It concluded that the market was delivering "poor outcomes" for domestic consumers.[84] It also found that there were features of the market conducive to tacit coordination between suppliers.

Concluding the 2008 Probe, Ofgem expressed overall satisfaction with how the market was working:

> "Overall, the transition from monopoly gas and electricity supply ten years ago to competitive markets is well advanced and continuing to develop. Many consumers have benefited from lower prices, better service and a wider range of deals on offer. The Big Six suppliers are acting competitively and we have found no evidence of cartels."[85]

78 OFT, Ofgem & CMA (2014), *State of the Market Assessment,* p.7.
79 Ibid., p.9.
80 Ibid., p.10.
81 Ibid., p.14.
82 Ibid., p.110.
83 Ibid., p.111.
84 Ibid., p.11.
85 Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, p.1.

In part, this complacency stemmed from the report's terms of reference which meant that Ofgem did not assess the electricity market as a whole.[86] This was a serious error. The solution to an uncompetitive wholesale market is effective competition at the retail level. As Ofgem put it in the Probe, investment decisions in generating capacity might be influenced by the ability to pass costs through to end customers:

> "These issues are best addressed by ensuring a properly functioning retail market so that retailers are driven, by competitive pressures, to seek the lowest possible cost of wholesale energy – which in turn drives efficient wholesale investment."[87]

In other words, fix the retail market and the upstream generating and the competition in the wholesale market can look after itself. As explained in Annex I, since the Pool was replaced by NETA, ownership of a supply business and its customer base is a barrier to upstream investment by a potential new entrant. If there is a generating monopoly, no amount of downstream competition will break open the upstream monopoly. Yet in essence, that is where energy policy has taken the sector: The state, not the market, determines the mix of primary energy sources and, through CfDs and the levies used to fund them, consumers – not investors – end up paying for inefficient investment.

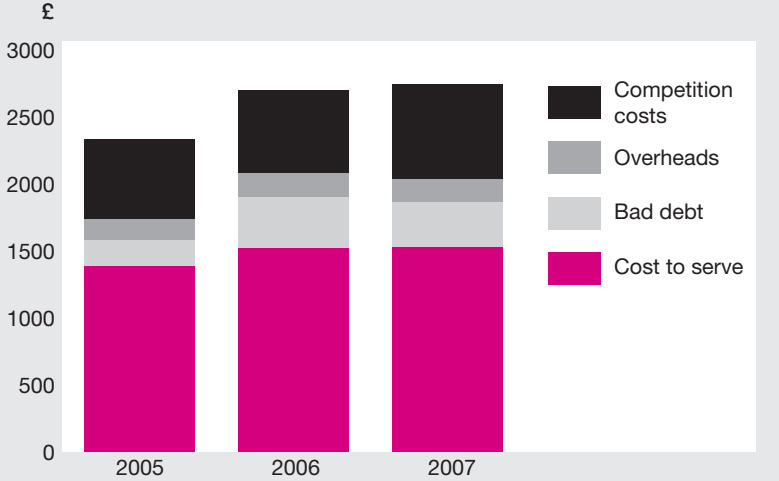
This raises important questions about the efficacy and benefits of retail competition. A central insight of the Nobel Laureate Ronald Coase is that markets are not costless. In the case of electricity supply, these are substantial. Excluding the direct costs of energy supply (wholesale energy purchase costs, network access and environmental costs), in the Probe, Ofgem estimated supply costs of around £2,775 million in 2007. Of this, around £730 million – over one quarter – were categorised as the cost of competition – comprising costs such as marketing, sales and transaction processing (Figure 2).

86 The introduction to the initial findings report states on p.4: "We have considered wholesale energy markets only to the extent necessary to assess whether retail markets are working effectively."

87 Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, p.140.

Figure 2: Breakdown of supply business costs for GB energy supply (£million, nominal)

Source: Ofgem (2008), *Energy Supply Probe – Initial Findings Report,* Fig. 7.11.



Ofgem's remedies to the failings documented in the Probe have been superficial, centring on trying to bring about what it calls more effective consumer engagement and regulating to eliminate what it calls unfair pricing differences. In 2013, the Government stepped in using powers in the Energy Act 2013 to restrict the number of tariffs suppliers can offer. "The package announced today is a huge step towards energy bills that are more fair for everyone," the Prime Minister said.[88] Narrowing the choice to the most popular and profitable packages, when suppliers are becoming price-takers from a state-specified generating mix, makes it increasingly hard to see the benefits of retail competition from the standpoint of economic efficiency.

Six years on from the 2008 Probe, it should be clear that the problems in the market are structural in origin and are not capable of being remedied by codes of practice or rules on tariff simplification, as in Ofgem's 2010 Retail Market Review. Moreover, its thesis that

88 Bachelor, L. (2013), "Energy bills to be made 'more fair' says Cameron", *The Guardian*, 21 February.

retail competition will drive upstream competition, what David Newbery characterises as "the lack of contestability in the present opaque and illiquid British market," is negated under conditions of strong state interventions into the type and quantum of generating capacity, culminating in EMR and state control.[89]

A 2012 joint OECD/Nuclear Energy Agency (NEA) study noted that the higher penetration of intermittent renewables (wind and solar) implies "an increasing wedge between the costs of producing electricity and prices on electricity wholesale markets."[90] The wedge is filled with the cost of out-of-market subsidies and price supports, which at the retail level, more than offset any reductions in wholesale prices. Thus policy has become a driver of rising energy prices. Under such conditions, the scope for retail competition to cut household bills will tend to shrink, whilst the costs of retail competition adds to them.

Policy Lesson #4

Policy needs to take account of the dynamics of the whole system and the location of cost along the value chain. Competition-based remedies for distortions created by ongoing policy interventions are not a substitute for changing those interventions.

89 Newbery, D. (2012), "Reforming Competitive Electricity Markets to Meet Environmental Targets", *Economics of Energy & Environmental Policy* Vol 1, No 1, p.81.

90 OECD/Nuclear Energy Agency (2012), *Nuclear Energy and Renewables: System Effects in Low-carbon Electricity Systems*, p. 14.

6.
Conclusions

This autumn, concern about the tight margin of generating capacity to peak demand ("will the lights stay on?") intensified with news that two nuclear power stations were suffering from boiler issues which, together with a fire at a coal power station, could mean up to around 3.6GW of capacity potentially not being available through the winter. In the short term, the aim is to keep the lights on by paying large energy users to curtail their consumption or switching to their back-up generation under National Grid's Demand Side Balancing Reserve scheme.

However the real crisis is long-term and structural. Growth of highly subsidised renewable capacity randomly flooding the wholesale market with zero marginal cost output destroys the economics of conventional generating assets. At the same time, profits in the supply business – attracting highly adverse media and political comment – remain robust. The problem can be seen from the most recent segmental reports which Ofgem requires from the Big Six. Excluding SSE, which has 1.9GW of renewable capacity but does not split out profits by generating technology, last year the rest of the Big Six recorded £711 million of profits from their supply business and £316 million of losses from generation (excluding profits from nuclear and renewables where these are separately identified).[91]

To address the policy-induced damage to investment incentives in thermal capacity, EMR sets up a Capacity Market. Even if – a big if – the technical design of the Capacity Market functions as intended, its effect is to raise electricity prices and means that revenues from all generating technologies are supported by policy interventions of one kind or another. This further increases the political risk of investing in the sector. Thus the cumulative effect of Government policy since demise of the Pool and the consolidation of the sector into the Big Six is to create a situation where:

- The profitability of the sector depends on high margins in the supply segment to offset losses in thermal generation. Last year, the profit margin of the Big Six in supply was 3.4 per cent[92] for an activity with very little capital and a high proportion of pass-through costs;

91 Ofgem (August 2014), "Energy companies' Consolidated Segmental Statements for 2013".
92 Ibid.

- Politicians are signalling to Ofgem and the competition authorities they want tough action with a view to reducing these profits and thus the ability of five of the Big Six to sustain losses on their thermal power stations;
- The Government and Ofgem have intervened to narrow customer choice. This together with state control of the country's generating mix reduces the potential benefits of supply competition; and
- Policy is continuously acting to push up electricity bills, thereby increasing political risk in turn driving up the cost of capital and deterring badly needed investment.

The American economist Herb Stein once famously observed: "If something cannot go on forever, it will stop." Britain's energy policy suffers from such deep contradictions that it cannot last. Growing awareness that this indeed is the case, through the channel of the capital markets and investor perception, will itself be sufficient to trigger its demise. This will leave only state investors (such as France and China), thus completing the circle from nationalisation through privatisation back to state ownership – this time by foreign states.

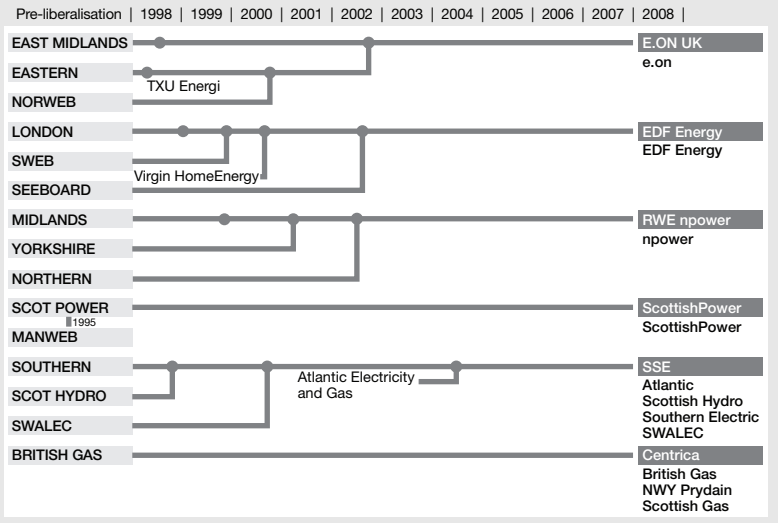
Annex I

Post-1998 and the emergence of the Big Six

Abolition of the Pool fundamentally altered the structure of the market. Bilateral trading rewarded vertical integration and penalised independent generation. A permissive attitude by the Government with respect to industry consolidation was the other prerequisite for the consolidation of the sector. With the Pool, combined ownership of generating and supply businesses did not yield significant competitive advantage (any portfolio benefit could in principle be achieved through other forms of hedging). With NETA, ownership of the RECs' supply businesses and Centrica's British Gas franchise created a barrier to new entrants upstream in generation. Yet there was no systematic analysis of the implications of the replacement of the Pool by NETA for the accumulation of market power (which the takeovers were designed to bring about) and the erosion of competition.

The takeover activity that led to the emergence of the Big Six started in 1998 and was completed by 2002 (Figure 7).

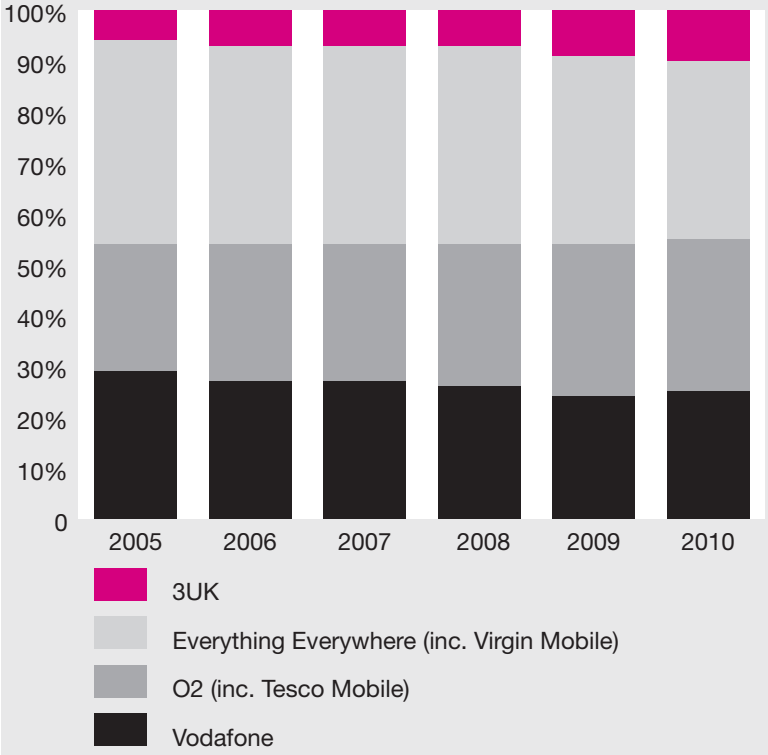
Figure 3: Consolidation of GB energy suppliers (1998-2008)
Source: Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, Fig. 2.2.



The advantages of downstream incumbency can be illustrated from the mobile telephony market. The best spectrum in the 2000 3G spectrum auction was reserved for a new entrant, together with a favourable roaming agreement on an incumbent's network. Two years after its launch in 2003, new entrant 3UK had a 7 per cent share of the market by revenue. Despite having the advantage of natural churn points of handset upgrades which is lacking in energy supply, in the next five years, 3UK increased its market share by only two percentage points to 9 per cent in 2010 (Figure 8). 3UK's market share is a little over one third that of Vodafone's 25 per cent share and one quarter of market leader EE's 35 per cent share.

Whilst 3UK's entry and aggressive pricing have been good news for competition and consumers, its poor financial performance has been less good news for its owner. Based on this experience, even if fresh spectrum became available, it would be very hard to make an investment case for a new entrant. The practical requirement to have a large number of subscribers in a fully penetrated market has effectively closed the market to new entrants.

Figure 4: Market share of UK mobile networks by revenue
Source: Ofcom website, "Everything Everywhere becomes UK's largest network in terms of revenue", http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr11/telecoms-networks/5.48. Accessed September 2014.



Note: Everything Everywhere includes Orange and T-Mobile prior to their merger

AI.1 NETA and abolition of the Pool

Vertical integration could not have happened without abolition of the Pool and its replacement by NETA. The Pool had a number of shortcomings:

- It could be gamed. As Littlechild puts it, "any pool price is set by a machine and algorithm and machines and algorithms are there to be beaten".[93]
- It gave too much pricing power to the generating duopoly with little scope for regulatory involvement.
- The Pool had been created as a club. To give investors assurance ahead of the flotations, changes to its rules were subject to members' veto. Despite many complaints and problems, it was not possible to get agreement on any substantial reforms because the generators exercised their veto.

In the light of this, Littlechild concluded that the Pool was unreformable, viewing it as the last remnant of the centrally planned electricity sector run by the CEGB, and wanted the incoming Labour Government to be supportive of reform. On being appointed Paymaster General in 1997, Geoffrey Robinson persuaded his colleagues in Government to initiate a review on energy supply. In Robinson's view, the "key question from a political perspective was why was gas enjoying a boom? The question always came back to the role of the pool … the more I involved myself in the technical details of the pool … the more I disliked what I learned."[94]

Littlechild set up an advisory panel which recommended permitting bilateral contracting and trading outside the Pool, which it said would facilitate "innovative trading arrangement" and claimed that "the proposed arrangements will promote more competition by providing better price discovery."[95] Although these claims were fundamental to its proposals and formed the basis of NETA (later extended to include Scotland, becoming BETTA – the British Electricity Trading and Transmission Arrangements), they have been challenged by critics.

93 Stephen Littlechild, email to author 19 July 2014.
94 Henney A. (2011), *The British Electric Industry 1990-2010: The Rise and Demise of Competition*, p.39.
95 Ibid., p.41.

According to Helm,

> "NETA became more an article of faith than a well-researched policy. An obvious clue was the fact that the main players were all in favour of abolishing the Pool and replacing it with a voluntary framework."[96]

Notwithstanding its governance shortcomings, Henney provides a forthright defence of the Pool. "The surprise is that given the speed with which it was put together, it functioned so well," he writes, quoting an executive involved in setting PowerGen's bidding strategies in the 1990s:

> "I remain in awe of the key architects of privatisation who achieved so much in so little time – and what is more the Pool delivered exactly what they wanted."[97]

In its July 1999 policy documents on NETA, Ofgem rejected concerns that vertical integration would render NETA less effective than it otherwise would be:

> "The proposed market arrangements are designed to provide the same opportunities for all market participants. The market rules do not benefit vertically integrated players at the expense of participants who are not vertically integrated."[98]

Henney argues that the reality was precisely the opposite and that NETA provides large vertically integrated companies with significant advantages:

- Enabling them to manage imbalances more precisely.
- Reducing their exposure to wholesale prices.
- Getting access to better market information by being on both sides of the market.
- By draining liquidity from the wholesale market, it led to greater volatility in wholesale prices, in turn increasing credit risk and thus generating further pressure for vertical integration.

96 Helm, D. (2003), *Energy, the State, and the Market*, p.312.
97 Ibid., p.36.
98 Ibid., p.47.

In the Pool, a generator just had to offer the plant every day and it was treated identically to all other generators – the Pool price was the reference price for the whole market. With NETA a new generator has to find someone to buy its output and there is no transparent market. Unsurprising NETA led to the demise of independent generators, the principal exception being Drax, the UK's largest coal-fired power station.

AI.2 NETA and New Labour corporatism

The first wave of corporate activity had occurred before abolition of the Pool. In September 1995, PowerGen announced a proposed merger with Midlands Electricity and the following month, National Power proposed a merger with Southern Electric. Meanwhile Scottish Power acquired Manweb and in 1996, Eastern (owned by Hanson plc) acquired 6MW of generating assets in a transaction structured by the vendors to prop up the generating duopoly.

Was common ownership of generating and supply businesses desirable? The proposed National Power/Southern Electric and PowerGen/Midlands Electricity deals were referred to the Monopolies and Mergers Commission, which reported in April 1996 that the mergers would not have sufficiently adverse effects to justify prohibition, although Littlechild and a minority dissented from this conclusion.

However NETA fundamentally changed the implications of common ownership. With the Pool, you could own but not integrate, as a generator's output would be sold on terms determined by the Pool. After it had gone and the start of retail competition from 1998 (see Section 5 above), integration followed – enabling companies to drain the wholesale market of liquidity and squeeze out independent generators.

1998 was thus the watershed year, marked by a frenzy of corporate activity involving horizontal and vertical integration. Mandelson announced that he would refer PowerGen/East Midlands merger to MMC unless they made suitable divestment undertakings, which he received. Scottish Hydro announced a merger with Southern Electric, which was not referred. In November, National Power announced it was buying the supply business of Midlands Electricity (involving the

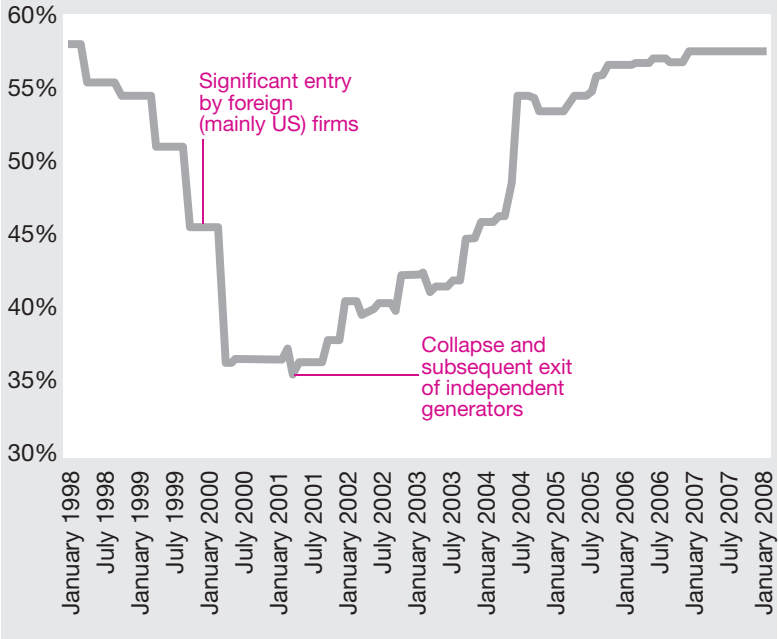
separation of the REC's distribution business). National Power also decided to sell the 4GW Drax power station.

The energy regulator and the director general of fair trading both recommended a referral but Mandelson's successor, Stephen Byers, decided against, accepting instead undertakings to divest generating assets. This was a serious mistake for two reasons:

- The divestment undertakings were essentially worthless in that the generators were being asked to do what they were going to do anyway. It was in the interests of the generators to reduce their exposure to generation. High prices had stimulated excess capacity and it was only a matter of time before prices and returns would fall. The divestment undertakings given by National Power (which became Innogy after the demerger of National Power's international assets) and PowerGen were nugatory; and
- The competition authorities had assessed the potential impact of industry consolidation in a pre-NETA world, but no such assessment was carried out after NETA.

As a result, energy policy was at the mercy of energy companies who knew what they wanted and ministers who didn't know what they were doing. Initially the effects of this merger and acquisition activity on the generating market were masked as IPP-financed CCGT capacity came on stream, leading to substantial excess capacity. As shown in Figure 9 below, competition peaked in 2001. The price collapse and subsequent capacity shake-out saw the share of what became the Big Six rise from around 36 per cent of England and Wales generating capacity at the start of 2002 to over 50 per cent eighteen months later.

Figure 5: GB generation capacity shares of the Big Six since market opening – England & Wales (1998-2008)
Source: National Grid, graph extracted from Ofgem (2008), *Energy Supply Probe – Initial Findings Report,* Figure 2.3.



According to Ofgem, by 2008, over 99 per cent of domestic energy consumers in Great Britain were supplied by six energy companies (Box 8) and since mid-2004, the share of generating capacity taken by the Big Six has consistently been between 50 to 60 per cent. Five of the Big Six (Centrica being the exception) could meet all their domestic and SME requirements from their own generation.[99]

99 Ofgem (2008), *Energy Supply Probe – Initial Findings Report*, p.29.

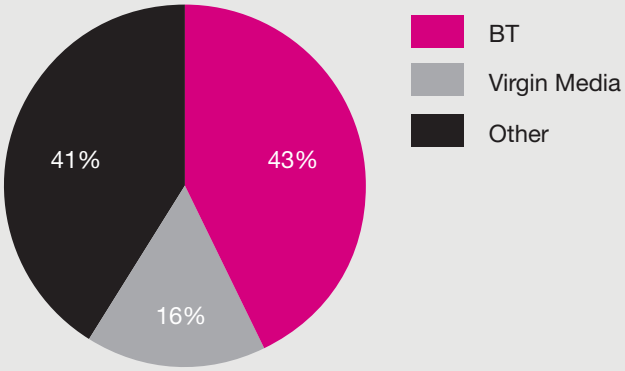
Box 5: The Big Six

Source: Ofgem (2008), *Energy Supply Probe – Initial Findings Report,* pp.27-28.

- **Centrica plc:** Centrica plc owns British Gas Trading which operates three retail brands: British Gas (in England), Nwy Prydain (in Wales) and Scottish Gas (in Scotland). Its energy supply business was operated by the former gas incumbent, British Gas, prior to demerger in 1997.
- **E.ON UK:** A wholly-owned subsidiary of the German utility, E.ON Group. E.ON UK acquired Powergen in 2002, which operated the Eastern, East Midlands and Norweb regions. Today, it operates under the e.on brand.
- **EDF Energy:** A wholly-owned subsidiary of the France's EDF Group, EDF Energy acquired London Electricity (in November 1998), SWEB (in July 1999) and SEEBOARD (in July 2002). It operates under the EDF Energy brand. In September 2008, EDF Group announced an offer for the entire share capital of British Energy.
- **RWE npower:** Part of the German energy group, RWE Group, the supply business operates under the npower brand. It is an amalgamation of the Midlands, Yorkshire and Northern.
- **Scottish and Southern Energy ("SSE"):** SSE was formed in December 1998 with the merger of Scottish Hydro and Southern Electric. It subsequently acquired SWALEC (in August 2000) and Atlantic Electric and Gas (in April 2004). It has maintained and promoted separate and distinct energy retail brands in each of England, Scotland and Wales, as well as the Atlantic brand.
- **ScottishPower:** A wholly-owned subsidiary of the Spanish energy group, Iberdrola, ScottishPower's supply business is an amalgamation of the Manweb and South of Scotland ex-PES regions. It operates under the ScottishPower brand.

A distinctive feature of the electricity supply market is that today, there are no suppliers that entered the market since privatisation. Thus nationalised successor firms have a 99 per cent share of the residential market. This contrasts with fixed line telephony, where last year, BT had a 41 per cent share of the residential market share and 59 per cent was accounted for by companies that weren't in existence when BT was privatised (Figure 10).

Figure 6: Percentage share of residential telephone network access & call revenues by operator (2013)
Source: Ofcom (2014), *Telecommunications market data tables Q1 2014,* Table 6.



The differences between the 99 per cent ex-nationalised industry incumbent share of electricity supply and the 41 per cent share in telephony point to profound differences in their competitive dynamics and the respective sector's potential for innovation. Telephony has been marked by waves of innovation and product convergence – cable TV, satellite, broadband and mobile – in a dynamic process absent from electricity supply. The lesson for regulators and government policymakers is that policy to promote competition should be tailored to the evidence of the different competitive capacity of each sector.

Annex II

Key issues identified in Ofgem 2008 Probe

Source: Ofgem (2008), *Energy Supply Probe – Initial Findings Report.*

Issue	Probe evidence
Incumbent customer base as barrier to entry	> High margin non-switching customers: "New entrants … do not possess the historic endowment of a large base of stable, inactive customers." > "Around three quarters of the gross profits of the Big Six, and all their net profits, arise from their in-area electricity customers, which represent 48 per cent of their customer accounts."
Cross-subsidy of generation by retail	> "Retail gross margins are at least as important to the end bill as gross margins in power generation."
Illiquid wholesale electricity market	> "Our examination of traded volumes in the wholesale electricity markets indicates much less liquidity than in many other commodity markets and electricity markets in other countries."
Rising costs of supply	> "All aspects of supply business costs have increased since 2005 – cost to serve by 11 per cent, the cost of competition by 21 per cent and bad debt by 71 per cent."

	Comment	Page reference
	> "The pricing policies of the Big Six may serve, therefore, as a form of barrier to efficient entry to market."	pp.63-64; p.9
	> Generation is high risk and capital intensive while retail is low risk and requires negligible capital. ➔ **Using retail profits to cross-subsidise generation acts as a further barrier to entry.**	p.138
	> "Respondents … cited inadequate wholesale liquidity, particularly in electricity, as the most significant issues facing potential new entrants and small scale suppliers." ➔ **The Pool guaranteed liquidity and forced generators to bid on the basis of generating economics, making control of downstream distribution irrelevant.**	p.66; p.64
	> "Increases in the costs to serve do not seem to be consistent with a relentless drive towards increased efficiency." > "Increases in the costs of competition are consistent with the increased levels of churn over this period." ➔ **Companies can maintain customer base by spending on marketing & advertising as an alternative to competing on price.**	pp.95-96

Companies adopting similar hedging strategies	> "There is evidence that the Big Six suppliers seek to benchmark their hedging strategies against each other in order to minimise the risk of their wholesale costs diverging materially from the competition." > "The former incumbent electricity suppliers seek to benchmark their hedging strategies against British Gas."	
Suppliers successfully targeting high retail margins	> "Several companies cite a 'through the cycle' supply margin of 5 per cent as an appropriate benchmark for the retail energy sector." > Centrica finance director: "We believe sustainable UK energy supplied margins ought to be near 5 per cent, with British Gas earning a brand premium above that." (2002 interim statement). ➔ **Margin target implies that if energy prices double, energy supply profits double too although non-pass through costs essentially unchanged.**	

	> Ofgem states there is no evidence of unlawful information exchange and, for a time, British Gas used to publish their hedging strategy in their annual reports. > "We are concerned, however, that it is a pattern of behaviour which can only serve to weaken the competitive pressure on wholesale energy prices." ➔ **Hedging strategies are not a source of sustainable competitive advantage therefore it is rational for the Big Six to minimise their risk by pursuing similar ones.**	p.10; p.97; p.80
	> 1995, MMC report on Scottish Hydro recommended 0.5 per cent margin. > In setting price controls in 1998, Offer and Ofgas considered a margin on sales of 1.5 per cent "to reflect the increased risks associated with the competitive environment." > Debunking of comparison with grocery retailers. Cost of bought in good relative to costs incurred far lower in grocery retailing (2× added costs compared to 8× for energy supply) and capital employed is much higher (38 per cent of turnover compared to less than 5 per cent for energy supply).	p.99; p.100; p.102

Reform
45 Great Peter Street
London
SW1P 3LT

T 020 7799 6699
info@reform.co.uk
www.reform.co.uk

ISBN number 978-1-909505-43-8