ofgem

Making a positive difference
for energy consumers

Dermot Nolan

Beesley Lecture

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Thank you for the invitation to speak this evening. I look forward to considering energy markets and the regulatory approach – it is obviously an opportune time to consider this issue given the conclusion of the Competition and Markets Authority (CMA) study into competition in energy markets.

My focus tonight will be on what I will call energy retail – by which I mean the sale of electricity and gas to consumers, both residential and business. Of course, this is just one portion of the energy market but the majority of the CMA investigation focussed on this issue, and it is the area that has received most media and political attention. But despite the focus on retail markets, one of the points I would like to try to bring out over the course of this lecture is that the ways in which energy is produced and consumed are changing more rapidly than they have for some time and, as can happen in any market, that some of the issues considered by the CMA may be less relevant in 10 years' time due to innovation and change.

I should say in advance that this is not meant to be my or Ofgem's "verdict" on the CMA. It would be inappropriate for the regulator that referred the market to attempt to comment on how "good" the report was or not, and in any case there is no shortage of opinions from others on that particular issue. What this talk will be, I hope, is a discussion of some of the issues that led to the investigation, an attempt to think about what the conclusions suggested, and a sketching-out of how the regulator might frame its approach going forward.

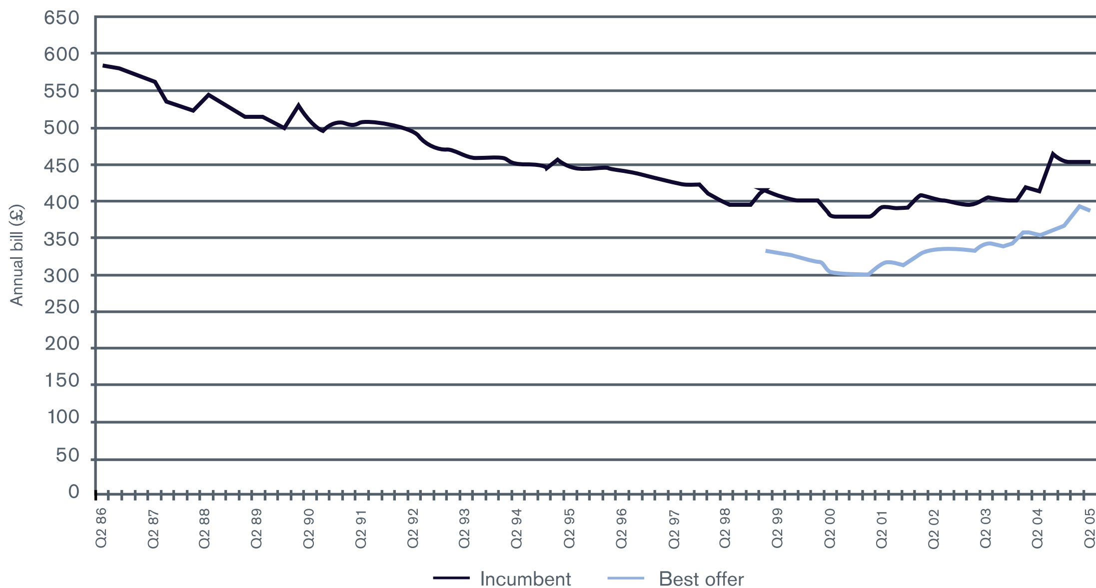
I will start by briefly looking at the events that led to the CMA investigation, and then consider the study itself and the response to it. As probably everyone knows, the energy privatisations took place over a period of time in the late 1980s and early 1990s. They contributed to the setting-up of the British system of economic regulation, with Offer and Ofgas first being separate offices before being combined to Ofgem. In both markets, regulators broadly defined their areas of interest into 3 main spheres:
(i) energy networks, which were monopolies directly regulated by what were then 5-year price controls;
(ii) wholesale markets for electricity and gas;
(iii) retail markets where energy was sold directly to end-users. The second and third of these areas were seen as competitive in that it was envisaged that they would function primarily according to the market processes that govern nearly every other area of the economy.

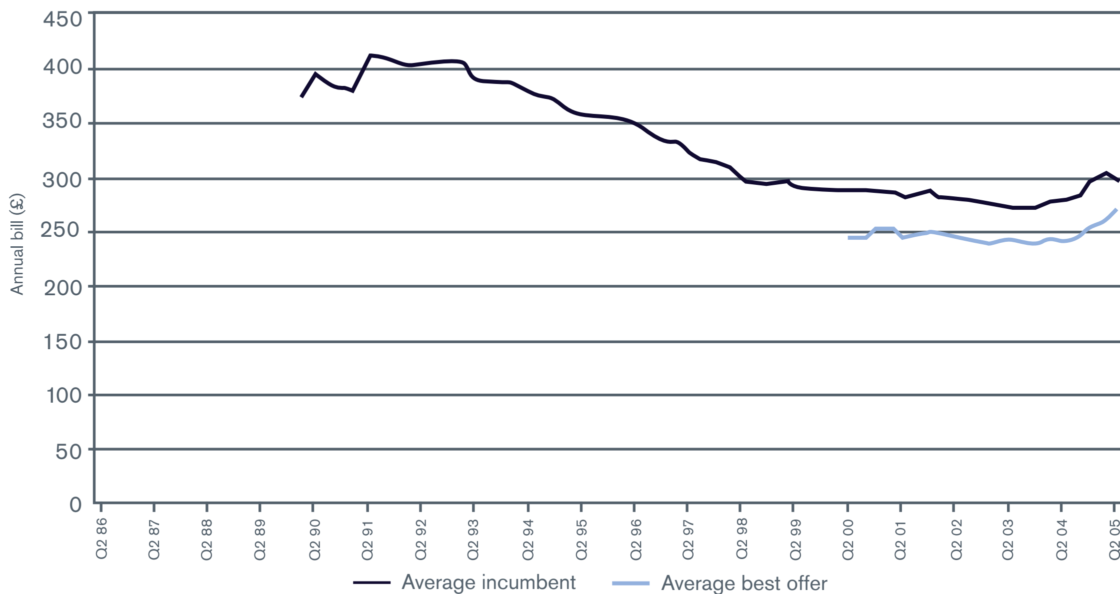
The functions and powers of the energy regulator have varied slightly over the years, but I think it is reasonable to say that it was envisaged that it would have the power to regulate the monopolies directly, and that it would essentially "hold the rulebook" for the other parts of the sector. Implicit in the setting-up of the regulatory system was the belief that the market would become more competitive over time, and that the regulatory requirements would gradually diminish over time. Some felt that not only would this happen, but the basic framework which governed those who produced and sold energy – the licensing regime – would also ultimately disappear, and any interventions into such markets would be rare and tend to be made using ex post competition law rather than ex ante regulations. I am not sure if this vision was fully shared by all, but certainly the possibility that an organisation like Ofgem would gradually disappear in its current form and be subsumed into the CMA was considered a likely and potentially desirable outcome.

As witnessed by my presence here today, that has not (yet) happened. Why not?

History

I won't spend much time going over the events of 1995-2005, though the last few years of the '90s had some fairly major regulatory issues including the re-opening of a price control, some delays in market opening, and some successful appeals against regulatory decisions. The period after that was possibly seen as the most positive environment for energy regulation and competition, and in any case energy prices were generally falling over the period which no doubt helped public and political perception of the beneficial aspects of regulation.

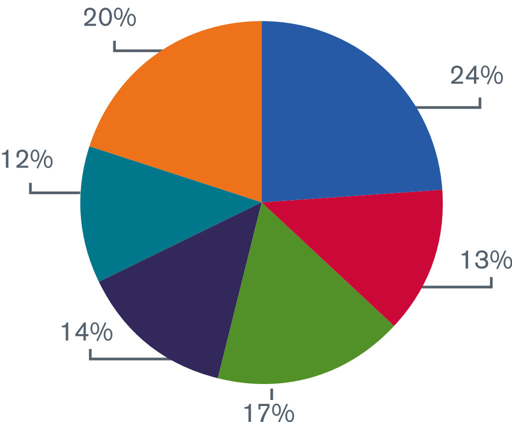




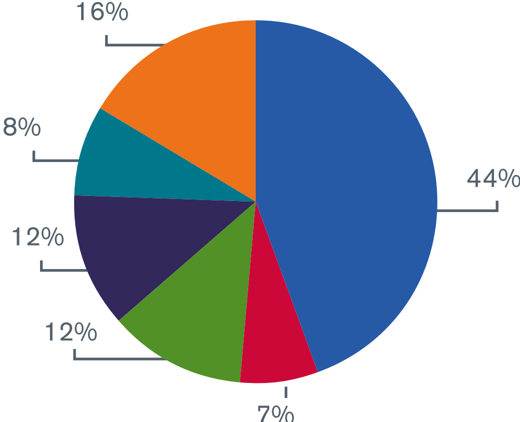
Perhaps the 2 major changes over this period were **(i)** the removal of direct price regulation, first by the putting in of a reasonably generous price cap which allowed space below it for others to compete; **(ii)** the replacement of the Pool market in electricity, which was dogged by allegations that it was being gamed by the 2 biggest generators, and the setting-up of the NETTA market, which ultimately became the BETTA market that broadly survives today. The first change was essentially a purely regulatory decision and reflected the clear desire to move towards a market that saw competition being the key driver of outcomes, while the latter was promulgated by regulators but required legislation from Government to implement. Both changes were broadly in the "greater competition" direction, in that they gave greater freedom for market players to operate.

Along with these changes, we saw business models moving to greater vertical integration between supplier and upstream markets. There were a variety of mergers and acquisitions and by 2010 the model of the Big 6 had essentially come into being, with there being 6 main suppliers in the residential retail space, all with significant electricity generation businesses as well. There is no particular reason to suspect the market for corporate control did not work properly during this period, and no sense that any changes that did take place gave rise to significant competition concerns that needed to be addressed.

Gas Domestic market shares 2010

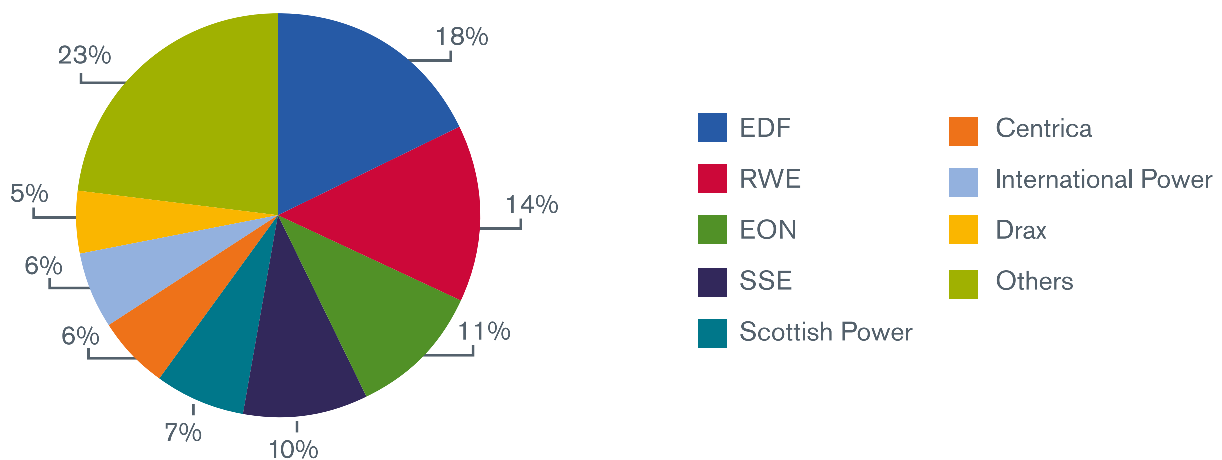


Electricity Domestic market shares 2010



British Gas
EDF
EON
RWE npower
Scottish Power
SSE

Generation market share by transmission entry capacity (TEC) for 2010/11

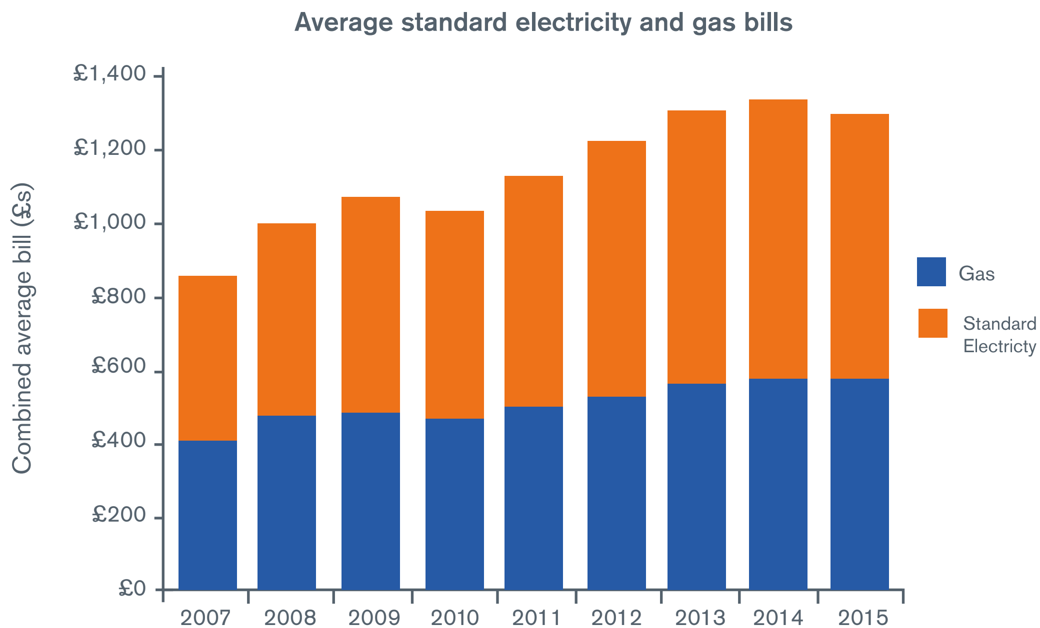


However, the idea of the Big 6 as a purely homogenous set of firms was always not quite empirically accurate. All had significant generation and retail arms, but displayed considerable variation across the size of these arms. For instance, EDF had the largest electricity generation business and was the only "long" member of the Big 6. Centrica, as the former gas incumbent, had the largest overall supply business and had a particularly large share of gas customers. Also, the Big 6 do not have anywhere near as large a presence in the market for larger energy users.

As mentioned above, when privatisation occurred the hope was that energy would be like any other market. Was this a reasonable prediction to make? Energy has various characteristics in the way that it is bought that make it, to use the words of one my non-executive directors, “not like buying milk”. The act of changing from one supplier to another is inherently different than deciding to go to a different shop to buy groceries because you felt that the last time you were in shop X it seemed expensive or the service wasn’t great. You have to change supplier using a system that is not technologically that advanced and where nearly all the evidence we and the CMA have taken from consumers suggests that the experience of switching is not pleasant and fails too often. Fundamentally, the losing supplier does not face incentives to facilitate the transfer and may be able to make it more difficult – though of course they may also be looking to gain other customers and will want an easy process there. But of course these concerns tend to apply in other markets as well, including insurance and telecoms.

I don’t want to suggest there was self-evidently an “inflection point” where the perception that energy privatisation and de-regulation was failing as a process came into being, but post-2005 the view from media and politicians has been consistently sceptical. By this time, the de-carbonisation of the energy system was much more strongly embedded as a policy objective, and government had intervened in various ways to facilitate this. These took the form of payments to renewable generation as well as requirements on companies to engage in various schemes to promote energy efficiency. The supply license was the main vehicle government actually used for the delivery of these schemes, which resulted in the major supply companies passing on these payments directly to customers. This policy was broadly similar to what was happening in much of Europe where payments to renewable generation were put on the energy bill (sometimes through network charges or levies), though the UK was relatively rare in having energy efficiency measures delivered directly by the suppliers and also being “on-bill”.

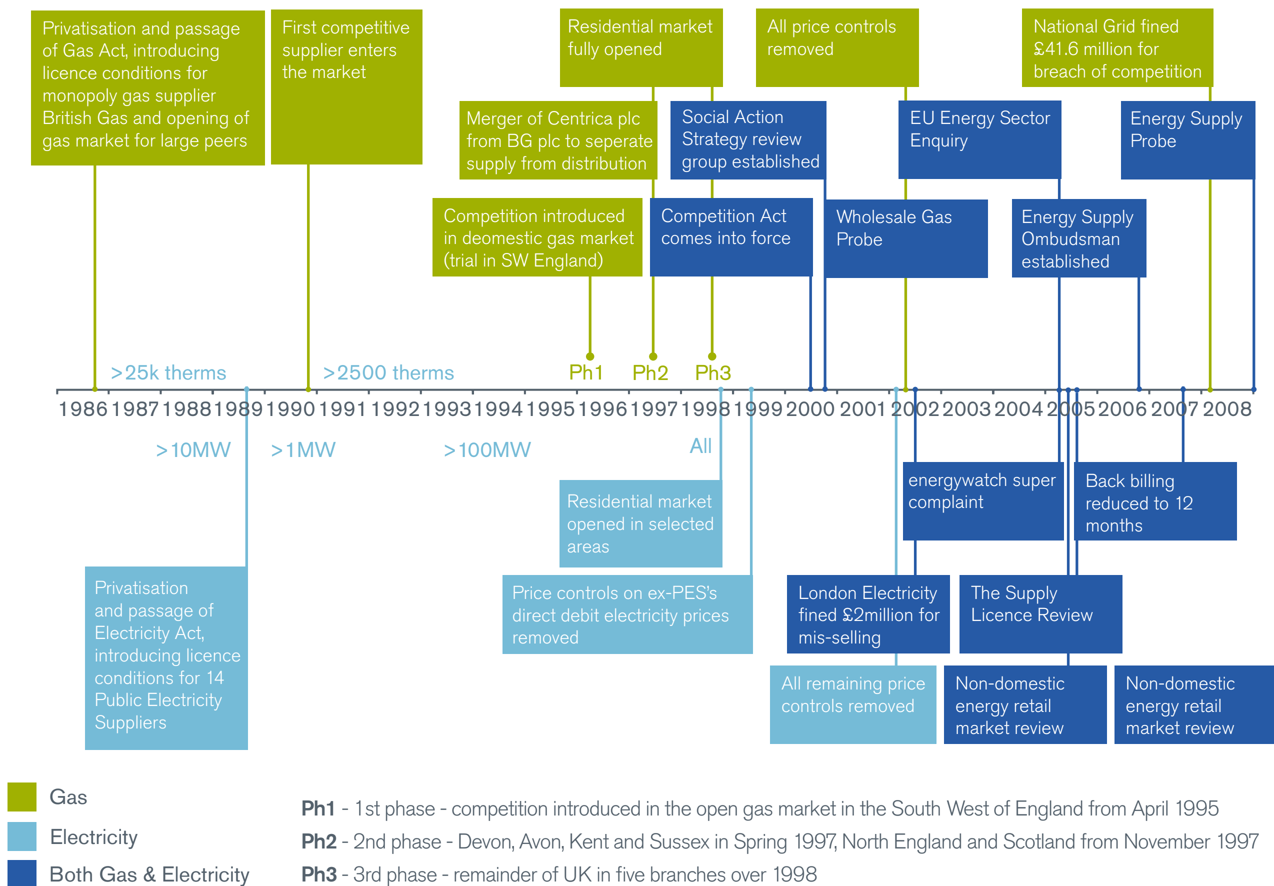
Energy bills started to rise again from roughly 2004 onwards, predominantly due to increases in fossil fuel prices. However, the costs of de-carbonisation and energy efficiency also contributed (although energy efficiency measures reduced bills for those who benefited from them), and some media and policy outlets questioned the cost, and sometimes the entire purpose, of such policy objectives.



Ofgem reacted to this growing scepticism about the performance of retail energy markets by conducting the Probe, which published its conclusions in late 2008. This expressed concern about some of the outcomes for consumers and proposed various measures to improve them. Perhaps the most controversial outcome of this body of work was the SLC 25a license requirement which proposed restrictions on the way in which supply companies could charge prices in different geographical areas. This was based on the idea that the former regional incumbents were charging higher prices in their "home" areas, and lower prices out of area, and that this was ultimately injurious to consumers. This measure was taken by Ofgem itself, but was against a background where the perception was that government was prepared to intervene directly at that time.

This measure provoked significant tensions in the Ofgem Board, and the measures were strongly criticised by many within the regulatory community. I think I can say that George Yarrow, my respondent this evening, noted at the time that this would be damaging as the main impact was to potentially prevent what would be a positive form of price discrimination where, as offers in different geographic regions are typically offered to all customers in each region, active customers in a given geographical area tend to protect the inactive.

Timeline of key milestones and regulatory decisions in GB energy supply markets



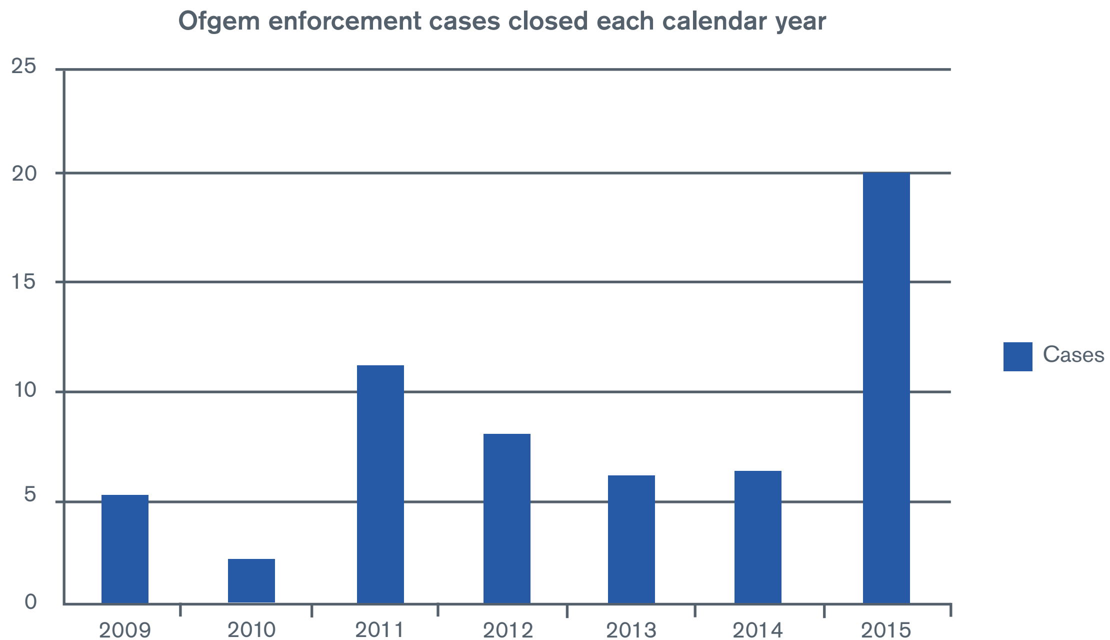
Ph1 - 1st phase - competition introduced in the open gas market in the South West of England from April 1995

Ph2 - 2nd phase - Devon, Avon, Kent and Sussex in Spring 1997, North England and Scotland from November 1997

Ph3 - 3rd phase - remainder of UK in five branches over 1998

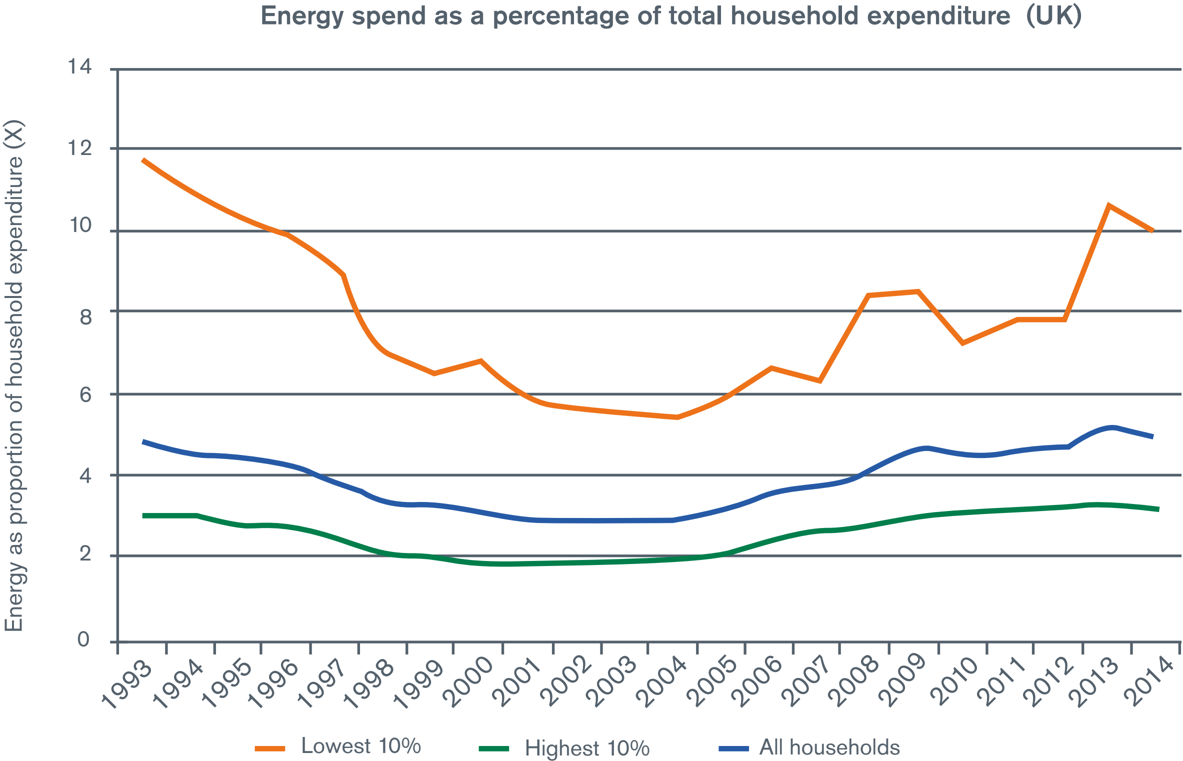
Looking back on the operation of this measure and the criticism surrounding it, one of the most salient points might be that it was extremely imperfectly enforced. It would appear to have had some impact on pricing decisions made by firms, but the sheer complexity of and range of tariffs meant that actually enforcing it (regardless of whether its impact was negative or positive) proved extremely difficult for a regulatory body.

From 2009-2013, energy prices were generally on an upward trend. Fossil fuel prices continued to rise, and the political and media attention focused on energy was very high. The period from 2010 onwards also saw a significant rise in the number of regulatory investigations of energy companies, often for some form of mis-selling. Also, at least half the larger suppliers tried to implement new SAP systems which generally went very poorly and in many cases led to considerable harm for customers.



These investigations were generally welcomed by media and politicians, subject to the proviso that they seemed to take a long time. The general sense that the industry was failing its customers was augmented by the investigations, and the regulator generally was part of the rhetoric that companies were not up to the required standard.

The final set of measures adopted by Ofgem was the RMR review that came into place in late 2013, and early 2014. These were a further set of measures put in place to have a "simpler, clearer and fairer" energy market. By and large, these constituted a series of new license conditions that attempted to take some of the ideas of behavioural economics and turn these into quite specific requirements on the way in which companies interacted with their customers. Probably the 2 most well-known measures were **(i)** the requirement as set-out in the "standard of conduct" that energy companies treat their customers fairly and **(ii)** the requirement that each company only be allowed to offer 4 tariffs. The latter was also generally criticised by the regulatory community, though Ofgem did say at the time that this was not expected to be a permanent measure, and instead was an attempt to re-set the market.



The ferment about energy and energy prices continued, with a particular concern that the structure of vertical integration that was generally in place for the larger energy companies was in some sense harming competition and consumers. This emanated from a number of specific issues, including a perception that this structure was in some sense allowing companies to "hide" excess profits, or that it led to a lack of transparency about costs and bills, or that it increased entry barriers by potentially foreclosing entry to a company without a generation/ wholesale arm. This, allied to many other issues, led in mid-2014 the board of Ofgem, along with the boards of what was the then vanishing OFT and the then crystallising CMA, to decide to refer the market to the CMA itself for a detailed competition review. I think it is important to remember that this was essentially a joint decision, following an investigation of the market by a combined Ofgem/OFT team.

The 3 boards actually met at one point to discuss the review, and there was a reasonably clear consensus that the competition problems identified were sufficient to meet the test. Ofgem made the actual reference to the CMA, but I would note that the CMA had the ability to make a reference itself. While I can't divulge details of the discussion between the boards, I think I can probably say that there was a clear consensus that the market should be referred.

If you look back at the evidence that prompted the referral, you can see the some of the issues that took centre stage in the study itself were mentioned. The "two-track market" with major variations in the charges between the engaged and dis-engaged was explicitly referenced as an indication of a problem of competition in the market. However, looking at the language used, the report cautioned that price dispersion was a characteristic of nearly every market and should not be seen in itself as inherently a sign of ineffective competition. Some other areas referred to in the report touched on the theme of co-ordinated effects where it was hypothesised that (i) there was evidence that firms were making price announcements at very similar times, and of similar magnitudes and that this effect had strengthened over time and (ii) there was some econometric support for the much-discussed "rocket and feather" effect.

At the time, the reference was a matter of considerable public interest – the reference was the first item on the evening news, and was covered prominently by all media outlets. Looking back, I think it was fair to say that it was generally welcomed by the media and politicians, though not unreservedly so with the then government being somewhat nervous about whether it would have a chilling effect on investment. Some energy companies were quite opposed, with one then CEO being memorably lampooned on the front page of a national newspaper, but some of the big companies actually welcomed the referral as a chance to "clear the air" and indeed had explicitly called for a referral for some time before it happened.

Looking back at Ofgem's own rhetoric at that time (much of which came from me), there was a sense that this was a "once in a generation" event which would provide certitude for the energy customer and the industry, and would lead to the "right answer". In retrospect, I wonder whether deploying such language was useful as surely no investigation could ever provide an absolute guarantee that it would lead to such an end-point. Ofgem also accepted that the investigation was acting as, in some sense, a judgement of its own performance as a regulator, which inherently implied that it would accept the conclusions that the CMA came up with, as well as implement any remedies. I don't wish to overstate the bifurcation between different views, but this idea of the CMA sitting in judgement was attractive to a number of stakeholders, including on one hand many of the political classes who felt that it might show that Ofgem had been too "soft" with the energy companies, and on the other much of the academic and regulatory community who thought it might indicate that the regulator had made negative interventions that had harmed competition and consumer welfare.

I will not describe the investigation in depth apart from saying that it was an extremely thorough piece of work, and our own involvement with the panel and the team was very comprehensive. The reference was very wide-ranging, with scope for all retail energy markets relating to residential and SME consumers, plus wholesale electricity and gas markets. There were calls from some stakeholders to also review the markets/regulatory frameworks for energy networks as well, which the panel ruled out reasonably swiftly. But what was left was still an exceptionally wide-ranging set of markets to analyse, and the sheer scope was larger than the "typical" CMA market investigation.

The panel decided to focus predominantly on retail markets, particularly after it ruled out vertical integration as being per se a problem with competition. This was a disappointment to some commentators who felt that the structure of the BETTA market was flawed and that the CMA investigation might facilitate the return of some form of gross mandatory pool for the wholesale electricity market.

Some interesting points to note are that some of the competitive issues identified in the joint report in early 2014 were relatively quickly resiled from by the panel, including the co-ordinated effects analysis, and the rocket and feather effects. Moreover, one of the most high-profile issues – the (to somewhat varying extents) vertical integration of the larger suppliers – which the initial report had stayed sedulously neutral on, was not seen as contributing to an adverse effect on competition. This latter point is particularly interesting, as looking back at early 2014, there was a widespread belief that vertical integration was harmful, and by and large, that view no longer seems to have common currency. So, while I am wary of being too definitive, the CMA report seems to have clarified that particular issue.

The preliminary conclusions of the CMA found a large range of adverse effects on competition (AEC). As noted above, they did not take up the issues of vertical integration or co-ordinated effects, but instead focused on what was called the unilateral market power of the 6 larger companies, and their ability to charge higher prices to some consumers. This designation in itself was controversial, as on one reading it might be construed as implying there could be 6 dominant firms in one market.

The analysis of industry profitability was one of the most debated pieces of analysis. The CMA found approximately £2 billion of consumer harm, which was reacted to with fury by most of the large firms who said this figure exceeded their total profits. The CMA clarified that the figure included their estimate of the losses to consumers through a lack of competition leading to inefficiency and therefore consumer harm (not quite Leibenstein's X-inefficiency but something akin to it), but this has also being resisted by the companies and remains a source of controversy.

Some of the AECs related to government issues, including the way in which government procured low-carbon electricity where the CMA quite understandably wanted greater competition in the process. Others related to the sclerotic state of industry systems and code governance where the CMA called for speedier progress in Smart metering, faster switching, half-hourly settlement, and an overhaul of the governance of industry codes in a way that would facilitate innovation and limit the ability of incumbents to block changes. The CMA also proposed a shake-up of the small business market, calling for greater price transparency.

The most high-profile remedy proposed by the CMA at that point was a temporary price cap. This was a proposal that there be put in place a cap for those on single variable tariffs (then around 70% of the residential market) which would last until the Smart meter rollout was completed. This was to be explicitly set at a level above the "average" market price to permit a degree of headroom. By and large, the wider regulatory community was fairly sceptical of this proposal, arguing that it went against the grain of what was the essence of the rest of the proposals which were aimed at making it easier to engage with the market switch. Commentators said that such a cap would remove the incentive to switch and potentially lead to high-price focal points within the market.

The final conclusions of the CMA removed this proposal, instead focussing on having a price cap for the approximately 17% of residential customers on pre-payment meters. Some interpreted this as a measure to protect vulnerable customers, but given the CMA's mandate it seems to me that it was predominantly put in place to reflect some of the technical difficulties associated with PPMs and the consequent lack of cheaper tariff options open to them. This price cap is also supposed to be removed when the Smart meter rollout is concluded, which supports the view that it is not primarily focused on vulnerability per se but only on a temporary vulnerability based on a technical inability to access fully the competitive market.

The price cap for all on SVTs was supported by one member of the panel, who explained his reasoning in a minority report and I hope Martin Cave will not mind me quoting him here when he said:

"But the remedies proposed for the large majority of households will take some time to come into effect, and are in any case untried and untested. That makes it risky to rely on them. That is why I believe they must be supplemented by a wider price control designed to give household customers adequate and timely protection from very high current levels of overcharging" (minority report, paragraph 2).
The rest of the panel instead proposed the development of a database for those who had not switched in 3 years or more, to support engagement of the sticky customer and thus lower the ability of the large firm to charge higher prices to them.

I spoke earlier about the previous actions of the regulator, and that Ofgem had inherently submitted itself for judgement by the CMA. The CMA did examine this and came to the view that SLC 25a had clearly been a mistake, and had harmed competition and consumers. (I would note that Ofgem had clarified that section 25a would not apply as far back as the end of 2014.). It also looked at some of the aspects of the RMR rules and said that they were harming competition, and said that many of the "simpler" rules (including the 4 tariff rule) should be removed. This was important, as the CMA was essentially saying that regulatory actions could, and had, negatively affect competition.

How has the CMA report "landed"?

I will mention a number of stakeholders and give my sense of their reactions, accepting that I am almost certainly simplifying drastically.

1. Media and some politicians seem to view it as having not gone far enough. There seems to be a perception that there could have been more "blood spilt" and that more draconian measures against the larger companies should have been taken.

2. Consumer groups also seem sceptical, though less so than media. There is support for the PPM mechanism, plus a general sense that the competition model is probably right but that it needs to work this time and the industry need to deliver better performance, which stronger competition should encourage.

3. The bigger energy companies seem antagonistic to the profitability analysis, and sceptical about implementation of some of the remedies including questioning the viability of the data base on data protection grounds.

4. There are now over 40 smaller suppliers, and their general reaction to the report has tended towards the negative. The larger independents have suggested that it will permit the larger suppliers to "exploit" their sticky customers on SVTs and engage in "unfair" competition by charging lower prices in the active end of the market.

5. Reaction from the regulatory community has varied, but with a number of commentators expressing concerns over the report. Reasons include a sense that the remedies could have done more in embracing new technology (a specific remedy from the CMA banking report is cited as a possible example here), plus a sense that the price dispersion cited by the CMA is a relatively common pattern observed in markets and not necessarily a source of competitive harm. However, others have suggested that the bigger companies have gotten away too lightly which may indicate the essential differential querulousness of regulators!

I said at the start that I was not going to give an Ofgem verdict on the CMA, and noted that the regulator had committed in any case to working with the CMA and implementing any remedies they put in place. This remains the case – Ofgem has said in public that it will focus on making the remedies work and has a work programme to ensure that this is done, though it has also noted that it will use regulatory discretion to ensure the actual application of the remedies reflects testing to ensure that they work effectively. But I will give some views as to what I think the general direction of the CMA report is, and my view is that it is fairly clearly in the area of a renewed focus on the traditional idea of competition.

To me, the majority of the remedies represent an attempt to make the market more competitive predominantly by making engagement and switching easier, and by improving the regulatory and technological structures that support the industry. Some of the remedies that have been put in place fall generally into the area of behavioural economics, and are attempting to at least allow customers to become more engaged in the market. But in my view these do not detract from the central point of the majority report: that attempts to intervene to change or soften the competitive process in energy have not been successful, and that removing restrictions is the most appropriate way to improve consumer welfare. Fundamentally, the report says that provided consumers are given information, prompted to engage, and have the ability to switch easily, then the market can be effectively competitive in a way that will benefit consumers. Thus I think it broadly represents a re-assertion of the principle of competition being the most appropriate way to help consumers.

The report notes that Smart metering should resolve many of the issues that have bedevilled engagement and switching in energy, and many of the remedies are focussed on trying to ensure rapid progress on the technical architecture that governs the industry. Philosophically, it strikes me as an attempt to suggest that the idea of unfettered competition is the right one for consumers, but that the inherent incentives for incumbents to limit the ability of customers to switch is such that a collective imposition by the regulator/CMA/industry bodies, is required to modernise the system and drag the industry into the 21st century.

But the vision seems clear – a sense that post-2020 the retail energy sector would be marked by a competitive framework where a consumer has information at her fingertips, and can compare tariffs and switch easily, probably using her handheld device. The CMA did a consumer survey and found that consumers would, on average, need to save approximately £200 in order to switch – I think the clear inference from the report is that if the remedies were effective and such a survey was repeated in, say, 2022, consumers would feel that they would switch for a considerably lower gain.
Since the inquiry started, the industry has seen a huge expansion in the number of firms in the residential space with nearly 50 suppliers at this current time. This increase in the number of suppliers is obviously welcome, though it should be noted that the total share of independent suppliers is still relatively small, constituting around 15% of the residential market. There are a number of reasons for this, with the most obvious being the falling wholesale prices from mid-2014 to earlier this year and the ability of relatively unhedged entrants to offer lower prices. There have been other factors too, with the regulatory rules governing Ofgem's code of conduct for PCWs arguably providing a degree of inexpensive advertising for smaller suppliers

It seems to me highly possible that there will be a shakeout of firms in the coming years, and we may have much fewer than 50 suppliers in five years' time. But I may be wrong. As I will mention later, the sector might change radically over the next 10 years and we may have a proliferation of new types of supplier, and indeed a change in the whole model of what a supplier is. A regulator should not attempt to force the market into a particular kind of model, and a key part of Ofgem's strategy post- the CMA will be to facilitate new entry and disruption.

The future?

The title of the lecture referred to what to expect after the CMA, and at the risk of being glib, I would emphasise again that any regulator should not think that it knows how the market that it regulates is going to evolve, so I am not about to predict what the future will be. I can say something about the way in which Ofgem intends to function in the energy retail area, and as already noted, I would suggest that it accepts the essential message of the CMA report, and plans to implement the CMA remedies in what it believe is the spirit in which they were intended. We have already said we would do this in late summer, and have had extensive dialogue with the CMA team over the last few months, and we will release a more detailed programme of implementation in the next week or so.

While we will apply the remedies, we will do so in a manner that we think makes most sense for consumers. For some remedies, the CMA is deciding directly on how they should function (such as the PPM price cap) but for others, including the prompts and the development of the database, we have some discretion about how best to implement it. We are determined to trial these remedies and ensure they are as effective as possible, while still meeting the timelines for when they should come into effect.

More generally, Ofgem has taken heed of what we saw as an essential result of the CMA report – that interventions into the market can often have unanticipated effects, and that any intervention needs to be carefully considered. In particular, we note the view that using highly prescriptive rules tended to inhibit innovation and potentially limit competition, and have already relaxed some of the requirements of the RMR measures. We are committed to reducing the size of what has become an extremely lengthy supply licence, and are currently consulting on removing many of the specific conditions within it, while instead relying on general principle to ensure appropriate behaviour. We have done a lot of internal thinking about what our overall approach will be to regulating the market, and are likely to publish some of the outputs of this thinking in the form of a set of what we call "regulatory stances" by the end of the year.

I spoke earlier about the original view that sectoral regulators might vanish and be replaced by a combination of general competition law and general consumer law, as would apply to most sectors in the economy. Does the CMA report presage a return to this direction of travel? To my mind, not necessarily. The statutory objectives of the regulator go beyond a focus on competition and all consumers, and explicitly call for protections for certain classes of customers that Ofgem has generally considered as "vulnerable". While the CMA proposal re PPMs has often being seen as protecting the vulnerable, as mentioned above it is not obviously intended to do so, and indeed the CMA has no statutory mandate in this area.

More generally, the issue of winners and losers within a market framework is something that tends to be of public interest to society at large, and particularly so for energy. I have explicitly used the phrase that energy is an essential service since I arrived at Ofgem, and although that phrase can mean different things to different people, it seems to evoke a response and to have a degree of acceptance amongst stakeholders. It might be pointed out that there are other things that constitute essential services, such as food, for instance, and there are not obviously the same kind of protections there. But as a basic level, I think British society has some broad acceptance that energy is special – for instance, it is extremely hard to cut someone off from energy services, and I suspect any attempt to change that would be utterly unacceptable to society at large.

Does this mean there is a conflict between competition and vulnerable consumers? Well, some might retort that the best single protection for vulnerable customers is a competitive market leading to a lower average price level, and I broadly agree with this. However, most economists will remember being taught at one point what was in my day called the second fundamental theorem of welfare economics: that any desired distribution of resources could be achieved by unfettered operation of markets accompanied by appropriate lump-sum transfers. However, I don't see this as adding greatly to the debate. First, all those theorems that graduate students spend many happy hours learning tended to be under conditions of complete information. More fundamentally, society seems unlikely to tolerate that kind of transfer or indeed possess the information, technical expertise and resources to engage in it. So I believe the energy market will have an explicit role in this area going forward, and that the regulator will have an ongoing mandate to ensure companies reduce/remove barriers to participation for consumers in vulnerable situations, and firms in the sector will need to make special provisions for dealing with consumers that are deemed vulnerable.

Defining vulnerability is not a straightforward issue – Ofgem's own view is that vulnerability can change during a person's life. There is likely to be some distortion of competition – vulnerable customers are, on average, unlikely to be seen as "attractive" customers to have by firms and to be competed for aggressively, and the overall effect of vulnerability provisions will probably result in some transfers from some customers to others. Personally, I think we need to accept that this is the way society has chosen to organise the provision of energy, and try to find measures that satisfy the idea of protecting the vulnerable while minimising any distortion of competition. This will undoubtedly be a messy process, but I am reasonably optimistic that appropriate outcomes can be found.

As noted above, vulnerability is difficult to define. But recent discussions in the energy space and with regard to the CMA have indicated a slightly different and wider concern – that the degree of dispersion of prices is broader than might be considered appropriate in a market for an essential service. This view has taken up the idea that those who do not engage closely with the market and are seen as unlikely to switch are in some sense being taken advantage of by suppliers, and there is some sense that this view has a degree of currency with politicians. In particular, the sense that "loyalty" by a customer is being taken advantage of by its supplier seems to be considered unacceptable.

Certainly the idea of a loyal customer being rewarded is common in some markets – think of "frequent flier miles" in airlines and points accumulated in supermarkets. However, markets such as insurance or mortgages, which have similar characteristics in the way they are sold to energy, do not exhibit such behaviours and have very clear spreads between those who are engaged and those who are not engaged. By and large, there seems to be no move to intervene further in the outcome of these markets, bar continued attempts to facilitate the provision of information and ease of switching.

I would also say to the companies that the CMA did not give the market a clean bill of health, and it would be naive to suggest that it did. While the CMA remedies have removed some of the rules in place, they have also clearly said the market is not functioning as well as it should and that increasing consumer engagement and facilitating easier switching is at the core of that, which should reduce the level of dis-engagement and potentially decrease the level of dispersion of prices within the market. The remedies are meant to be disruptive and change the dynamics of the retail market, and may not be comfortable for many of the suppliers. Ofgem will implement the remedies as best it can but I would ask that the companies work with the regulator on this, and with the spirit of the remedies, not just the letter. If they don't, and are seen to be trying to frustrate the aim of increasing engagement of "sticky" customers, then I think it is not hard to predict that the calls for greater intervention will increase.

Despite the discussion above, I am optimistic about the future of competition in retail energy markets. There are a number of reasons for this, but fundamentally most of these boil down to a confidence that technology advances and innovation will be the key to bringing greater competition to all aspects of the market. Some of these will happen naturally, while some of them may need legislative and regulatory actions. Through the Midata initiative, consumers are already able to search across providers for new deals that suit their personal circumstances. In its investigation into banking, the CMA recommended that this be made easier still, by developing an open Application Programming Interface (API) standard across the industry. I believe there is scope for further action in energy too – allowing consumers to have a "portable" and secure way of putting their personal requirements directly into a third-party intermediary should increase engagement and promote innovation, and I hope government will be able to facilitate this.

More generally, I said at the start that the energy industry is changing. Smart meters, half-hourly settlement of data, and faster switching should all be achieved in the next few years, which will bring an end to estimated bills and give consumers more control over their energy choices. However, the sector may see even greater change from outside the retail space, which we want to think about in advance predominantly to ensure the regulatory framework does not become a barrier to change - indeed that it facilitates beneficial change - whilst providing the protection I have described. We are seeing dramatic falls in the costs of some technologies (such as solar PV and batteries), big increases in distributed generation and interest in local energy schemes based on this distributed generation. New business models are starting to emerge, often based on the automation of decisions and the "internet of things" rather than engagement in the way we have considered it in the past, or on bundling of electricity and gas with other services.

Taken together, these emerging and potential developments create a range of possibilities for the future energy market. We expect the future electricity system to be more decentralised, potentially with many consumers more reliant on equipment they have purchased (such as PV panels and batteries) or services they are renting (such as self-driving cars) than on commodity consumption of electricity. People may produce energy themselves, store it and sell it back to the grid. New business models built on third party intermediaries or bundled services may move us away from the supplier hub model and possibly even away from the model of having regulated energy suppliers at all in their current configuration. We see many of these changes as potentially positive and will focus on keeping barriers to entry low. This is why we are concerned that the IT systems and change control processes, such as industry codes, we have in parts of the industry today are a significant impediment and need to change.

We recognise that these developments mean that the regulatory system needs to change too, and that consumers will probably react differently to the diffusion of new technology. Concerns about vulnerability, the differential in energy prices for different social groups, the overall price of energy as an essential service are likely to continue to be matters of public interest. There will be major regulatory challenges around helping people engage with some of this complexity, and we will need to become more flexible in our approach – our current work on moving away from so many prescriptive rules to greater reliance on principles-based regulation is a key step in this. We also need to rely less on major regulatory reviews and more on setting a direction of travel and keeping our hand on the tiller to correct course as new information comes to light. Whilst doing this, we need to provide as stable and predictable a framework as we can achieve, and hopefully one based on the principles of competition and innovation, to give people the confidence to make long term investments in a changing sector. It's not an easy balance to achieve – but essential if we want consumers to benefit fully from the new realities of the energy world.