

Energy market investigation

Summary of final report

24 June 2016

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Summary

1. On 26 June 2014 the Gas and Electricity Markets Authority made a reference to the Competition and Markets Authority (CMA) for an investigation into the energy market in Great Britain.¹ The terms of reference for this investigation allow us to look at any competition issue connected with the supply or acquisition of gas and electricity in Great Britain, including both retail and wholesale markets, except that, in the case of retail markets, only the retail supply of households and microbusinesses are included within the reference.
2. We are required to decide whether ‘any feature, or combination of features, of each relevant market prevents, restricts or distorts competition in connection with the supply or acquisition of any goods or services in the United Kingdom or a part of the United Kingdom’.² If that proves to be the case, this constitutes an adverse effect on competition (AEC).
3. Where we find that there is an AEC, we have a duty to decide whether we should take action ourselves and/or whether we should recommend others to take action to remedy, mitigate or prevent the AEC or any resulting detrimental effects on customers. In deciding these questions we have a duty to achieve as comprehensive a solution as is reasonable and practicable to the AEC and any resulting detrimental effects on customers.
4. This is the final report of our investigation. Alongside it, we have prepared an overview document,³ which sets out a summary of the approach we have adopted in undertaking our investigation and our key findings.

Overview of GB energy markets and key outcomes

5. The period since the privatisation of electricity and gas in Great Britain has been one of continued regulatory change, as policymakers have attempted both to secure greater degrees of liberalisation and, particularly in recent years, to achieve the overarching policy goals of reducing emissions, ensuring security of supply and improving the affordability of prices.
6. In several respects, the energy sector has performed well against these objectives. There have been no significant security of supply incidents in recent years, emissions from electricity and gas have reduced and

¹ [Energy market investigation terms of reference.](#)

² Section 134(2) of the Enterprise Act 2002.

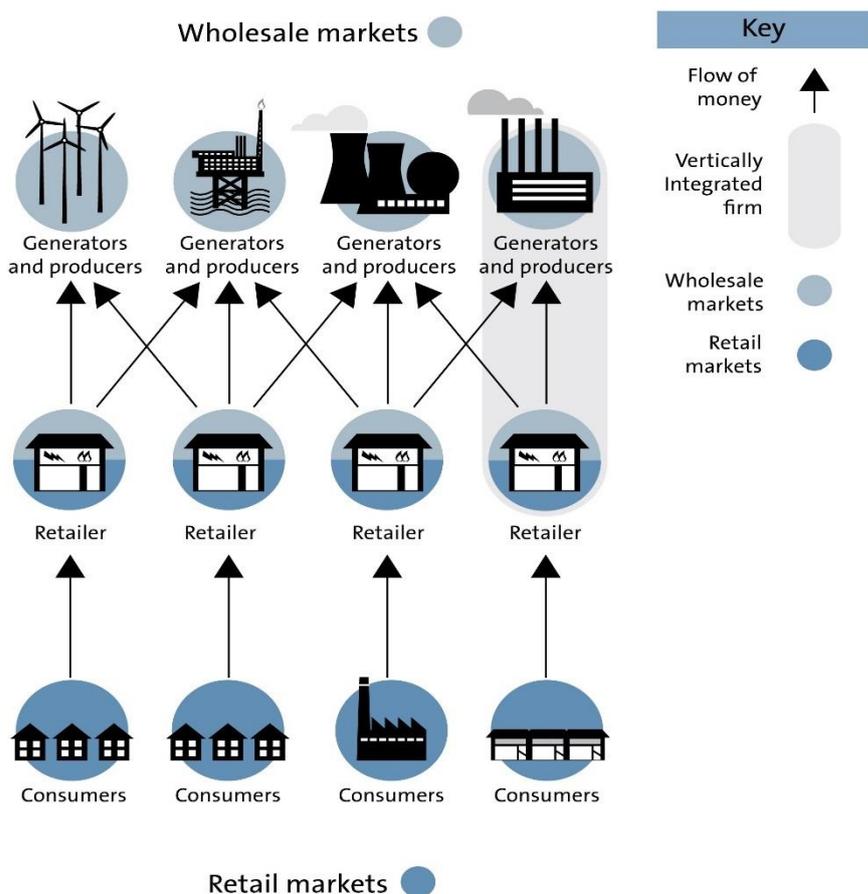
³ [Energy market investigation overview.](#)

renewable deployment has increased substantially. However, concerns have arisen in relation to the affordability of energy – domestic price increases have far outstripped inflation over the past ten years and there have been concerns about levels of profitability – and standards of service appear to have deteriorated. Pressure on prices is likely to grow in the future, due in part to the increasing costs imposed by climate and energy policies.

Market structure and participants

7. At a high level, there are some strong similarities between the physical supply chains for gas and electricity:
 - (a) In the electricity sector, different types of generation technology (for example, coal, gas, nuclear or renewable) generate electricity, which is transported to customers via high voltage transmission lines and low voltage distribution lines.
 - (b) In the gas sector, different sources of gas (eg from offshore fields in the North Sea, imports via interconnectors to other countries or imports in the form of liquefied natural gas (LNG)) are transported to customers via high pressure transmission pipes and low pressure distribution pipes.
8. The chart below provides a high level overview of the financial flows and market arrangements in the gas and electricity sectors.
9. Gas and electricity wholesale markets share several common features: trading can take place bilaterally or on exchanges, and contracts can be struck over multiple timescales ranging from several years ahead to on-the-day trading markets.
10. Retail markets provide the strongest point of commonality between gas and electricity, since the products are often sold together by retailers through ‘dual fuel’ tariffs. Moreover, the regulatory regime applying to retail functions generally applies equally to gas and electricity. As of 31 January 2016, there were 28 million domestic electricity customers and 23 million domestic gas customers. There were 20 million dual fuel customers, 8 million single fuel electricity customers and 3 million single fuel gas customers.

Figure 1: Financial flows and market arrangements



11. The Six Large Energy Firms are Centrica plc (Centrica), EDF Energy plc (EDF Energy), E.ON UK plc (E.ON), RWE npower plc (RWE), Scottish and Southern Energy plc (SSE) and Scottish Power. These firms are the former monopoly suppliers of gas (Centrica) and electricity (EDF Energy, E.ON, RWE, SSE and Scottish Power) to GB customers.
12. Together, the Six Large Energy Firms currently supply energy to just under 90% of the domestic customers in Great Britain and generate about 70% of total electricity generation in Great Britain. They are all partially vertically integrated in respect of electricity (ie they are all active in both generation and retail) and Centrica is vertically integrated in respect of gas (ie it is active in both generation and upstream production). Both SSE and Scottish Power also have interests in electricity transmission and gas and electricity distribution.
13. In relation to retail, there are currently 34 suppliers selling both electricity and gas to households and a larger number of suppliers selling both electricity and gas to non-domestic customers. The largest suppliers to domestic customers outside of the Six Large Energy Firms are: Utility

Warehouse, First Utility and Ovo Energy (which, together with Co-operative Energy, we collectively call the 'Mid-tier Suppliers').

14. The single biggest cost item for both electricity and gas is the cost of wholesale energy (about 40 to 50% of the costs of supplying electricity and gas to domestic customers), followed by network costs (about 25%). The costs associated with retailing (including a profit margin) are around 20% of the costs of supplying electricity and gas to domestic customers. The costs of the social and environmental policies that energy suppliers are required to deliver on behalf of government ('obligation costs') are higher for electricity (around 15%) than gas (around 5%).

Regulatory and policy framework

15. The regulatory and policy framework governing the energy sector in Great Britain profoundly affects the shape and nature of energy market competition. It is set out in:
 - (a) EU and UK legislation;
 - (b) licences, which Ofgem grants to operators for the purposes of engaging in specified activities relating to gas and electricity supply; and
 - (c) industry codes, which are detailed multilateral agreements that define the terms under which industry participants can access the electricity and gas networks, and the rules for operating in the relevant markets.
16. The past 30 years have seen a sustained liberalisation of both the gas and electricity sectors, driven by both UK and EU legislation. It has also been a period of rapid and regular regulatory change, particularly in the electricity sector. Policies developed over this period have increasingly had to balance the competing goals of ensuring security of supply, improving affordability and reducing emissions.

Physical flows

17. The period since privatisation has seen a significant change in the composition of electricity generation, with the introduction of combined cycle gas turbine (CCGT) plants and, more recently, a significant increase in generation from renewable plant, which accounted for about 25% of total electricity generated in 2015. Residential consumption of electricity has fallen since 2005. The capacity margin – the excess of generation capacity over peak demand – has been relatively high in recent years.

18. The UK moved from being a net exporter of gas to a net importer in 2004. Residential consumption of gas has fallen since 2004, and in 2014 was roughly at the level it was 20 years previously. The UK is relatively resilient to potential gas infrastructure disruptions and there has never been a network gas supply emergency in Great Britain.
19. Greenhouse gas emissions from the power sector were roughly 40% lower in 2014 compared to 1990. This partly reflects the impact of policies to put a price on carbon and support low carbon generation. Residential emissions (largely combustion of gas) were roughly 20% lower, partly as a result of policies to improve domestic energy efficiency.

Prices, costs and profits

20. The rapid increase in domestic energy prices in recent years and the perception that profits and overall prices are too high have been a major source of public concern and were key drivers for the market investigation reference.
21. After a sustained period of real terms reductions in the years following privatisation, domestic gas and electricity prices have increased significantly over the last ten years. Average domestic electricity prices rose by around 75% in real terms between 2004 and 2014, and average domestic gas prices rose by around 125% in real terms over the same period. In 2015, the upwards trend halted, with electricity prices roughly flat and gas prices falling nearly 5% in real terms.
22. We have reviewed financial data submitted by the Six Large Energy Firms, for the period 2009 to 2014. This suggests that, for electricity, the main drivers of domestic price increases from 2009 to 2014 were the costs of social and environmental obligations and network costs. Reported wholesale costs remained flat while profit (EBIT⁴) margins fell sharply in 2010 and rose steadily year on year thereafter. For gas, there was a broadly even percentage increase in wholesale costs, network costs, obligation costs and indirect costs, with EBIT increasing significantly after 2009. Average EBIT margins earned on sales to domestic customers were 3.5% over the period. Average EBIT margins on sales of gas (4.5%) were higher than those on sales of electricity (2.5%).
23. We have noted that there is a wide variation in the prices that different domestic customers pay for energy, which is particularly striking since

⁴ Earnings before interest and tax, or gross profit less indirect costs.

electricity and gas are entirely homogenous products. We calculate that, over the period Quarter 1 (Q1) 2012 to Quarter 2 (Q2) 2015, most customers of the Six Large Energy Firms could have made considerable savings from switching a combination of suppliers, tariffs and payment methods: for some categories of customer, the average gains from switching were equivalent to more than 20% of their bill over the period.

24. We have also noted that, over the period 2011 to mid-2015, average revenue per kWh earned by the Six Large Energy Firms from customers on the standard variable tariff – which about 70% of the customers of the Six Large Energy Firms pay – was around 11% higher for electricity and 15% higher for gas than average revenue earned from customers on other tariffs.
25. EBIT margins from retail sales to SMEs (including microbusinesses) were on average 8% over the period – significantly higher than those on sales to domestic customers or industrial and commercial (I&C) customers. Margins on sales of gas to SMEs (10%) were higher than those on sales of electricity (7%).

Quality of service

26. There have been considerable concerns about the quality of service offered by the Six Large Energy Firms. We asked them to provide information on the number of complaints they had received, broken down by type of complaint. The results indicated that the number of recorded complaints increased sixfold between 2008 and 2014 before falling by 20% in 2015. Problems related to billing, customer services and payments accounted for the majority of complaints.

Market definition

27. Defining the market provides a framework for the assessment of the effects on competition of features of a market. Market definition is a useful tool, but not an end in itself, and we note that the boundaries of the market do not determine the outcome of our competitive assessment in any mechanistic way. Notably, in some cases, where we consider that competitive pressures differ between different types of customer, we identify discrete customer segments within markets.
28. We consider the relevant markets for this investigation to be the following:
 - (a) the wholesale electricity market in Great Britain (including trading);
 - (b) the wholesale gas market in Great Britain (including trading);

- (c) the retail supply of electricity to domestic customers in Great Britain, comprising, at least, prepayment and restricted meter segments;
- (d) the retail supply of gas to domestic customers in Great Britain, comprising, at least, prepayment and restricted meter segments;
- (e) the retail supply of electricity to SMEs in Great Britain, comprising, at least, a microbusinesses segment; and
- (f) the retail supply of gas to SMEs in Great Britain, comprising, at least, a microbusinesses segment.

Nature of wholesale market competition

- 29. There are broad similarities between the nature of competition in wholesale gas and electricity markets. At a high level, both involve: upstream production and importation, for sale into wholesale trading markets; and bilateral and exchange trading between producers, generators, suppliers, traders and customers in wholesale trading markets.
- 30. In gas and electricity, there are important interactions between market design and the need to physically balance the system. One of the most important differences between the two is that, because of the ability to store gas within a day, it is financially settled and balanced on a daily basis. Electricity, in contrast, is priced and financially settled on a half-hourly basis.

Competition in wholesale gas markets

- 31. A large but declining proportion of gas consumed in Great Britain is from the UK Continental Shelf (UKCS) in the North Sea (currently around 50%). An increasing proportion comes directly from Norway and also from the European gas grid, which is supplied mainly by Norway, Russia and North Africa. Finally, a small but increasing amount is shipped in on LNG ships, much of it originally extracted in Qatar.
- 32. We have not found any features in wholesale gas markets that give rise to an AEC. Concentration in gas production is low, suggesting limited scope for exercising unilateral market power. Almost all gas producers are price takers most of the time: given a level of demand, price can be expected to be set by the opportunity cost of the last producer required to meet that demand.
- 33. There is a degree of vertical integration in the gas markets. For example, Centrica, and to some extent Statoil and Total, have significant interests in several parts of the value chain. We do not believe that the harm that can sometimes arise from vertical integration – typically involving using influence

in one market to disadvantage rivals in another market – is a significant risk in the wholesale gas market.

34. There have been criticisms of the level of transparency in the wholesale gas market and some allegations of the manipulation of reported gas price indices. On the point of transparency, we have found that prices of almost all trades are available to market participants through the data made available by the trading platforms. Lack of price transparency therefore is not likely to constitute a barrier to entry in the gas market. On the question of index manipulation, we found that Ofgem and the Financial Conduct Authority (FCA) have actively investigated allegations and have demonstrated a willingness to use the powers that they have to deal with problems they have identified.

Competition in the wholesale electricity market

35. The wholesale price of electricity represents just under half the total cost of supplying electricity to customers, and it is therefore important to consider whether competition operates well in the wholesale market.
36. The costs of producing electricity can vary substantially depending on which types of generating plant are required to meet demand at any one point in time. Nuclear and many renewables have near-zero short-run marginal costs, while oil-fired plants have high short-run marginal costs, for example. Coal- and gas-fired plant costs lie between these two extremes, with their relative positions depending on the prices of the input fuels, which are themselves variable. In addition, wind generators only generate when the wind is blowing. The eight largest owners of generating capacity have very different portfolios of technologies. EDF Energy is currently the largest generator with a 26% share of generation output.
37. We have considered to what extent any generating company can exercise market power to raise wholesale spot prices and developed a model to test this. We found that, reviewing the period 2012 and 2013, no single generator had the incentive to increase the wholesale price by a significant amount in a significant number of half-hour periods.
38. Furthermore, our analysis of the profitability of the generation operations of the Six Large Energy Firms between 2009 and 2013 indicates returns that were generally in line with or below the cost of capital. The profitability analysis does not therefore provide evidence that overall, the Six Large Energy Firms earned excessive profits from their generation businesses over the period or that wholesale market prices were above competitive

levels. This evidence is consistent with our conclusion that generators do not have unilateral market power.

Wholesale electricity market rules and regulations

39. We have considered the impact on competition of five key elements of the design principles and market rules and regulations that shape competition in GB wholesale electricity markets. These cover both established characteristics of the electricity wholesale market regulatory framework and recent reforms that are likely to have a significant impact on the nature of wholesale market competition in the future:
- (a) the principle of self-dispatch introduced about 15 years ago;
 - (b) the reforms to the system of imbalance prices that Ofgem has recently approved;
 - (c) the Capacity Market that the Department of Energy & Climate Change (DECC) introduced in 2014 as a means of improving incentives to invest in and maintain thermal generating capacity and encouraging demand-side response (DSR);
 - (d) the introduction of Contracts for Difference (CfDs) as the principal means of incentivising investment in low carbon generation; and
 - (e) the absence of locational pricing for transmission losses and constraints, an issue that has been debated at length since privatisation 25 years ago.

Self-dispatch

40. Economic dispatch is the process by which the optimal output of generators is determined at any point in time, to meet overall demand, at the lowest possible cost, subject to transmission and other operational constraints. The current dispatch mechanism in force in Great Britain, introduced by the New Electricity Trading Arrangements (NETA) / British Electricity Trading and Transmission Arrangements (BETTA) reforms, was designed as a self-dispatch wholesale electricity market, based on bilateral trading between generators and suppliers. This contrasts with the system that it replaced, the England and Wales 'Pool', which was centrally dispatched.
41. We have reviewed the principle of self-dispatch that underpins current wholesale electricity market arrangements and considered whether there may be benefits to competition from a move to a more centralised system of dispatch. In our view, the evidence does not support such a conclusion. We

do not believe that the self-dispatch system in Great Britain, when compared with alternative dispatch systems, reduces price transparency or increases transaction costs. Nor have we found evidence of systematic technical inefficiency arising from self-dispatch.

Imbalance price reforms

42. Imbalance prices play a key role in wholesale electricity trading in Great Britain, providing incentives to generators and suppliers continually to match supply and demand. Under current market rules generators and suppliers are charged an imbalance price if, in any given half-hour period, they have produced less than (or consumed more than) the volumes of electricity covered by their contracts. Conversely, they are paid an imbalance price if they have produced more than (or consumed less than) the volumes of electricity covered by their contracts.
43. Ofgem has recently approved fundamental reforms to the system of imbalance prices under the Electricity Balancing Significant Code Review (EBSCR). While no appeal was made against Ofgem's decision, several parties wrote to us, expressing their concerns about the reforms. These reforms are:
 - (a) A move to a single imbalance price.
 - (b) A move to making the imbalance price in all periods equal to the cost of the 1MWh most costly action in the balancing mechanism (known as 'price average reference volume of 1MWh', or PAR1), which is a narrowing of the base for the calculation from the previous 500MWh.
 - (c) A move to reprice Short Term Operating Reserve (STOR) actions (typically periods of tight short-run margins) to the probability of lost load multiplied by £6,000/MWh (the 'value of lost load' (VoLL)), if this is greater than their utilisation price. This is known as 'reserve scarcity pricing' (RSP).
 - (d) A move to price disconnection or voltage reduction actions equal to VoLL.
44. We consider the move to a single price for imbalances to be positive for competition, as it will eliminate the inefficient penalty that has previously been imposed on companies that find themselves in 'helpful' imbalance at any given time.
45. The reformed move to PAR 1 is being phased in, with an opportunity to learn from the experience at PAR50. Should this demonstrate that there are real

problems with further tightening, the modification can be revisited. We suggest that Ofgem should use the opportunity of the move from PAR500 to PAR50 to do a careful empirical analysis of the likely effects of a further move to PAR1.

46. We think RSP (including the move to price disconnection or voltage reduction actions equal to the VoLL) will provide stronger incentives for contracting and forecasting ex ante, and some additional incentives for flexible generation and demand, but there is likely to be an irreducible element of risk that parties cannot directly control. While smaller parties are generally more exposed to imbalance volumes than larger parties, under single pricing they are as likely to benefit from an unexpected event as lose out. Further, the prevalent use by smaller suppliers of intermediaries should help any such risks be managed. Overall, while we have not seen strong evidence in favour of a move to RSP, we have not found that it leads to an AEC.

Capacity Market

47. The Capacity Market was introduced by DECC to help ensure sufficient investment to meet future demand. In an energy-only market, potential investors in generation might be sceptical about their ability to recover the costs of their investment, since this would require prices to be allowed to spike to very high levels on the (rare) occasions of system stress. Under the Capacity Market, National Grid holds auctions to secure agreements from capacity providers (generation and DSR) to provide capacity when called upon to do so at times of system stress.
48. We believe that there are cogent arguments for introducing a capacity mechanism, to help ensure that an appropriate level of security of supply is maintained. In particular, because it is based on a competitive process, this should help to improve incentives to invest in and maintain thermal generating capacity at a time of considerable policy change and provide greater incentives for DSR. We have found that since 2009 the Six Large Energy Firms have suffered significant impairment losses in relation to their conventional CCGT and coal generation fleet. Impairment losses are a clear indication that investors do not expect to fully recover the cost of past investments in these technologies.
49. A number of concerns were raised with us relating to specific aspects of the operation and design of the Capacity Market. Having considered these, our view is that the design of the Capacity Market is broadly competitive. As regards the recovery of Capacity Market costs and the Capacity Market penalty mechanism, our view is that these do not give rise to an AEC. As

regards the length of the capacity agreements, and the different treatment of DSR providers, in view of DECC's work in this area and the case pending before the General Court, we did not carry out work in this area.

Contracts for Difference

50. A further area we have considered are the policy mechanisms in place to drive future investment in low carbon generation. The decisions being taken now in this area will have a major impact on future prices.
51. The Renewables Obligation (RO) has been successful in encouraging investment in renewable generation, which accounted for just under 25% of all GB generation in 2015. However, it has imposed an increasing burden on bills –DECC estimates that Renewables Obligation Certificate (ROC) payments will reach almost £4 billion per year by 2020/21, comprising around 8% of the domestic electricity bill in 2020.
52. CfDs have been introduced to replace the RO as the main mechanism for incentivising investment in low carbon generation. CfD payments are due to increase steadily, reaching about £2.5 billion a year by 2020/21. Unlike the RO, which takes the form of a payment on top of the revenue generators receive from the wholesale electricity market, under CfDs, generators are paid the difference between a strike price (which is fixed in real terms) and a market reference price. We have found that there is some evidence to support DECC's view that the more attractive risk properties of CfDs will encourage investors to accept a lower level of support per MWh of generation.
53. In our view, a central benefit of the move from ROCs to CfDs is that, while under the RO levels of support are set administratively, under CfDs competition can be used to set the strike price and hence the level of support provided to low carbon generators. By enabling a competitive process, CfDs should provide a more efficient means of providing support.
54. We therefore think that DECC's move to a competitive allocation process was a positive step towards ensuring an efficient allocation of support. The first competitive auction was held in 2015, resulting in prices considerably below the reserve price ('Administrative Strike Price'). We estimate that the amount of support to projects awarded CfDs in the first auction was approximately 25% lower than it would have been had CfDs been awarded to projects at their Administrative Strike Prices, saving customers around £110 million a year.

55. The scale of the decisions being made and their impact on future bills mean that it is essential that support to low carbon generation is provided at least cost to customers. The benefits of using a competitive allocation process are, in our view, clearly demonstrated by looking at the Final Investment Decision enabling for Renewables (FIDeR) scheme, under which contracts were awarded through a non-competitive process. In March 2013, DECC launched this scheme to award an early form of CfDs to renewable generation projects with the intention of avoiding investment delays during the transition to the enduring CfD regime.
56. We have compared the subsidy awarded to the offshore wind projects under the FIDeR scheme to the levels of subsidy awarded under the competitive auction. Our analysis suggests that the support cost per MWh to customers of the offshore wind projects awarded under the FIDeR scheme was between 30 to 60% higher than the support cost of similar offshore wind projects awarded through competitive allocation a few months later. We estimate that DECC's decision to award a large proportion of the available CfD budget outside the competitive process under the FIDeR scheme is likely to have resulted in customers paying substantially higher costs (approximately £250–310 million per year for 15 years, equivalent to a 1% increase in retail prices). This provides a stark illustration of the additional costs that can be expected if the competitive process is circumvented.
57. We are therefore concerned that some elements of the CfD allocation process currently in place potentially restrict the use of competition in setting the strike price in the future. Notably, the Energy Act 2013 gives DECC powers to award CfDs directly to parties through a non-competitive process in the future. While there will be some situations where competition may not be the most appropriate means by which contracts should be allocated (for example, where there is a very limited number of potential competitors), the experience of FIDeR shows that any proposal not to use a competitive process in the future needs to be considered carefully, transparently and in full recognition of the likely costs. Without this, there is a risk that future contracts may be awarded that do not deliver value for money for customers.
58. We have also reviewed two important aspects of the approach DECC has taken to the competitive allocation of CfDs. Specifically, we have considered the division of the technologies into separate 'pots', whereby DECC separates different technologies for the purposes of the competitive process; and we have also considered the way that the budget is allocated into each of these different pots. Decisions on both of these parameters influence the intensity of competition and the level of support provided through the scheme.

59. While there could be reasons, based on economic efficiency, for different technologies to be separated out, these decisions need to be carefully made, given the potential impact on competition and future prices. Regarding the division of technologies into pots, we have not received evidence from DECC demonstrating how its preferred option would result in the best outcome for customers. Nor have we been made aware of significant analysis undertaken by DECC on the rationale for its decision on how to allocate the budget between the different pots.
60. Overall, while DECC's introduction of CfDs represents a positive step towards an efficient competition-based process, in light of these concerns and the potential impact on future bills **we have found that the mechanisms for allocating CfDs are a feature of the wholesale electricity market in Great Britain giving rise to an AEC increasing the risk of inefficient allocation of financial support to generation capacity and which adversely impacts competition.** In particular, the AEC arises from the absence of an obligation for DECC to:
- (a) carry out, and disclose the outcome of, a clear and thorough impact assessment supporting a proposal to use its powers to allocate CfDs outside a competitive process; and
 - (b) monitor the division of technologies between different pots, which form the basis of CfD auctions, and provide a clear justification when deciding on the allocation of budgets between the pots for each auction.

Absence of locational prices for transmission losses

61. Energy is lost when electricity is transported from one part of the country to another, and the greater the distance travelled, the higher the losses. The costs of these transmission losses therefore vary considerably by geographical location – in an area with relatively low levels of demand and high levels of generation, for example, consuming electricity will be associated with low losses and generating electricity will be associated with high losses. However, despite this locational variation in the costs of losses, under the current regulatory regime, these costs are allocated to generators and customers in a way that takes no account of their geographical location.
62. We have found that the current system of uniform charging for transmission losses creates a system of cross-subsidisation that distorts competition between generators and is likely to have both short- and long-run effects on generation and demand:

- (a) In the short run, costs will be higher than would otherwise be the case, because cross-subsidisation will lead to some plants generating when it would be less costly overall for them not to generate, and other plants – which it would be more efficient to use – not generating. Similarly, cross-subsidies will result in customer prices failing to reflect fully the costs of providing the electricity.
 - (b) In the long run, the lack of locational pricing may lead to inefficient investment in generation, including inefficient decisions over the extension or closure of plant. There could also be inefficiency in the location of demand, particularly high-consumption industrial demand.
- 63. We have carried out a modelling exercise to assess the costs that are likely to arise as a result of the absence of locational charges for transmission losses. The results are similar, overall, to those from previous modelling exercises and show that total efficiency costs vary between around £130 million and £160 million over the period 2017 to 2026, with these results robust to a variety of assumptions regarding fuel input costs. We also found a moderate environmental cost arising from the absence of locational charges for transmission losses in the form of increased SO₂ and NO_x emissions, valued at between around £1 million and £15 million over the period.
- 64. Our view is that **the absence of locational pricing for losses is a feature of the wholesale electricity market in Great Britain that gives rise to an AEC, as it is likely to distort competition between generators and to have both short- and long-run effects on generation and demand.**

Wholesale electricity market remedies

- 65. We have decided on remedies to address both aspects of the regulatory regime governing wholesale market operation that lead to AECs:
 - (a) the mechanisms for allocating CfDs; and
 - (b) the absence of locational charging for transmission losses.
- 66. While the remedies are quite different, they have a similar high-level objective: to help ensure that competitive pressures are brought fully to bear on the wholesale cost of electricity, reducing the prices paid by electricity customers.

Allocation of Contracts for Difference

67. We noted that the cost of supporting projects through an early form of CfDs (under the FIDeR framework) allocated outside the context of a competitive auction is £250–310 million per year higher than it likely would have been had the projects been awarded CfDs through a competitive auction. This illustrates the significant impacts that DECC’s decisions in this area can have on the costs faced by energy customers. It is essential, therefore, when DECC makes such decisions in the future, that they are based on rigorous analysis, and that the impacts are communicated in a clear and transparent manner. We believe our remedies will help ensure that this happens.

DECC to undertake, and disclose the outcome of, an impact assessment before awarding CfDs outside the auction mechanism

68. The aim of this remedy is to ensure that, in the future, if DECC is considering allocating a CfD outside the competitive auction process, it undertakes a clear and rigorous analysis of the impact of doing so and consults on this basis before reaching a final decision.

69. We note that, in principle, there may be circumstances under which allocating CfDs outside the competitive auction process could result in lower costs to customers. For example, there may be cheap projects with a lifespan and other operating characteristics that are so different to the characteristics of potentially competing projects that it is difficult to compare them within an auction framework. Since an element of judgement will be required in making these assessments we have not considered it appropriate to recommend imposing absolute rules determining the situations in which non-competitive allocation would be allowed.

70. However, we are recommending that, before deciding to allocate support on a non-competitive basis, DECC should set out clearly in an impact assessment why it considers that it is not feasible for the project to compete in the competitive auction process and why the benefits to customers of non-competitive allocation are likely to exceed the costs.⁵

71. We are recommending that DECC consult on the basis of an impact assessment before entering into negotiations with prospective generators, in order to identify the possible costs and the benefits that may arise from supporting a given technology. We also recommend that DECC publish an

⁵ We note that no such assessment was carried out in relation to the FIDeR projects. If any such assessment had been carried out, we do not believe that it would have led to the conclusion that it was in customers’ interests to allocate the FIDeR projects outside of the auction.

impact assessment after the negotiations with prospective generators and the provisional agreement of a strike price, to expose the specific impacts on customers expected to arise from the proposed contract.

DECC to undertake and consult on a clear and thorough assessment of the appropriate allocation of technologies and CfD budgets between pots

72. In allocating CfDs on a competitive basis, DECC separates technology into separate 'pots', to which it assigns separate budgets. Since only technologies within the same pot compete against each other, decisions on these parameters influence the intensity of competition and the level of support provided through the scheme.
73. We are recommending that DECC undertake a clear and thorough assessment and consult before allocating technologies between pots and the CfD budget to the different pots. As part of its analysis and consultation, DECC should estimate the extent to which the short-run costs of supporting low carbon generation are affected by its decision. This can then be weighed against any long-run benefits (eg cost reductions of future projects), to assess overall impacts on customers.
74. We are recommending that DECC should undertake an assessment of the appropriate allocation of technologies and budgets to pots prior to each CfD auction and consult on this basis.

Locational adjustments for transmission losses

75. Given that we have found that the absence of locational pricing for transmission losses gives rise to an AEC, our remedy will introduce locational charging for transmission losses in Great Britain. Its aim is to improve the accuracy with which the avoidable costs of variable transmission losses are borne by those who cause them, thus reducing waste, reducing the cost of electricity generation, and ultimately reducing total bills to end customers. The design of the remedy will be identical in its technical aspects to the P229 code modification previously assessed in 2011, including notably the use of semi-marginal (rather than full marginal) transmission loss factors.
76. The modelling exercise that we have conducted suggests that the introduction of locational charges for losses will reduce the total costs of meeting the electricity demand of customers in Great Britain by between £130 million and £160 million over the period 2017 to 2026, as well as producing a modest environmental benefit of between £1 million and £15 million. The results of our modelling are similar, overall, to those from previous modelling exercises conducted in support of previous proposals to introduce locational charging

for transmission losses. We have not attempted to model the dynamic benefits from the remedy, in terms of more efficient investment, due to the complications and uncertainties of such modelling. All in all, the expected benefits from the remedy – considering both benefits we have modelled and those we have not – exceed by far the expected implementation costs, which are substantially less than £10 million.

77. Introducing locational pricing for losses would also have a distributional effect, leading to transfers: from customers in areas of low generation relative to demand to customers in areas of high generation relative to demand; and from generators in areas of high generation relative to demand to generators in areas of low generation relative to demand. This pattern is borne out in our modelling: customers in the North of Scotland tend to benefit to a greater extent than customers in the South of England, for example.
78. In summary, based on the modelling work we have conducted and other analysis, our conclusion is that introducing locational charging for transmission losses will reduce costs and be in the long-term interests of customers.
79. Experience to date shows that it has been extremely difficult to introduce locational charging for transmission losses through code modification processes. We believe that this is largely due to the differential impact of the introduction of locational pricing for losses on some producers, who have found it to be in their commercial interest to slow down the pace of change. We will therefore implement the remedy by means of an order imposed on National Grid, as system operator, to calculate imbalance charges taking into account transmission losses calculated on a locational basis.

Vertical integration

80. A range of parties have expressed concerns about vertical integration in the electricity sector, both in the context of this investigation and in the wider debate about competition in the energy sector. For example, in its decision to make a market investigation reference, Ofgem said that vertical integration ‘can provide efficiency benefits but can also harm competition. A full investigation of the balance between costs and benefits is needed, to establish whether vertical integration is best for competition.’
81. The Six Large Energy Firms are all vertically integrated to some extent, in that they have electricity generation and electricity retailing activities under common ownership. Some other energy firms are also vertically integrated, including Drax, which owns the non-domestic supplier Haven Power, and

Ecotricity. The degree of operational integration varies considerably between firms.

82. We have examined three main ways in which vertical integration might harm competition in wholesale and retail electricity markets.
83. First, it could mean that independent (non-vertically integrated) generators are not able to compete effectively because of the prevalence of vertically integrated suppliers. The concern here is that independent generators would be harmed because vertically integrated suppliers refuse to buy from them, or will buy on worse terms. However, we have found no evidence of this, and continued investment in independent generation suggests that this is not a concern.
84. Secondly, if vertically integrated generators refuse to supply independent (non-vertically integrated) suppliers, or supply them on worse terms, it could mean that independent suppliers have to pay higher costs for wholesale electricity than vertically integrated suppliers. As a result they may be unable to compete effectively, resulting in harm to customers. The lack of unilateral market power makes it implausible that vertically integrated generators would be able to discriminate in this way, and the recent growth of independent retailers suggests that they have not been foreclosed from the market.
85. Lastly, vertical integration could raise barriers to entry and growth by new suppliers if they were unable to secure sufficient wholesale electricity. However, our analysis of wholesale market liquidity suggests that vertically integrated firms carry out extensive external trading, and liquidity in the products that vertically integrated firms use to hedge their exposure to wholesale market risk is sufficient for independent firms to hedge in a similar way.
86. One concern that has been expressed in relation to vertical integration is the lack of financial transparency. We consider the broader issue of financial transparency and the need for robust market-orientated financial information in our assessment of the governance of the regulatory framework below.
87. We have also considered whether there are potential cost savings associated with vertical integration. For instance, there may be a potential benefit to vertically integrated firms resulting from the 'natural hedge', whereby certain outcomes that may be detrimental to the vertically integrated firm's supply arm may be beneficial to its generation arm (and vice versa). This would reduce the volatility of a vertically integrated firm's returns. However, we considered that these benefits are likely to materialise

only under fairly specific circumstances, and as a result are likely to be limited in scale.

88. Some other potential benefits from vertical integration are not directly related to the natural hedge. Vertical integration is a form of diversification which may improve vertically integrated firms' credit ratings (thereby potentially reducing vertically integrated firms' financing costs), but we note that other forms of diversification could potentially give the same benefit. There may also be economies of scope resulting from vertical integration between supply and generation (such as shared trading or management personnel). While these benefits may not be passed through in full to customers, overall customers are likely to be better off than they would be if these efficiencies were not present.
89. We have not sought to quantify precisely the scale of the benefits identified above, but they are likely to be modest. The fact that some of the Six Large Energy Firms are moving away from a vertically integrated structure gives further weight to our conclusion that any benefits from vertical integration are likely to be limited (although they may have been greater in the past when integration took place).
90. Overall, we have not identified any areas in which vertical integration is likely to have a detrimental impact on competition for independent suppliers and generators. In addition, we consider that there may be some efficiencies resulting from vertical integration, which may be passed through to customers. As a result, our conclusion is that firms' vertically integrated structure does not give rise to an AEC.

Nature of retail market competition

Demand and supply characteristics and the parameters of retail competition

91. Reliable and continuous access to energy is a fundamental requirement of households, necessary for heating, lighting and the use of appliances. If demand for electricity and gas is not satisfied instantaneously, customers incur severe costs.
92. Gas and electricity can be characterised as 'necessity goods', which are goods that are considered indispensable for maintaining a certain standard of living. Such goods have a low income- and price-elasticity of demand. We note that the poorest 10% of the population spends almost 10% of total household expenditure on electricity and gas, while the richest 10% spends about 3% of total household expenditure on electricity and gas.

93. Gas and electricity are extreme examples of homogenous products in that the energy that customers consume is entirely unaffected by the choice of retailer. We would expect, therefore, that price would be the most important product characteristic to a customer in choosing a supplier and/or tariff and this is supported by evidence from our survey of 7,000 customers. A further implication of homogeneity is that customers may be less interested in engaging in the markets for electricity and gas supply than in other markets, where there is quality differentiation of products.
94. Traditional gas and electricity meters used in households do not record when energy is used and are only read infrequently. This means that households have no reason to adjust their use of gas or electricity in response to short-term wholesale price changes. Further, as a result of the infrequency of meter reads, customer bills are typically based on estimates rather than actual consumption, which can create barriers to understanding and engagement in the markets.
95. Retail energy suppliers do not own or operate any of the physical assets required for the delivery of gas or electricity to their customers' homes. They are engaged, rather, in financial and commercial activities relating to the sale of energy to customers. These activities are: energy procurement; securing network access; sales and marketing; metering; billing and customer service; the delivery, on behalf of DECC, of obligations relating to environmental and social policy objectives; and, optionally, the provision of a range of bundled products and services.
96. We would expect competition in a well-functioning retail market to be largely on price, with competitive pressures bearing down on elements of the overall costs of energy supply, in particular suppliers' gross margin (ie the combination of indirect costs and net profit). This is currently around 18% of the retail cost of electricity and 19% of the cost of gas across the Six Large Energy Firms. We would also expect a (more limited) degree of competitive pressure on wholesale costs and obligation costs, which together comprise around 60% of the costs of electricity and gas. After the smart meter roll-out and reforms of the gas and electricity settlement systems, we would expect suppliers to have a greater degree of influence over wholesale costs and network costs.
97. We would expect competitive pressures to be such that customer service meets certain minimum required standards, notably accurate billing. We would expect some degree of innovation, around tariff design, convenience and services such as advice on improving energy efficiency. We consider that the scope for such innovation could expand significantly with the full roll-out of smart meters and greater potential for demand response.

Influence of regulation in shaping retail competition

98. The nature of price competition between the Six Large Energy Firms has evolved several times since liberalisation, due in large part to changes in the regulatory regime. We have found that, post-liberalisation, competition was initially focused on variable tariffs. Over the last six years, three major interventions by Ofgem have changed the nature of retail competition significantly:
- (a) The prohibition on regional price discrimination introduced in 2009.
 - (b) The introduction of new licence requirements, standards of conduct and enforcement action resulting in the withdrawal of the Six Large Energy Firms from doorstep selling in 2011 and 2012.
 - (c) The introduction of Retail Market Review (RMR) reforms in 2014 resulting in a number of obligations on suppliers, including several provisions relating to tariffs, notably restricting the number of core tariffs.

Customer activity and engagement

99. Domestic customer activity can be measured along several dimensions:
- (a) Choice of tariff – notably whether the customer is on a standard variable tariff or a non-standard tariff.
 - (b) Choice of payment method – standard credit, direct debit or prepayment.
 - (c) Choice of supplier, for one or both of electricity and gas.
100. We commissioned a survey of 7,000 domestic retail energy customers. The survey provides material evidence of domestic customers' lack of understanding of, and engagement in, retail energy markets. For example:
- (a) 36% of respondents either did not think it was possible or did not know if it was possible to change one or more of the following: tariff; payment method; and supplier;
 - (b) 34% of respondents said they had never considered switching supplier;
 - (c) 56% of respondents said they had never switched supplier, did not know it was possible or did not know if they had done so; and
 - (d) 72% said they had never switched tariff with an existing supplier, did not know it was possible, or did not know if they had done so.

Choice of tariff

101. Standard variable tariffs are the default tariff – ie the tariff energy customers will pay if they have not made an active decision to change tariff. Unlike other tariffs, standard variable tariffs have no end date – customers will be on a standard variable tariff indefinitely unless they make an active decision to change.
102. We have observed that, for the Six Large Energy Firms, gas and electricity revenues per kWh from standard variable tariffs are consistently higher than average revenue from non-standard (generally fixed-price) tariffs. Despite this, around 70% of the customers of the Six Large Energy Firms are currently on a standard variable tariff. We also note that a customer on a standard variable tariff is more likely to be with the historical incumbent supplier.

Choice of payment method

103. In the mid-1990s the majority of customers paid by standard credit but since then there has been a significant shift towards payment by direct debit, with 58% of customers choosing to pay by this method in 2015 and only 27% of customers paying by standard credit. The proportion of customers on prepayment meters doubled over the period, from 7% in 1996 to 16% in 2015.
104. Most customers have a choice as to whether to pay by standard credit or direct debit. The Six Large Energy Firms have offered a variety of discounts to customers to pay by direct debit over the years. Standard Licence Condition 27.2A, introduced by Ofgem in 2009, requires any such discounts to be cost-reflective. We understand that dual fuel standard variable tariff customers paying by standard credit currently pay about £75–£80 per year more than if they paid by direct debit.
105. Prepayment, in contrast, is not generally a choice on the part of the customer: all customers on prepayment meters must pay by prepayment. Prepayment meters are generally installed where a customer has a poor payment history or in certain types of rented accommodation. We understand that the premiums paid by dual fuel standard variable tariff prepayment customers are currently about the same as those for standard credit – about £75–£80 per year. Nearly all prepayment customers are on standard variable tariffs, reflecting the limited choice of non-standard tariffs they face.

Choice of supplier

106. We have observed a steady upward trend in switching until 2008 followed by a decline, to levels below those in 2003. There are a number of potential reasons for this, including the prohibition of regional price discrimination through Standard Licence Condition 25A in 2009 and the decision by suppliers (in particular, the Six Large Energy Firms) to stop doorstep selling in 2011 and 2012. There was also a very noticeable spike in switching towards the end of 2013, which may have been due to the high level of political debate surrounding energy prices at that time. In 2015, there were around 3.4 million electricity transfers and 2.7 million gas transfers, which represents around 12% of all electricity meters and gas meters in 2015.
107. Between about 20 and 30% of the domestic electricity customers of the Six Large Energy Firms have been with their current supplier for more than ten years. For gas, the range is wider – between about 10 and 40% depending on the supplier.

Market shares and acquisition channels

108. As of Q1 2016, British Gas had the largest share of both gas (36%) and electricity (23%) domestic customers, followed by SSE and E.ON (both around 12% of gas customers and 15% of electricity customers). There has been a rapid expansion in the market shares of suppliers outside of the Six Large Energy Firms, from less than 1% in 2011 to around 13% in gas and electricity in the first quarter of 2016. The largest of the Mid-tier Suppliers are First Utility, Ovo Energy and Utility Warehouse.
109. Suppliers use a range of acquisition channels to gain new customers, including face-to-face sales, telesales and price comparison websites (PCWs). The use of PCWs has increased over the last six years, but its importance as an acquisition channel varies considerably between suppliers.

Nature and extent of price competition

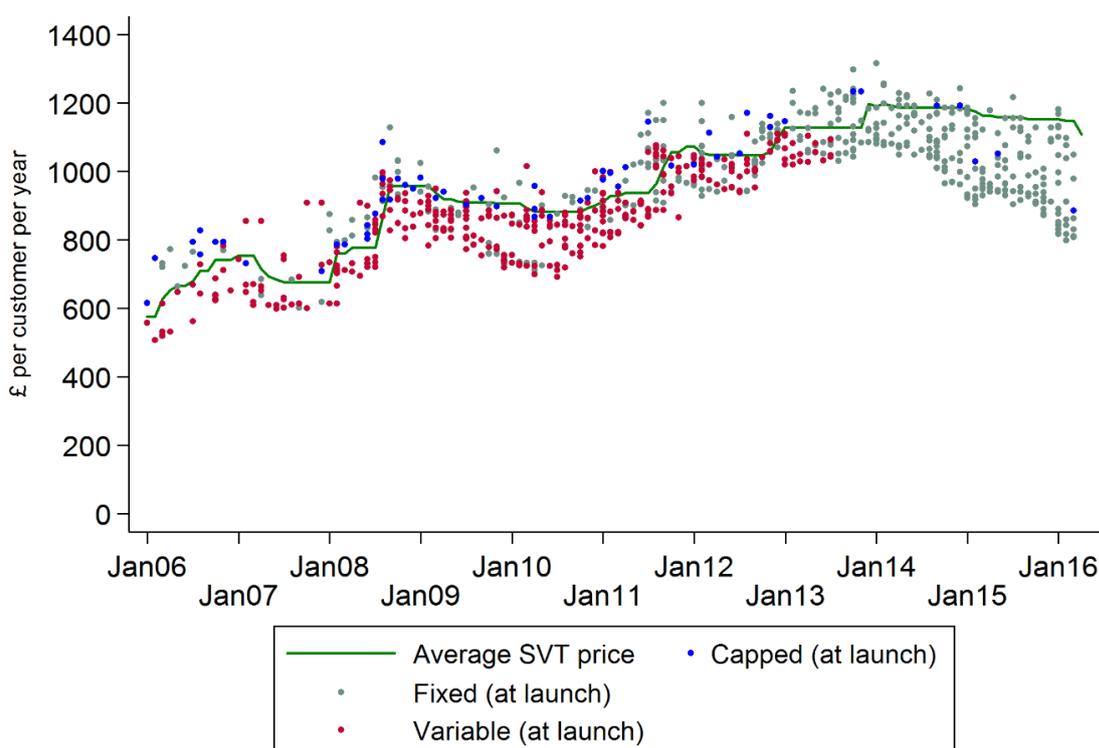
110. The price of a standard variable tariff can in principle be changed by the supplier at any time, with the condition that, if the price is to be increased, it must give 30 calendar days' notice to customers of its intention to do so. The Six Large Energy Firms typically make public statements, in advance of implementation, of intentions to change the price of standard variable tariffs. Standard variable tariff prices have generally changed once or twice a year. The standard variable tariff is an acquisition tariff for prepayment customers, who have a very restricted choice of non-standard tariffs. For non-

prepayment customers, standard variable tariffs are generally not an active acquisition tariff.

Comparison of standard variable tariffs and non-standard tariffs

111. Non-standard tariffs come in a variety of forms, including fixed-rate and capped tariffs. One- to two-year fixed-rate products are currently the most popular form of non-standard tariff. In contrast to standard variable tariffs, non-standard tariffs are acquisition tariffs. The majority are priced at significant discounts to standard variable tariffs, with a strategy of ensuring that they achieve a good position on PCWs. There have, however, historically been some non-standard tariffs such as longer-term price fixes, which have been more expensive than standard variable tariffs.
112. The chart below compares the non-standard tariffs launched by the Six Large Energy Firms with the flat average standard variable tariff across each of the Six Large Energy Firms.

Figure 2: Average SVTs and non-standard tariffs offered by the Six Large Energy firms (based on an annual bill for a dual fuel, direct debit, typical consumption customer)



Based on typical domestic consumption of 3200kwh/year for electricity and 13500kwh/year for gas.

Source: CMA analysis of data collected from the Six Large Energy Firms and Ofgem.

113. For the majority of this period, up to the end of 2012, there were many non-standard variable tariffs, which offered some of the cheapest rates. Fixed-rate and capped products were often sold at a premium – as might be

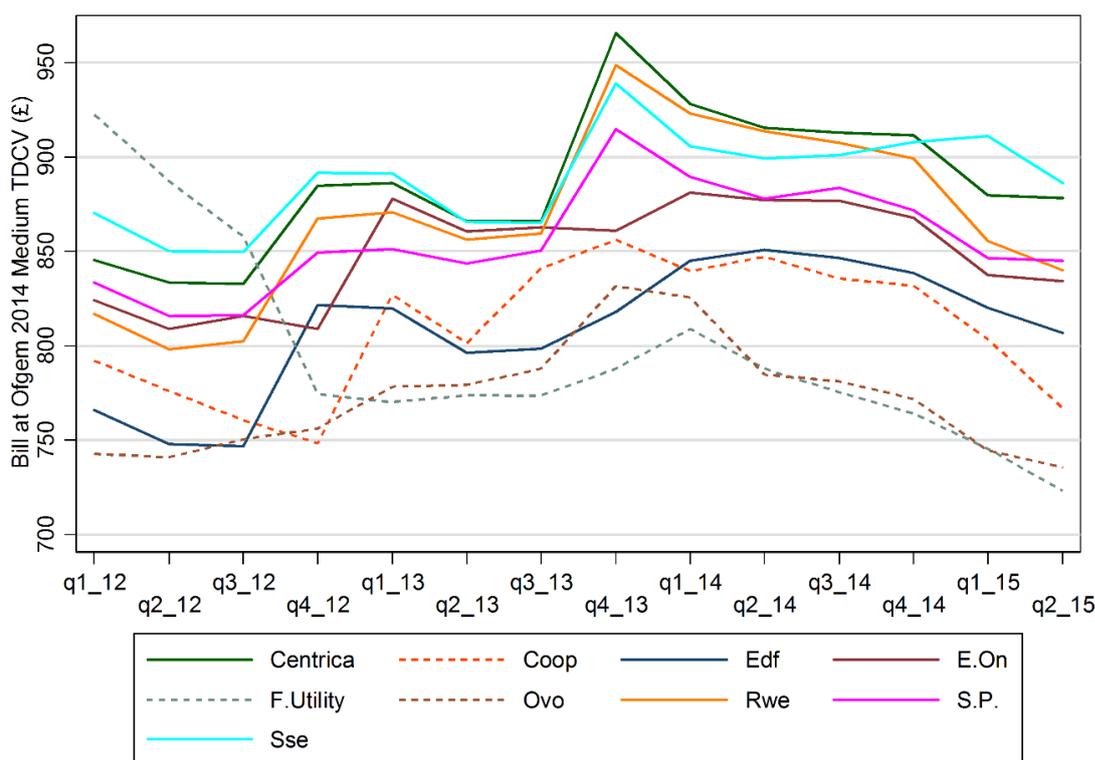
expected, given the fact that they reduce the risk to which the customer is exposed. With the introduction of the RMR rules, discounts on standard variable tariffs were banned and fixed products have taken their place as the cheap acquisition product. Over the last two years, the disparity between standard variable tariffs and the cheapest non-standard products has increased substantially.

114. Several of the Six Large Energy Firms have told us that there is an inter-relationship between their pricing of standard variable tariffs and of non-standard products. For example, in setting the price of a cheap non-standard product, they told us that they assume that a certain proportion of customers will revert to a standard variable tariff (for which there is a bigger margin) at the end of the product's fixed term. They have argued that it is only because this happens that they can offer the cheapest of their non-standard products.

Comparison of the Six Large Energy Firms and the Mid-tier Suppliers

115. We have analysed how domestic customer bills differ between suppliers controlling for exogenous cost differences (network charges and the costs associated with different payment methods), and assuming a typical level of domestic consumption.

Figure 3: Comparison of average dual fuel bills for medium TDCV domestic customers controlling for network and payment method costs



Source: CMA analysis of data provided by the Six Large Energy Firms and the Mid-tier Suppliers.

Notes:

1. A supplier's average price is calculated taking into account all the standard variable and non-standard tariffs that their customers (with standard and Economy 7 meters) were on at the end of each quarter (subject to some exclusions as set out in Appendix 10.2), and the number of customers on each on these tariffs.
2. For each supplier, tariffs offered by white-label partners are included (in particular, the analysis of Centrica tariffs includes British Gas and Sainsbury Energy tariffs, and the analysis of SSE tariffs includes SSE and M&S and Ebico tariffs).
3. We have excluded results for Utility Warehouse from the graph. This is because, for the purposes of the comparison of bills analysis and the gains from switching analysis, we excluded all bundled tariffs (see Appendix 9.2). For Utility Warehouse this had the effect of excluding the majority of its fixed-term tariffs.

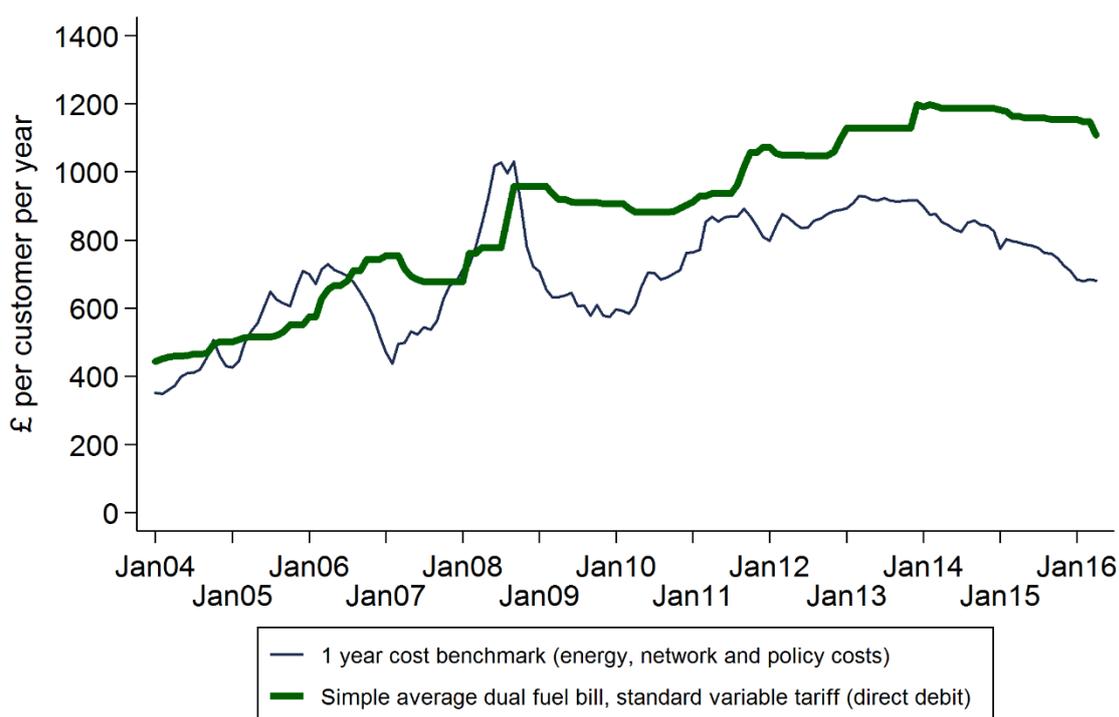
116. As can be seen in the figure above, after controlling for key exogenous costs, three of the Mid-tier Suppliers (Ovo Energy, First Utility and, to a less marked extent, Co-operative Energy) offered consistently lower average prices than the Six Large Energy Firms over the last 18 months of the period under review. EDF Energy offered consistently the lowest average prices paid by customers of the Six Large Energy Firms, with the customers of SSE, Centrica and RWE generally paying the highest average prices, over the period Q1 2012 to Q2 2015.⁶

⁶ We note that these average prices were calculated based on medium TDCV for dual fuel customers. Results may differ based on actual consumption and we look at the results based on high and low TDCV in Appendix 10.2.

Cost pass-through

117. We have reviewed the evidence on cost pass-through – the extent to which changes in costs are passed through into changes in domestic retail prices. This has historically been an area of some controversy, with concerns that suppliers appear to raise domestic retail prices more quickly when costs increase than they reduce prices when costs fall. In a competitive market we would generally expect prices to reflect marginal costs, and this in turn will give efficient signals to market participants about consumption and production decisions, rather than historical costs (which are sunk).
118. The Figure below shows the relationship between the average price of the standard variable tariff (based on the annual bill for a dual fuel direct debit typical consumption customer) offered by the Six Large Energy Firms and the one-year cost benchmark, which tracks the cost that a supplier would incur if it were to purchase energy for a typical customer for the following 12 months, based on the prevailing energy prices in that month in the market.

Figure 4: Average SVT price (based on the annual bill for a dual fuel direct debit typical consumption) and a forward-looking industry-level benchmark of direct costs



Bill is an average across regions and six large energy firms, for a typical consumer. Direct costs are not those actually incurred by firms, but forward-looking expectations. Indirect costs are not shown.

Source: CMA analysis of data collected from the Six Large Energy Firms, Ofgem and ICIS.

119. The gap between the measures of direct costs and the average standard variable tariff widens over time, from around 2009 onwards. The gap narrows somewhat in 2011, with increases in wholesale gas costs, but then

increases again from 2014 as reductions in wholesale gas costs are not passed through into commensurate reductions in the standard variable tariff. In contrast, the cheapest non-standard tariffs have tracked changes in expected direct costs more closely. The evidence appears to be consistent with a weakening of competition over the standard variable tariff over time. This is particularly apparent from 2009 which broadly coincides with the introduction of the prohibition on undue regional price discrimination. The withdrawal of the Six Large Energy Firms from doorstep selling in 2011 and 2012 may have also contributed to this pattern.

Competition in the devolved nations and regional competition

120. Our survey suggests that there are some differences in levels of activity and engagement between customers in Scotland, Wales and England. In general, we found that customers in Scotland and Wales were somewhat less likely to have been active in the market than those in England. We also found that in Scotland and Wales, customers were somewhat more likely to express satisfaction with their current supplier and to trust it.
121. A relatively high proportion of customers in both Scotland and Wales (29%) had been with their supplier for more than ten years (compared with 21% in England). Further, in Scotland and Wales, 65% and 61%, respectively, of respondents were with an incumbent supplier (for at least one fuel) compared with 53% in England.
122. Concentration is higher in Scotland and Wales compared with the GB average, and lower in England. We also note that the two regions in Great Britain where the electricity incumbent has a share of supply of over 50% are North Scotland and South Wales. Further, we calculated average dual fuel bills for customers on typical consumption, controlling for network costs and the costs associated with different payment methods, and found that average bills were higher in these two regions than in any other GB region.
123. These results are consistent with higher degrees of incumbent brand loyalty in Scotland and Wales. Overall, our view is that retail customers in Scotland, Wales and England are likely to face a broadly similar range of issues, albeit with somewhat lower levels of market engagement in Scotland and Wales. However, we have identified two specific constraints relating to certain meter types that are likely to affect customers in Scotland and Wales to a greater extent than customers in the rest of Great Britain: restricted meters, which are particularly prevalent in North and South Scotland; and prepayment meters, which are used by a higher proportion of customers in Wales and Scotland compared to England.

Domestic retail AECs

124. We have investigated four broad areas in which we had concerns that domestic retail markets may not be working well for customers:
- (a) weak customer response and lack of engagement with domestic retail energy markets;
 - (b) price discrimination and tacit coordination on the part of suppliers;
 - (c) supply-side barriers to entry and expansion in the prepayment segments; and
 - (d) the regulatory framework governing domestic retail market competition, notably the RMR reforms and the settlement systems for gas and electricity.

Weak customer response and lack of engagement

125. Our domestic customer survey suggests that there are substantial numbers of customers who are disengaged from retail energy markets. We have considered further sources of evidence that shed light on the nature and extent of disengagement, including our analysis of: the gains from switching available to customers; the characteristics of customers who are disengaged; and our analysis of the barriers to engagement that customers face in domestic retail energy markets.

Gains from switching

126. We estimate that there were significant gains from switching that went un-exploited by domestic energy customers over the period Q1 2012 to Q2 2015. We calculated the savings available from the key dimensions of choice – choice of tariff; choice of payment method; and choice of supplier, for one or both of electricity and gas – considering a number of scenarios, which differ according to the extent to which they restrict the choices available to customers.
127. Bringing the above results together, the table below shows how the gains from switching differ for all the customers of the Six Large Energy Firms according to their different tariff and payment type, under the most liberal

scenario for switching (in which they are allowed to change supplier, tariff and payment method) (scenario 5x).⁷

Table1: Average savings under scenario 5x for domestic customers of the Six Large Energy Firms on different tariffs and payment methods, Q1 2012 to Q2 2015

<i>Dual or single fuel</i>	<i>Tariff type</i>	<i>Payment type</i>	<i>Average savings (£)</i>	<i>Average savings (%)</i>
Dual	Non-standard	All	109	9
Dual	SVT	Direct debit	205	16
Dual	SVT	Standard credit	245	23
Dual	SVT	Prepayment	70	8
Single gas	Non-standard	All	96	14
Single gas	SVT	Direct debit	132	19
Single gas	SVT	Standard credit	142	24
Single gas	SVT	Prepayment	48	13
Single electricity	Non-standard	All	55	9
Single electricity	SVT	Direct debit	95	15
Single electricity	SVT	Standard credit	118	23
Single electricity	SVT	Prepayment	45	8

Source: CMA analysis. Scenario 5x.
Note: SVT = standard variable tariff.

128. Overall, we calculated that the average gains to all the dual fuel customers of the Six Large Energy Firms over the entire period was £164 under this scenario. The gains available to customers differ quite substantially according to the scenario chosen and category of customer concerned (and in particular, the supplier they are with, the type of tariff they are on and the payment method they employ). Overall, the results demonstrate that:
- (a) there were material, persistent savings available to customers of the Six Large Energy Firms over the period;
 - (b) the savings available to customers on standard variable tariffs were, on average, larger than the savings available to non-standard tariff customers; and
 - (c) the savings available to standard credit customers were, on average, higher than those available to customers on other payment methods.
129. We also note that the savings available to customers on prepayment meters were, on average, substantially lower than those available to other customers, reflecting the more restricted range of tariffs available to them. This is discussed further below.

⁷ In this scenario, customers are able to switch supplier, tariff, payment method (except for prepayment customers, reflecting the greater barriers they face in using other payment methods), and gains are reduced to reflect the exit fees a customer may incur in moving from a non-standard tariff. Appendix 9.2 presents the results of a broad range of scenarios, which differ according to the parameters of choice available to the customer.

130. We have also assessed how the potential savings to customers have evolved over time. The annual potential savings from switching available to the dual fuel standard variable tariff customers (excluding those on prepayment meters) of each of the Six Large Energy Firms have risen substantially over the past two years, and have reached their highest level in the most recent period of the analysis, Q2 2015, reaching an equivalent of around £330. There is a similar trend for the standard variable tariff customers of the Mid-tier Suppliers, although there is a bigger disparity in the positions of individual suppliers.
131. We note that in February 2016, the Six Large Energy Firms announced a reduction in the price of their standard variable gas tariffs, ranging from 5 to 5.4%, to come into effect from February to March 2016.⁸ However, we do not believe this will materially change the pattern of results seen in our gains from switching analysis. Indeed, gains may even have increased further, since we would expect the acquisition tariffs to follow more closely the reduction in wholesale gas and electricity prices, which comprise roughly 50% of the total costs incurred in supplying gas and electricity and have fallen around 31% and 15% since Q2 2015, respectively.
132. Parties made a variety of comments on our analysis, including that we have omitted factors that are relevant to customer decision-making and hence overstated the gains to be made from switching supplier. We have not seen evidence that we have overstated the gains from switching in our analysis. In particular:
- (a) we have not identified characteristics of a standard variable tariff to which customers might attach substantial value; and
 - (b) on choice of supplier, we have seen no evidence to suggest that suppliers offering the cheapest tariffs have worse quality of service than those offering more expensive tariffs.
133. In relation to the choice of payment method, the evidence suggests that a proportion of customers who pay by standard credit are likely to be doing so by default rather than through active choice. However, there are likely to be some who do have an active preference for paying by standard credit, and are likely to assign some value to this payment method. We have therefore also calculated the gains available to customers from switching suppliers and tariffs alone, keeping the payment method fixed. The main difference is

⁸ EDF Energy announced a price cut of 5%; British Gas announced a price cut of 5.1%; E.ON announced a price cut of 5.1%; RWE npower announced a price cut of 5.2%; SSE announced a price cut of 5.3% and Scottish Power announced a price cut of 5.4%.

that savings for dual fuel customers of the Six Large Energy Firms on standard variable tariffs who pay by standard credit are lower – equivalent to 15% of the bill (as opposed to 23% for those prepared to switch to direct debit) over the period.

134. Our finding of material potential savings that are persistent over time, available to a significant number of domestic customers and that go unexploited provides evidence of weak customer engagement in the domestic retail markets for electricity and gas in Great Britain. While gains from switching are likely to be present in most markets, we attach particular significance to the fact that they are available at such levels to customers for domestic gas and electricity (which are homogenous goods and constitute a significant proportion of household expenditure).

Characteristics of disengaged customers

135. The survey results suggest that there is a material percentage of customers who are disengaged in domestic retail energy markets. The survey results also suggest that those who have low incomes, have low qualifications, are living in rented accommodation or who are above 65 are less likely to be engaged in the domestic retail energy markets against a variety of indicators of engagement. For example, 35% of those whose household incomes were above £36,000 had switched supplier in the last three years, compared with 20% of those whose household incomes were below £18,000, and 32% of those with degree level qualifications had switched in the last three years compared with 18% of those with no qualifications.
136. We have also assessed to what extent the gains from switching are associated with demographic characteristics. Overall, we find that, excluding prepayment customers, those households who are: in rented accommodation; have incomes below £18,000; or in receipt of a Warm Home Discount rebate have higher gains from switching. By implication, such customers are on average paying a somewhat higher price for their energy than those customers who do not fall into these categories.
137. We note that the disengaged are not limited to these demographic groups: there are many households who are disengaged who do not fall into these categories. However, we consider these results to be important, as they help to shed some light on the possible reasons for inactivity and lack of engagement in the markets. Had we found that it was generally higher-income households who did not engage, we might have concluded that saving money through switching was of relatively low importance to them.

138. The fact that this is not the case – indeed, there is a higher proportion of households on lower incomes who are disengaged and inactive – makes the above hypothesis more difficult to sustain, particularly given the fact that expenditure on energy constitutes a high proportion of the total expenditure for the poorest households.
139. We have also reviewed the available evidence on the extent to which customer disengagement applies to customers on prepayment meters. The evidence suggests that a higher proportion of prepayment customers are less engaged than direct debit customers (but not less engaged than standard credit customers), particularly in terms of whether they have ever considered switching or are likely to consider switching in the next three years, and their awareness of their ability to switch.
140. There are a number of factors that may explain this, including that prepayment customers include higher proportions of individuals with a range of demographic characteristics that we have found to be associated with low levels of engagement in the domestic retail energy markets, and notably: low levels of income; low levels of education; living in social rented housing; and having a disability. In addition, we have identified that prepayment customers face higher barriers to accessing and assessing information and additional actual and perceived barriers to switching. While the need to top up prepayment cards regularly is likely to increase awareness of domestic retail energy markets among prepayment customers, low levels of engagement may have in part been influenced by the lower gains from switching available to prepayment customers.
141. The overall weight of evidence supports a finding that disengagement and weak customer response is a more significant problem among prepayment customers compared with domestic customers on direct debit.

Barriers to engagement

142. We have identified a number of barriers to engagement that customers face in domestic retail energy markets. We have found that meter type can have a significant influence on such barriers and have distinguished in our analysis, between domestic customers on ‘conventional meters’,⁹ customers on prepayment meters and those on certain types of restricted meter.

⁹ By ‘conventional meters’, we mean single rate (as opposed to time-of-use) and credit (as opposed to prepayment) meters.

Customers on conventional meters

143. We consider that two fundamental characteristics of energy consumption are likely to impede customers' understanding of and engagement in energy retail markets. First, the fact that there is no quality differentiation of gas and electricity may fundamentally reduce customers' enthusiasm for, and interest in, engaging in the domestic retail energy markets, leading to customer inertia. Second, conventional meters are not very visible or immediately informative to the customer, as a result of which customers are generally not aware of how much gas and electricity they consume, when they consume it and which uses require the most energy. Further, conventional meters are generally read infrequently by the customer or the supplier, which adds considerably to the complexity and opacity of gas and electricity bills.
144. We have also identified barriers (both actual and perceived) to accessing and assessing information, which influence the extent to which customers engage in the process of shopping around for the best deal. Our survey suggests that, while the majority of respondents who shopped around in the last three years found the process of shopping around to be very or fairly easy, others experience difficulties. For some, lack of access to the internet (or a lack of confidence in using the internet) appears to be a barrier to engagement.
145. Third party intermediaries (TPIs) such as PCWs can significantly reduce search and switching costs for domestic customers by providing an easy means to gain personalised quotes, on a comparable basis, from a range of different suppliers. However, we have found that customers on low income and with low levels of education are less likely to use PCWs. Of those who are not confident using a PCW, 43% said they did not trust or believe PCWs.
146. We have observed that there is some evidence indicating that the process of searching for an alternative supplier and successfully switching has been problematic for some customers. Significantly, the perception of the complexity and burden of the process appears to be worse than the reality, which may further dissuade domestic customers from shopping around and/or switching.

Customers on prepayment meters

147. We have identified additional aspects of the prepayment segments that strengthen the barriers to engagement faced by customers on prepayment meters, which support our finding that disengagement and weak customer response is a more significant problem among prepayment customers

compared with domestic customers on direct debit. We have found that prepayment customers face:

- (a) higher actual and perceived barriers to accessing and assessing information about switching arising, in particular, from relatively low access to the internet and confidence in using PCWs;
- (b) higher actual and perceived barriers to switching arising, in particular, from:
 - (i) the need to change meter to switch to a wider range of tariffs (and the obstacles associated with this requirement such as perceptions of complexity of the meter replacement process); and
 - (ii) restrictions arising from the Debt Assignment Protocol hindering indebted prepayment customers' ability to switch supplier.

Customers on restricted meters

- 148. Restricted meters include any metering arrangement whereby a domestic customer's consumption at certain times and, in some cases, for certain purposes (for example, heating) is separately recorded. These meters allow for customers to be charged lower rates for electricity used at times when overall demand is lower.
- 149. There are currently over 4 million restricted meters (around 17% of all customer accounts) of which around 700,000 (about 2% of all customer accounts) are non-Economy 7 restricted meters.¹⁰ Our analysis has focused on the position of non-Economy 7 restricted meters, about which we have heard specific concerns (and henceforth refer to this group as 'customers on restricted meters' unless otherwise specified).
- 150. Our analysis shows that there are aspects of the restricted meter segment that strengthen the features that customers face actual and perceived barriers to accessing and assessing information, and that customers face actual and perceived barriers to switching supplier and/or tariff for restricted meter customers.
- 151. We have found that customers on restricted meters face higher actual and perceived barriers to accessing and assessing information arising, in particular, from a general lack of price transparency concerning the tariffs that are available to them, which results from restricted meter tariffs not

¹⁰ Economy 7 customers are included in our assessment of gains from switching discussed above.

being supported by PCWs or suppliers' online search tools. We have also found that customers on restricted meters face higher barriers to switching supplier and/or tariff. We have been told that many restricted meter customers do not have a choice of supplier offering bespoke tariffs. They can in principle switch to a single-rate or an Economy 7 tariff offered by their supplier or rival suppliers, but some suppliers would require their existing meter to be replaced at a cost to the customer and loss of functionality. Changing meters might also involve some rewiring in the home.

152. All this means that, for customers on restricted meters, understanding the options available to them and switching supplier is substantially more difficult than it is for customers on other meter types. Reflecting this, we have found that, across Great Britain the historical incumbent supplier's share of supply in restricted meters is 79% which is significantly higher than the equivalent figure for all electricity (33%) and gas (37%) customers.
153. Despite the cost advantages to suppliers of serving customers on restricted meters, we have found that, for Q2 2015, 67% of standard credit and direct debit customers on restricted meters would have had lower bills if they were on the cheapest single-rate tariffs available on the market and that those who could have saved would have saved an amount equivalent to around 17% of their bill (equivalent to around £154 a year). This is an increase on Q2 2014 where 50% of standard credit and direct debit customers on restricted meters would have had lower bills and these customers could have saved an amount equivalent to around 14% of their bill (equivalent to around £120 a year). We note that the results differ significantly depending on the supplier in question – for two of the Six Large Energy Firms, over 85% of their standard credit and direct debit customers, at Q2 2015, would have been better off on the cheapest single-rate tariff.

AEC finding on weak customer response

154. **We have identified a combination of features of the markets for the domestic retail supply of gas and electricity in Great Britain that give rise to an AEC through an overarching feature of weak customer response**, which, in turn, gives suppliers a position of unilateral market power concerning their inactive customer base (the Domestic Weak Customer Response AEC).

Price discrimination and tacit coordination

155. We have also considered to what extent supplier behaviour may be leading to an AEC. We have considered two hypotheses:

- (a) That some suppliers have a position of unilateral market power, arising from the extent of customer lack of engagement in the market, and that these suppliers have the ability to exploit such a position, for example, through price discrimination by pricing their standard variable tariffs materially above a level that can be justified by cost differences from their non-standard tariffs and/or pricing above a level that is justified by the costs incurred with operating an efficient domestic retail supply business.
- (b) That suppliers are tacitly coordinating in the retail markets through public price announcements.

Unilateral market power

- 156. We have observed that there are significant disparities in the tariffs charged by the Six Large Energy Firms that cannot be fully explained by differences in cost. All of the Six Large Energy Firms said that the price of fixed-term tariffs is not determined by reference to the relative cost of supplying customers subscribing to standard and non-standard tariffs.
- 157. With regard to direct costs, we conclude that transmission and distribution charges and costs of meeting social and environmental obligations do not differ between customers subscribing to standard variable and non-standard tariffs. In relation to energy costs, our view is that there is no evidence that energy costs are inherently or systematically higher for standard variable tariffs as compared with fixed-term, fixed-rate tariffs.
- 158. Our view is that the Six Large Energy Firms enjoy a position of unilateral market power over their inactive customer base and have the ability to exploit such a position through pricing their standard variable tariffs materially above a level that can be justified by cost differences from their non-standard tariffs.
- 159. We note that the extent of discounting differs between firms and over time and that some suppliers have argued that they can only afford to discount some non-standard tariffs in expectation that a proportion of customers will revert to a standard variable tariff at the end of that tariff's term. However, we also note that other evidence (including evidence on profitability, cost inefficiency and the prices offered by the Mid-tier Suppliers) suggests that the average prices offered by the Six Large Energy firms have been above those that we would expect to prevail in a well-functioning competitive market.

160. Overall, our view is that the overarching feature of weak customer response gives suppliers a position of unilateral market power concerning their inactive customer base and that suppliers have the ability to exploit such a position through their pricing policies: through price discrimination by pricing their standard variable tariffs materially above a level that can be justified by cost differences from their non-standard tariffs; and/or by pricing above a level that is justified by the costs incurred in operating an efficient domestic retail supply business. These features act in combination to deter customers from engaging in the domestic retail gas and electricity markets, to impede their ability to do so effectively and successfully, and to discourage them from considering and/or selecting a new supplier that offers a lower price for effectively the same product.

Tacit coordination

161. Our finding is that the evidence does not suggest that there is tacit coordination between the domestic retail energy suppliers in relation to price announcements. In particular, we do not have evidence of suppliers using price announcements as a mechanism to signal their intentions in relation to the pricing of their standard variable tariff to rival suppliers. There are some characteristics of the supply of gas and electricity to domestic customers that may be conducive to tacit coordination. However, we have also identified factors that may make it more difficult for firms to reach and sustain coordination.

Supply-side barriers to entry and expansion in the prepayment segments

162. We have identified particular supply-side constraints affecting supply to customers on 'dumb' (ie non-smart) prepayment meters and which limit the extent of competition in the prepayment segments. These constraints, arising from the dumb prepayment infrastructure, take the form of limitations on the number of tariffs that suppliers can offer due to the limited number of gas and electricity tariff 'slots'. We have found these constraints to be particularly binding for new entrants in gas on account of the low availability of gas tariff slots – over 80% of which are currently held by the Six Large Energy Firms, including a large proportion that they are not using.
163. We have also found softened incentives for all suppliers, and in particular new entrants, to compete to acquire all prepayment customers, whether on smart or dumb prepayment meters. This is due to actual and perceived higher costs to engage with, and acquire, these customers compared with

other customers, and the low prospect of successfully completing the switch of indebted customers (who represent up to 10% of prepayment customers).

164. Our analysis of the prepayment segments suggests that competition is significantly weaker than in the wider GB domestic retail energy markets. We find that the range of tariffs available to prepayment customers is significantly more limited than those available in the credit meter segments, and that the cheapest tariffs that are offered by suppliers to prepayment customers are significantly higher (even accounting for differentials in the costs to serve) than the cheapest tariffs in the direct debit segments.
165. We observe that the gains from switching available to dual fuel customers on prepayment meters have been fairly static, with gains available as of Q2 2015 of between £70 and £120, depending on the customer's supplier. This is in contrast with a sharp increase in the gains available to prepayment customers if they were to switch to a credit meter, which roughly doubled between 2013 and 2015, reaching between £290 and £370 as of Q2 2015, depending on the supplier.
166. We also conducted a search on a PCW in order to look at the most recent pricing data. We found that, as of 28 April 2016, there were large differences between the cheapest prepayment and direct debit tariffs, between £260 and £320, depending on the region. This is well in excess of our estimate of the cost differential between the two payment methods of £63.
167. Overall, **our view is that a combination of features concerning energy supply specifically to the prepayment segments gives rise to an AEC through reducing suppliers' ability and/or incentives to compete to acquire prepayment meter customers and to innovate by offering tariff structures that meet customers' demand** (the Prepayment AEC). These features are certain technical constraints limiting the number of tariffs that suppliers can offer to customers on dumb prepayment meters and softened incentives for all suppliers, and in particular new entrants, to compete to acquire all prepayment customers, whether on smart or dumb prepayment meters arising from actual and perceived higher costs to engage with, and acquire, such customers and a lower prospect of successfully completing the switch of indebted customers.

Regulations

168. The supply of electricity and gas is heavily regulated, and the form that regulation takes has a profound effect on the shape of competition in retail energy markets. We have considered several elements of the regulatory regime that may have an impact on competition between suppliers.

Retail Market Review reforms

169. Ofgem launched the RMR in late 2010 due to concerns that retail energy markets were not working effectively for customers. The stated purpose of RMR was to promote customer engagement in energy markets in order to improve the competitive constraint provided by customer switching.
170. We have analysed the impact on competition of the 'simpler choices' component of the domestic RMR rules, which includes the following measures: (a) the ban on complex tariffs; (b) a maximum limit on the number of tariffs that suppliers are able to offer at any point in time; and (c) the simplification of cash discounts.
171. The stated purpose of RMR was to promote customer engagement in the retail energy markets in order to improve the competitive constraint provided by customer switching. However, some of the RMR measures restrict the behaviour of suppliers and constrain the choices of customers in a way that may have distorted competition and reduced customer welfare.
172. The evidence we have on the impact of the RMR rules is not particularly encouraging. There are few, if any, signs that customer engagement is improving materially, either in terms of direct customer activity (eg switching, shopping around) or their experience and perception (eg views on tariff complexity). Those who were disengaged before the RMR appear to remain so. Further we have doubts that the four-tariff rule will have a benefit on engagement in the long term, since given the number of suppliers, any customer who wishes to find the cheapest tariff on the market will in practice need to use a TPI, with or without the four-tariff rule.
173. The introduction of the four-tariff rule has led to a number of the Six Large Energy Firms withdrawing a number of tariffs and discounts and changing tariff structures, which may have made some customers worse off. In particular, some innovative tariffs were withdrawn; various discounts were removed by the Six Large Energy Firms as a result of the RMR rules; and the RMR rules curtailed the ability of the Six Large Energy Firms to offer attractive tariffs for low volume users.
174. We consider that the RMR four-tariff rule limits the ability of suppliers to compete and innovate and provide products which may be beneficial to customers and competition. This is of particular concern over the longer term as RMR rules could potentially stifle innovation around smart meters.
175. We also consider that the RMR rules, more generally, dampen price competition by limiting the ability and incentives of suppliers to respond to

competition by offering cheaper tariffs or discounts (which means that they, in turn, put less competitive pressure on their rivals).

176. A further area where the impact of the RMR rules appears to be harmful to price competition is in relation to PCWs. The RMR rules stop PCWs from negotiating cheaper exclusive tariffs with retail energy suppliers (possibly in exchange for lower commission rates), or offering discounts or cashback offers funded by the commissions they receive from suppliers. The RMR rules therefore limit the pressure competition between PCWs to attract customers could put on energy prices.
177. Overall, **our finding is that certain aspects of the ‘simpler choices’ component of the RMR rules (including the ban on complex tariffs, the maximum limit on the number of tariffs that suppliers are able to offer at any point in time, and the simplification of cash discounts) are a feature of the markets for the domestic retail supply of electricity and gas in Great Britain that gives rise to an AEC** through reducing retail suppliers’ ability to compete and innovate in designing tariff structures to meet customer demand, in particular, over the long term, and by softening competition between PCWs.

Gas and electricity settlement

178. Energy suppliers generally attempt to purchase in advance the electricity and gas that they expect their customers to consume, to help them manage price and volume risks. But both gas and electricity demand are driven by a range of factors that are difficult to predict accurately, such that there will always be some disparity between the volumes of energy covered by suppliers’ contracts and the volumes their customers actually use in real time. Settlement is the system by which such disparities are identified, reconciled and paid for.
179. Accurate and timely settlement is fundamental to well-functioning retail energy markets, since without this, suppliers will not have the right incentives to minimise the overall costs of energy – which are ultimately borne by customers. However, we have concerns that elements of the settlement systems of both gas and electricity lead to inaccuracies and delays that distort competition between energy suppliers.

Gas settlement

180. Domestic gas customers do not have their meter read on a daily basis so their consumption for the purposes of settlement is based on an Annual Quantity (AQ), which is the expected annual consumption of the meter

based on the historical metered volumes and seasonal normal weather conditions. The AQ value can only be adjusted – at the discretion of the supplier – during a specified AQ review period and only if meter reads demonstrate that actual consumption is at least 5% higher or lower than the AQ value. Further, there is no reconciliation between estimated and actual consumption once the meter is read.

181. We consider that the inaccuracy of AQs and the lack of reconciliation do not provide the correct incentives to suppliers. In particular, they disadvantage certain types of supplier – notably those that have been particularly effective in helping their customers reduce their gas consumption – and lead to gaming opportunities (whereby a supplier may delay adjusting an AQ value if it would be to their disadvantage).
182. We note that a significant upgrade of the gas settlement system is planned, in an attempt to address some of these issues, called Project Nexus. However, Project Nexus has taken many years to develop and the most recent deadline for Nexus reforms becoming operational (October 2016) is not likely to be met. Further, we note that the incentives that shippers face to place a higher priority on adjusting AQs down and delaying adjusting AQs up will still be present after Project Nexus is implemented.
183. Overall, **we have found that the current system of gas settlement is a feature of the markets for domestic and SME retail gas supply in Great Britain that gives rise to an AEC** through the inefficient allocation of costs to parties and the scope it creates for gaming, which reduces the efficiency and, therefore, the competitiveness of domestic and microbusiness retail gas supply.

Electricity settlement

184. Electricity settlement takes place every half hour but the vast majority of electricity customers do not have meters capable of recording half-hourly consumption. Therefore, their consumption must be estimated on an ex ante basis. This is done by assigning customers to one of eight profile classes, which are used to estimate a profile of consumption over time and allocate energy used to each half-hour period.
185. Our main concern in relation to electricity settlement is that the current profiling system of settlement distorts supplier incentives (compared with a system of settlement based on customers' actual half-hourly consumption). The use of profiling to estimate each supplier's demand fails to charge suppliers for the true cost of their customers' consumption – costs that can differ considerably at different times of the day. This means that suppliers

are not incentivised to encourage their customers to change their consumption patterns, as the supplier will be charged in accordance with the customer's profile. This in turn may distort suppliers' incentives to introduce new products such as time-of-use tariffs. Further, Standard Licence Condition 47 currently prohibits suppliers from collecting consumption data with greater than daily granularity unless a customer has given explicit consent to do so. We believe that this opt-in clause is a major barrier to the development of static and dynamic time-of-use tariffs.

186. In principle, smart meters should remove the need for profiling in electricity, since they provide accurate half-hourly meter reads which could be used for settlement. However, there are currently no concrete proposals for using half-hourly consumption data in the settlement of domestic electricity customers, even after the full roll-out of smart meters. Given the time that code modifications have taken in the past, we are concerned at the lack of concrete plans for a move to half-hourly settlement, and the fact that no code modification process on this has begun.
187. Therefore, **we have found that the absence of a firm plan for moving to half-hourly settlement for domestic electricity customers is a feature of the market for domestic and SME retail electricity supply in Great Britain that gives rise to an AEC** through the distortion of suppliers' incentives to encourage their customers to change their consumption profile, which overall reduces the efficiency and, therefore, the competitiveness of domestic and microbusiness retail electricity supply.

Assessment of detriment arising from the domestic retail AECs

188. To assist us in deciding on appropriate remedies, we have assessed the nature and extent of detrimental effects on domestic energy customers resulting from the AECs that we have identified in the retail energy markets, and in particular, the Domestic Weak Customer Response AEC and Prepayment AEC.
189. Our approach to assessing the scale of detriment is to consider to what extent the outcomes that we have observed in the retail energy markets are worse than we would expect to see in well-functioning competitive markets, including the extent to which domestic energy customers are, on average, paying higher prices than they would do in well-functioning competitive markets and receiving poorer quality of service. Most of our analysis has focused on the first source of detriment – excessive prices – since we believe that this is likely to be the most significant form of detriment suffered by energy customers, given the homogenous nature of gas and electricity.

190. We have adopted two approaches to assessing the extent to which prices have exceeded those we would expect in a well-functioning market:
- (a) a 'direct' approach, which involves comparing the average prices charged by different suppliers, while controlling for those differences in each supplier's customer base that are likely to affect costs; and
 - (b) an indirect approach, which involves assessing both:
 - (i) suppliers' levels of profitability (and in particular whether the Return on Capital Employed by suppliers exceeds their cost of capital); and
 - (ii) the extent to which suppliers have incurred costs inefficiently (ie whether costs are higher than we estimate an efficient supplier would incur).
191. The benefit of the direct approach is that it gives us a more direct measure of customer detriment based on actual market prices – and prices are ultimately what matter to a customer, rather than a supplier's level of profitability or cost efficiency. Further, the direct approach allows for a much more granular breakdown of detriment, not just by supplier but by customer type, including type of tariff and payment method.
192. The indirect approach provides information on profitability and cost efficiency which can be a useful proxy for customer detriment. It can therefore provide a useful independent cross-check on our direct analysis, as it is based on a separate data set and methodology.

Direct approach

193. Our direct approach to assessing detriment involves calculating the average prices offered by the Six Large Energy Firms to their customers and comparing these to a 'competitive benchmark price', which is based on the average prices offered by the most competitive suppliers. In establishing the competitive benchmark price, and then making this comparison, we made certain adjustments to observed prices to ensure the comparison is on a broad like-for-like basis. These included adjustments for exogenous cost differences relating to network costs and the costs associated with different payment methods, adjustments to reflect the fact that the suppliers in our benchmark are growing rapidly, and hence incurring higher acquisition and indirect costs but lower obligation costs than they would in steady state, and adjustments to achieve a benchmark level of profitability.
194. Using this approach, we estimated the detriment from excessive prices to the domestic customers of the Six Large Energy Firms to be about £1.4

billion a year on average over 2012 to 2015, the entire period for which we had data, with an upwards trend, reaching almost £2 billion in 2015. We consider this our headline estimate of the annual detriment arising from high domestic retail market prices.

195. We have also considered the extent to which the scale of excessive pricing by the Six Large Energy Firms varies between different payment methods. This is shown in the table below.

Table 2: Comparison of dual, single fuel electricity and gas bills by supplier and payment method, calculated at Ofgem 2014 Medium TDCV

<i>Dual or single fuel</i>	<i>Direct debit (% of bill)</i>	<i>Standard credit (% of bill)</i>	<i>Prepayment (% of bill)</i>	<i>All (% of bill)</i>
Dual fuel	8%	7%	12%	9%
Single fuel electricity	6%	5%	11%	7%
Single fuel gas	16%	13%	13%	14%

Source: CMA analysis. Analysis based on Ofgem's medium Typical Domestic Consumption Values. Bills are calculated net of network costs and adjusted for the costs of different payment methods.

196. For dual fuel customers (the majority of all the customers of the Six Large Energy Firms) and single fuel electricity customers (31% of their electricity customers), we found that the detriment across all of the Six Large Energy Firms is significantly higher for prepayment customers. This does not hold for single fuel gas (19% of their gas customers), although we note that our benchmark for single fuel gas is based on far fewer accounts than the benchmark for dual fuel and single fuel electricity.
197. We also note that there is considerable variation (both within the Six Large Energy Firms and the Mid-tier Suppliers) in the extent to which individual suppliers price above the competitive level. For the Six Large Energy Firms, for example, average detriment experienced by their dual fuel customers over the period ranges from between 2% and 11% of the bill depending on the supplier.
198. We have estimated the detriment suffered by customers on restricted meters using a higher-level approach, and based on snapshots as of Q2 2015 and end Q2 2014. For Q2 2015 the bills of around 68% of customers on restricted meters were higher than they would have been using the competitive single-rate tariff. On average the difference was around £158 per customer or 17% of their average annual bill, a detriment in the order of £42 million a year, an increase on the detriment we estimated for Q2 2014 (£28 million a year).

Indirect approach

199. We have also estimated customer detriment from excessive prices indirectly from the financial results of the Six Large Energy Firms, which involved assessing both suppliers' profitability and the extent to which suppliers have incurred costs inefficiently.
200. The analysis using the indirect approach yields a total estimate of customer detriment from excessive prices of £720 million a year over the period 2007 to 2014, in our base case. One explanation for why the indirect approach gives a lower estimate of detriment than the direct approach is that we have taken a conservative approach to identifying the level of profits above the industry cost of capital made and the efficient indirect cost base of the Six Large Energy Firms.
201. In addition, the indirect approach covers a longer time span which includes two years when several of the Six Large Energy Firms made losses. In the last three years of the relevant period, ie between 2012 and 2014, which corresponds more closely to the period over which we have estimated detriment using the direct approach, the central indirect estimate of detriment is around £1.1 billion (of which excess profits earned on domestic customers are around £650 million per year). If we were to use a more stringent efficiency benchmark, the indirect measure of detriment increases to £1.5 billion over the period.
202. Overall, we place greater weight on the direct approach, as it is a more relevant and granular measure of domestic customer detriment, although some aspects of our analysis using the indirect approach are important components of our analysis using the direct approach. We note also that detriment calculated under the direct approach is similar to the net profits earned by the Six Large Energy Firms from their sales to domestic customers from 2012 to 2014, but significantly higher than our estimate of excess profits from domestic sales over this period. The implication is that there is a material degree of inefficiency in current prices.

Quality of service and innovation

203. In relation to quality of service, we observed that there are several metrics which suggest that energy customers receive a poorer quality of service from the Six Large Energy Firms than they would do in well-functioning competitive markets. Those include the data which shows that the smaller suppliers have achieved consistently higher net promoter scores than the Six Large Energy Firms, and that there has been a marked increase in recorded customer complaints between 2008 and 2015 which resulted in a

number of enforcement actions brought by Ofgem against the Six Large Energy Firms.

204. We have also found that some regulatory interventions, in particular the recent RMR rules, have served to reduce innovation in recent years, and that the absence of an accurate settlement system has inhibited the development of time-of-use tariffs which could bring substantial benefits in terms of reduced costs.

Summary

205. Overall, we consider there to be a material customer detriment arising from the AECs that we have identified in retail energy markets. We have estimated that the customer detriment associated with high prices was about £1.4 billion a year on average for the period 2012 to 2015 with an upwards trend. We also found evidence which is indicative of harm to customers from poor quality of service and restrictions on innovation, but by its nature this type of harm is less readily quantifiable.

Domestic retail remedies

206. We have drawn on the above analysis in developing our remedies and in assessing the proportionality and effectiveness of the package of remedies as a whole. At a high level, our package of remedies for domestic customers comprises three strategic components:
- (a) creating a framework for effective competition;
 - (b) helping customers to engage to exploit the benefits of competition; and
 - (c) protecting customers who are less able to engage to exploit the benefits of competition.
207. The different elements of the package are mutually reinforcing: energy markets in which suppliers operate free of inefficient restrictions can help drive down prices for customers, but only if customers are sufficiently engaged to make informed decisions about the choices available to them. Given the level of detriment we have observed for prepayment customers, we have also decided to introduce a price cap for these customers during an interim period while our remedies take full effect. While this creates potential tensions with the aims of promoting competition and engagement, we have designed the cap in such a way as to allow competition to coexist with it.

The impact of smart meters on competition and engagement

208. The roll-out of smart meters to domestic customers is due to be substantially completed by the end of 2020. In designing our remedies we have been mindful of the fact that smart meters are likely to have a positive impact in helping to address some of the supply- and demand-side problems we have identified in the domestic retail energy markets.
209. The introduction of smart meters will address the technical constraints arising from the dumb prepayment infrastructure. Notably, the problems arising from tariff slots, and their allocation between suppliers, will cease to exist. We also consider that the introduction of fully functional (SMETS 2) smart meters should address, at least in part, suppliers' reduced incentives to compete to acquire prepayment customers, and also the specific barriers to engagement experienced by customers on restricted meters. In relation to customer engagement more generally, we consider it likely that smart meters will help improve customer engagement by making the relationship between prices and consumption more visible and improving the accuracy of bills, although the extent of this effect is uncertain.
210. In view of the benefits of smart meters for competition and engagement, and more specifically for helping to address some of the features we have identified, we believe it is vitally important that the prescribed timetable for their roll-out is adhered to. Ofgem has the power to impose penalties on suppliers in the event that the prescribed timetables are not met and we would expect it to use these tools effectively to ensure that suppliers comply with their obligation to take all reasonable steps to substantially complete the roll-out by 2020. We have also designed our remedies to mitigate the adverse effects of any delay to the roll-out programme.

Creating a framework for effective competition

211. If competition in retail energy markets is to serve customers' interests, it is vital that the regulatory and technical framework allows suppliers to compete effectively. Provided customers are sufficiently engaged, this will help drive down prices and improve quality of service.
212. We have identified a number of aspects of the regulatory framework that we believe undermine effective and efficient competition and are introducing three categories of remedy that we believe will help improve this framework:
- (a) the withdrawal of certain aspects of the simpler choices component of the RMR rules;
 - (b) reform of the settlement systems for gas and electricity; and

- (c) measures to address the technical and regulatory constraints impeding competition for prepayment meter customers.

Withdrawal of certain aspects of the simpler choices component of the RMR rules

213. We believe that certain aspects of the ‘simpler choices component’ of the RMR rules have reduced the ability and incentives of suppliers to compete and innovate in designing tariff structures to meet customer demand. We also consider that certain aspects of the simpler choices component of RMR rules (in particular the four-tariff rule) limit the scope for competition between PCWs for customers switching energy suppliers to exert downward pressure on energy prices. We have therefore decided on a remedy, the aim of which is to:
- (a) promote competition and innovation between retail energy suppliers in the retention and acquisition of domestic customers by allowing them to offer a wider range of tariffs, including tariffs designed to benefit certain customer groups; and
 - (b) facilitate competition between PCWs by allowing them to negotiate exclusive tariffs with domestic energy suppliers and to offer discounts funded by the commissions they receive from suppliers.
214. Our remedy takes the form of a recommendation to Ofgem to remove a number of standard licence conditions relating to the simpler choices component of the RMR rules. These include: the ban on complex tariff structures; the four-tariff rule; the restrictions on the offer of discounts; and the restrictions on the offer of bundled products.

Electricity settlement reform

215. Our main concern in relation to electricity settlement is that the current system of profiling fails to charge suppliers for the true cost of their customers’ consumption, which in turn distorts suppliers’ incentives to innovate and bring in new products and services such as time-of-use tariffs, which reward customers for shifting consumption away from peak periods. Further, Standard Licence Condition 47 currently prohibits suppliers from collecting consumption data with greater than daily granularity unless a customer has given explicit consent to do so, which is a major barrier to the development of static and dynamic time-of-use tariffs.
216. We have been encouraged to note that, since the publication of our provisional findings report, progress has been made by both DECC and Ofgem towards developing a concrete plan for the introduction of half-hourly

settlement. Our remedies package builds on this momentum, comprising recommendations: to DECC to consider removing any potential barrier for suppliers to collect consumption data with greater granularity than daily in the context of the review of the Data Access and Privacy frameworks; to Ofgem that it conduct a full cost-benefit analysis of the move to mandatory half-hourly settlement and consider options for reducing the costs of elective half-hourly settlement; and to DECC and Ofgem that they publish and consult jointly on a plan setting out timescales and responsibilities relating to the introduction of half-hourly settlement.

Gas settlement reform

217. Our concern in relation to the current system of gas settlement is that it leads to an inefficient allocation of costs to parties and creates scope for gaming, which reduces the efficiency and, therefore, the competitiveness of domestic retail gas supply. Since publication of our provisional decision on remedies, we have heard that Project Nexus, which would address most of our concerns, may be delayed. We are concerned that the delivery of Project Nexus may be delayed yet again, as this means that the clear deficiencies in the gas settlement system will persist beyond October 2016.
218. Our remedies in relation to gas settlement comprise: a recommendation to Ofgem to ensure implementation of Project Nexus by 1 February 2017 (or as soon as possible after that date, once Ofgem is satisfied that IT systems are ready for effective implementation and do not pose risks to customers); an order on gas suppliers to submit all meter readings for non-daily metered supply points in Great Britain to Xoserve as soon as they become available and at least once a year, except for smart meters where meter readings must be submitted monthly; and a recommendation to Ofgem to take the appropriate steps to ensure that a performance assurance framework concerning unidentified gas is established within a year of our final report .

Remedies to address constraints on competition for prepayment customers

219. In relation to the constraints imposed by the dumb prepayment infrastructure, we have decided upon a range of remedies that will make better use of the available tariff slots, so as to reduce the impact of the dumb prepayment meter technical constraints on the ability of suppliers, and in particular new entrants, to innovate by offering tariff structures that meet demand from prepayment meter customers who do not have a smart meter.
220. The remedies include recommendations to Ofgem that it: take responsibility for the efficient allocation of gas tariff pages; and change gas suppliers' standard licence conditions to impose a cap on the number of gas tariff

pages that any supplier can hold and to enable Ofgem to mandate the transfer of gas tariff codes to another supplier.

221. To further mitigate the impact of tariff codes on competition for customers on dumb prepayment meters, we are recommending that Ofgem change Standard Licence Condition 22B.7(b) to allow suppliers to set prices to prepayment customers on the basis of grouping regional cost variations and deprioritise potential enforcement action against suppliers in relation to this licence condition pending the change. This will allow suppliers to make better use of their limited tariff codes.
222. We are also introducing a remedy to enhance prepayment customers' ability and incentives to engage in the markets and to switch to other suppliers (including by switching to standard meters). This takes the form of a recommendation to Ofgem to take appropriate steps to ensure that changes to the Debt Assignment Protocol (currently being developed by Ofgem and the industry) are implemented by the end of 2016, and in particular in areas relating to objection letters, complex debt and issues relating to multiple registrations.

Helping customers engage to exploit the benefits of competition

223. Engaged customers are an essential component of well-functioning energy markets. If customers are not fully aware of the options available to them, unable to make an informed choice about the relative merits of those options or, having made a choice, are unable to switch, then competitive pressures on suppliers to reduce prices and improve quality of service will be substantially reduced.
224. We have developed a wide range of remedies that attempt to improve domestic customer engagement by addressing aspects of the features contributing to the Domestic Weak Customer Response AEC. Our remedies package consists of five broad categories of remedy, which focus on the role of different participants in the retail markets – namely, Ofgem, the customer's own supplier, third party intermediaries (TPIs), and rival suppliers – in strengthening domestic customer engagement. In particular, the remedies provide for:
 - (a) the establishment by Ofgem of a programme to provide customers – directly or through their own suppliers – with information to prompt them to engage;

- (b) creating an Ofgem-controlled database of ‘disengaged customers’ on default tariffs, to allow rival suppliers to prompt these customers to engage in the retail energy markets (the Database remedy);
 - (c) enhancing the ability and incentives of TPIs to promote customer engagement in the retail energy markets;
 - (d) Ofgem making greater use of principles rather than prescriptive rules in addressing potential adverse supplier behaviour concerning the comparability of their tariffs; and
 - (e) requiring all suppliers to make all their single-rate tariffs available to domestic customers on any type of restricted meter, without making switching conditional on a restricted meter being replaced and to provide additional information to customers on restricted meters.
225. The different market participants identified above differ substantially in terms of the incentives they have to engage customers and their ability to do so and our range of remedies reflects this.

Regulatory interventions to improve engagement

226. We consider that customers’ current suppliers have the ability to engage their customers – through the regular communications they send to them – but are likely to face limited incentives to do so in a way that encourages customers to engage in the markets. Indeed, since those customers that have not engaged in the markets recently are both less likely to switch and generally on higher tariffs than those who have recently engaged, their suppliers are likely to face a financial incentive to keep them as disengaged as possible.
227. In these circumstances, we recognise that there is an argument for Ofgem to intervene directly to facilitate customer engagement, through influencing the form, content and frequency of communication between suppliers and customers. Ofgem has also recognised the importance of clear information in facilitating customer engagement and introduced the ‘clearer information’ component of the RMR rules in an attempt to ensure that suppliers’ routine communications to customers were clear, easy to understand and personalised to them.
228. However, our concern with these provisions is that they were not subject to adequate testing prior to (or after) their introduction. Without adequate testing it is not possible to know which approach will work best in practice. Further, even if testing is conducted ex ante, changes in technology and cultural practices are likely to mean that what works changes over time.

Ofgem-led programme

229. Our remedies therefore call for a more evidence-based approach to developing such interventions in the future, through the use of rigorous testing and trialling, where appropriate through Randomised Controlled Trials, with a recommendation to focus such trials on a priority list of measures. If such trials are to provide relevant information that can provide a robust basis for regulatory changes, it is essential that suppliers be required to participate, where the trial design requires it, and our remedies therefore seek to ensure such participation.
230. In particular, the remedies comprise recommendations to Ofgem to: establish an ongoing programme of identifying, testing and implementing measures to promote engagement in the domestic retail energy markets; and introduce a licence condition requiring suppliers to participate in the programme.

Harnessing the incentives of rival suppliers and TPIs to engage customers

231. Where market participants have an active incentive to engage customers – this category includes rival suppliers and TPIs – the remedies serve to enhance these parties’ ability to engage domestic customers, while seeking to ensure that customers are fully able to understand and choose between the range of options available to them. The remedies seek to achieve this through:
- (a) creating an Ofgem-controlled database of ‘disengaged customers’ who have been on the default tariff for three years or more, to allow rival suppliers to prompt them to engage in the retail energy markets;
 - (b) enhancing PCWs’ ability to improve engagement by:
 - (i) lifting regulatory restrictions that dull PCWs’ incentives to compete to engage customers (amending provisions of the PCW confidence code that undermine incentives for them to be active in the retail energy markets); and
 - (ii) giving PCWs (and other TPIs offering similar services) access to the ECOES and SCOGES databases¹¹ and bolstering the Midata

¹¹ The Electricity Central Online Enquiry Service (ECOES) database includes certain data to assist electricity suppliers in the transfer of customers, while the Single Centralised On-Line Gas Enquiry Service (SCOGES) database comprises similar data for gas.

programme to allow TPIs to make more effective use of customer data; and

- (c) the use of principles rather than prescriptive rules to ensure that customers are able to compare tariffs easily.

Ofgem-controlled database of 'disengaged customers'

232. Around 70% of the customers of the Six Large Energy Firms are on the standard variable default tariff and up to 55%¹² of these customers have been on the standard variable tariff with the same supplier for more than three years, up to 10 million customers.
233. In order to enable suppliers to prompt the domestic customers of rival suppliers on default tariffs, our remedy requires energy suppliers to disclose certain details of their domestic customers (on any meter type) who have been on their standard variable tariff (or any other default tariff) for three or more years (the 'Disengaged Domestic Customers') to Ofgem, and comprises a recommendation that Ofgem retains, uses, and discloses this data (via a centrally managed database) to rival suppliers. The Disengaged Domestic Customers would have the option to opt out of the disclosure process at any point in time.¹³
234. We consider that an Ofgem-controlled database of the most disengaged customers will be a highly valuable tool for harnessing the incentives of rival suppliers to prompt disengaged customers to engage in the retail energy markets. Ofgem will also be able to use the tool to engage directly with disengaged customers and in monitoring the impact of the remedies on engagement.
235. We recognise that there is a trade-off between the benefits of liberalising channels of engagement and the need to protect consumers from excessive and/or misleading marketing. Customers will have the right to opt out beforehand to avoid receiving communications by post, and will only be contacted electronically if they explicitly opt in to such communications. Operation of the database will have to comply with Data Protection Requirements and Ofgem will be required to put strict safeguards in place to protect against the misuse of data. Ofgem will also be responsible for

¹² We note that this is an upper bound estimate as for three suppliers the data provided was based on the length of the relationship with the supplier rather than the length of time on that supplier's SVT.

¹³ In the design of this remedy, we have drawn on discussions with the Information Commissioner's Office concerning the implications of the Data Protection Act 1998 and the Privacy and Electronic Communications Regulations 2003.

ongoing monitoring of the impact of the database with a view to maximising its effectiveness.

Enhancing the ability and incentives of third party intermediaries to promote customer engagement

236. We consider that TPIs such as PCWs are an important means by which effective competition can develop in the domestic retail markets. PCWs have a strong commercial incentive to engage with domestic customers and provide access to their services both online and by telephone. PCWs are also well-placed to: raise awareness among customers of their ability to switch and the potential benefits from doing so; reduce search costs for customers; and exert competitive pressure on energy suppliers by enhancing price transparency and facilitating the purchasing process for customers.
237. Our aim in our remedies relating to TPIs in the domestic retail markets is to help ensure that this potential for PCWs to promote competition to the benefit of customers can be realised by removing regulatory burdens that inhibit this role.
238. To strengthen PCWs' role (and the role of other TPIs offering similar services) in facilitating switching our remedies take the form of: orders on the code administrator or governing body with authority to grant access to the ECOES database and gas transporters to give PCWs (and other TPIs providing similar services) access upon request to the ECOES and SCOGES databases respectively on reasonable terms and subject to satisfaction of reasonable access conditions.
239. To strengthen PCWs' incentives to engage customers, we are proposing to recommend to Ofgem that it removes the Whole of the Market Requirement in the Confidence Code and introduces a requirement for PCWs accredited under the Confidence Code to be transparent over the market coverage they provide to energy customers. Further, we are proposing to recommend to DECC several changes to the Midata programme that (subject to customer consent) would give PCWs and TPIs increased access to more customer data and, in so doing, enable them to monitor the market on behalf of their customers and advise them of savings.
240. We are aware of the concerns around trust that led to the Confidence Code requirement that PCWs list all tariffs on the market rather than just those for which they earn a commission. We believe that such concerns around trust can be addressed – without undermining TPIs' incentives to engage customers – in two ways. First, there should be greater clarity around the

role of PCWs – effectively acting as brokers offering their customers good deals and facilitating switches rather than repositories of all available tariffs – and our remedies require greater transparency from PCWs about market coverage. Second, Citizens Advice is now operating a non-transactional PCW that lists all tariffs through a web-based service, which we believe will meet the needs of those customers who wish to see the whole of the market.

Use of principles rather than rules to avoid customer confusion

241. Our remedies also place a greater emphasis on the use of principles rather than detailed rules in seeking to address potential adverse supplier behaviour, reflecting our concern that prescriptive rules can never be fully exhaustive and risk encouraging gaming behaviour on the part of suppliers. In particular, we are recommending that Ofgem introduce an additional ‘standard of conduct’ into Standard Licence Condition 25C that would require suppliers to have regard in the design of their tariffs to the ease with which customers can compare ‘value for money’ with other tariffs they offer.

Remedies for customers on restricted meters

242. We believe that the above remedies will help customers on any meter type engage effectively in retail energy markets. Further, to address the specific problems faced by customers on restricted meters in shopping around for better deals and in switching, we have decided on a set of additional remedies that: require all suppliers to make all their single-rate tariffs available to any domestic customer on any type of restricted meter, without making switching conditional on a restricted meter being replaced; and ensure that domestic customers on restricted meters have access to information on the options available to them.

Transitional price cap for prepayment customers

243. We believe that competitive retail energy markets, in which energy suppliers operate free of inefficient technical and regulatory restrictions, and customers make informed decisions about the range of choices available to them, represent the best long-term approach to delivering positive outcomes for energy customers. We have identified substantial problems on both the supply and the demand side of the retail energy markets, and we believe that our remedies package will provide a long-term solution to them, by putting downwards pressure on prices towards the competitive benchmark level.
244. However, our remedies will take time to implement before they start to address the features that we have identified and, in turn, reduce the

detriment to domestic customers arising from them, in particular for prepayment customers. Also, we believe that the roll-out of smart meters is a necessary element for fully addressing certain features of the Prepayment AEC and of the Domestic Weak Customer Response AEC with respect to prepayment customers. As a result, we expect that the detriment arising from the domestic retail AECs we have identified will persist in substantial form for the next few years. Given the size of the detriment we have observed, of around £1.4 billion a year over the last three and a half years, we have therefore considered very closely the need to intervene to address domestic customer detriment directly in this transitional period, through a price cap.

245. We have concluded that a price cap should apply to domestic customers on prepayment meters for a transitional period (2017 to the end of 2020). In reaching this decision, we have given consideration to a number of factors. In particular, prepayment customers have not been able to benefit from competitive prices in the same way as other customers due to the various competition constraints we have identified on the demand side and on the supply side, and the level of detriment suffered by prepayment customers is particularly high. Over the period 2012 to Q2 2015, detriment expressed as a proportion of the bill for prepayment customers was substantially higher than that for direct debit and standard credit customers. Further, we note that, unlike other customers, where prepayment customers pay too high a price, part of the detriment may be felt in abruptly curtailed consumption.
246. We have decided to implement a ‘reference price and cost index approach’ to set the cap for prepayment customers, which will involve setting an initial level of the prepayment cap based on our competitive benchmark analysis and then allowing the cap to change over time according to movements in exogenous cost indices, including wholesale costs, network costs, policy costs and inflation. This design – unlike alternatives we considered – does not lead to a risk of perverse incentives on the part of suppliers. Further, the fact that the cap is time-limited and will be implemented according to an objective formula, will help minimise the risk of regulatory gaming behaviour.
247. In considering the stringency and design of the cap, we have been particularly mindful of the need to reduce customer detriment while avoiding distortions to competition. We anticipate that the cap will materially reduce detriment for prepayment customers. Had it applied in Q2 2015, it would have reduced prepayment customer detriment – and, equivalently, the revenues of the Six Large Energy Firms – by about a total of around £300 million per year, equivalent to a reduction in the average bills paid by prepayment customers of about £75. We note that the price cap would also

apply to Mid-tier Suppliers and smaller suppliers and will therefore result in revenue reductions outside of the Six Large Energy Firms.

248. In determining the overall level of the cap, we have included a level of headroom that will help ensure that competition in the prepayment segments can coexist with the cap. Indeed, the proposed level of the cap as of Q2 2015 is generally in line with the cheapest prepayment tariff prices in many regions and we believe that it will be possible for suppliers to compete beneath the level of the cap while still earning a normal rate of return. Further, the cap will not apply to fully interoperable (SMETS 2) smart meters when these are rolled out to prepayment customers – as we believe that customers with such meters will have access to a wide range of tariffs. This should increase the incentives of suppliers to roll out such meters to the benefit of prepayment customers.
249. We anticipate that, as our remedies to address supply-side constraints and improve customer engagement begin to take hold towards the end of the cap, and as SMETS 2 smart meter roll-out increases, competition rather than the cap will be determining the prices paid by most customers. There will therefore be a graduated glide path to the termination of the cap at the end of 2020.
250. While the detriment suffered by prepayment customers is particularly high, we note that other domestic customers will also suffer detriment during the transitional period before full implementation of our remedies, and have therefore given close consideration to the application of a price cap to all customers on the standard variable tariff.
251. Our decision on whether to introduce a cap for all standard variable tariff customers was balanced. The majority of us concluded that the disadvantages of attempting to address the detriment of all customers on the standard variable tariff through a price cap would likely be disproportionate. The majority of us believe that attempting to control outcomes for the substantial majority of customers would – even during a transitional period – run excessive risks of undermining the competitive process, likely resulting in worse outcomes for customers in the long run. This risk might occur through a combination of reducing the incentives of suppliers to compete, reducing the incentives of customers to engage and an increase in regulatory risk.
252. Since, as noted above, a large part of the detriment we have observed in the form of high prices is likely due to inefficiency rather than excess profits, we believe the best, most sustainable approach to reducing this detriment in the long term is through fully competitive markets, in which more efficient

suppliers gradually replace less efficient suppliers. We also note that for most domestic customers on standard variable tariffs detriment will be reduced as soon as they engage effectively, in contrast to the situation for prepayment customers, who do not have access to cheap tariffs. Having considered very closely both the short-term benefits to customers and the longer-term risks that a broader cap may create, set against the features of the Domestic Weak Customer Response AEC, the majority of us have therefore decided not to control prices across all customers on standard variable tariffs. Martin Cave dissented from this view, considering that a broader cap was required to address the scale of detriment identified in the short term.

Expected costs and benefits from our retail remedies package

253. We have assessed the likely costs and benefits of our remedies package, distinguishing between those measures that will have an effect solely during the transitional period of the smart meter roll-out and those that will have an enduring effect, particularly from around 2019/20 onwards.

Remedies that will have an effect solely during the transitional period

254. Some of our proposed remedies will apply only during the transitional period before the completion of the roll-out of smart meters (expected by the end of 2020) or earlier. Notable among these is the transitional price cap for prepayment customers.
255. The benefits accruing from the price cap will take the form of reduced prices for prepayment customers. We would expect around £300 million of detriment a year to be reduced through the application of the cap in the initial years of this transitional period. We would expect the impact of the cap to reduce over time, but the overall detriment reduced through the package to increase, as competition picks up through our remedies and in particular through the roll-out of SMETS 2 meters that are not covered by the cap.
256. There would be some administrative costs for both Ofgem and suppliers from implementing the cap, but we have chosen a design that minimises these to the extent possible (eg updating through readily available exogenous indices, and ex ante compliance assessed by suppliers) and, overall, we expect such costs to be very low compared to the benefits of the cap in terms of reduced prices. Potentially more significant are the distortions to competition that could arise from the application of the cap, but we have again chosen aspects of the design to minimise these – notably, by building in headroom to allow competition below the level of the cap, in the exclusion of interoperable SMETS 2 smart meters from coverage by the cap,

and by time-limiting the price cap to the end of 2020 with a mid-term review in 2019.

257. The other remedies that will apply only during the transitional period are: the remedies relating to the allocation of gas tariff pages; the remedies giving PCWs (and TPIs providing similar services) access to the SCOGES and ECOES databases; and the remedies designed to improve engagement for customers on restricted meters. We consider that the implementation costs of these remedies are very low. In relation to the first two, there would be a minimal administrative cost for Ofgem, the code administrator or governing body with authority to grant access to the ECOES database and gas transporters respectively. In relation to the third, there would be a small additional cost for suppliers arising from the need to aggregate consumption volumes in different registers for the purposes of single rate billing.
258. We recognise that the short space of time over which these latter remedies will be relevant and the inevitable lag between implementing the remedy, effectively addressing the relevant aspect of the feature and reducing detriment, will limit the scope for substantially reducing customer detriment through these transitional remedies. However, given the scale of the total customer detriment that we have identified for prepayment customers of almost £400 million in 2015, and customers on restricted meters of around £40 million in Q2 2015, even very small reductions in prices during the transitional period would lead to benefits that would far exceed any implementation costs.

Remedies that will have an enduring effect

259. The other remedies that we decided upon – concerning settlement reform, the withdrawal of aspects of the simpler choices component of the RMR rules and the engagement remedies other than the transitional measures discussed above – will work together on an enduring basis as a package. We have accordingly considered their benefits jointly, while noting their relative contribution to the package and identifying their costs, where material, on an individual basis.
260. We first assess costs and benefits for electricity settlement reform separately, as this reform has benefits in terms of load shifting that are additional to those of the package as whole (although we consider that they would also make a contribution to improving customer engagement).

Electricity settlement reform

261. There are potentially substantial savings from domestic peak load shifting, arising primarily from reductions in the cost of generation and distribution. One recent study estimated savings from the introduction of time-of-use tariffs within the domestic retail markets of between roughly £50 million and £100 million in 2020 and between roughly £100 million and £350 million a year by 2025.¹⁴ Expected savings increase with the roll-out of automated and dynamic time-of-use tariffs (for which settlement reform is necessary) and with increased penetration of low carbon technologies. We note in relation to this latter factor that the demand and supply of heat pumps, smart appliances and electric vehicles will be driven in large part by the availability of opportunities to exploit within-day price differentials. Therefore we would argue that a move to half-hourly settlement will be a necessary step in achieving the higher end of potential benefits from demand-side response.
262. In terms of implementation costs, we consider that these will be very low or nil for distribution network operators and that half-hourly settlement will overall result in a reduction in costs for Elexon. Suppliers indicated to us that the reform would involve substantial upfront and ongoing costs, although we did not receive sufficient information from enough firms to build a consistent, robust picture of the likely costs.
263. Our recommendation is that Ofgem conduct a full cost-benefit analysis of the move to mandatory half-hourly settlement, but overall, and based on the evidence we have seen, there are good reasons to expect the benefits from half-hourly settlement to outweigh the costs of its implementation by a substantial degree.

Effect of the package on engagement

264. In relation to the rest of the package, we consider that the main enduring benefit will accrue from improving customer engagement and therefore overcoming the Domestic Weak Customer Response AEC. We note that, almost 15 years after full price liberalisation, around 70% of the customers of the Six Large Energy Firms are on the default tariff, despite very large and growing potential gains from switching. Nevertheless, we believe that our reforms will succeed in improving engagement where other interventions have failed.

¹⁴ Baringa and Element Energy (August 2012), *Electricity System Analysis – future system benefits from selected DSR scenario*.

265. First, past interventions have been based largely on a priori reasoning, with little attempt systematically to test hypotheses through rigorous trials or other forms of testing before the intervention is implemented. A priori reasoning can provide useful insights into the sorts of interventions that may help, but rigorous evidence is needed to ensure that those interventions that are most likely to make a difference for given customers at a given point in time are implemented. The Ofgem-led programme that we are recommending is therefore essential to ensure that future interventions are based on what works in practice. Further, the Ofgem-led database will provide Ofgem with an extremely powerful tool for assessing the impact of different interventions and forms of communication with disengaged customers.
266. Second, our remedies will serve to intensify competition between suppliers to access and engage disengaged customers, by: reducing the costs of identifying and communicating with such customers (the Database remedy); and by amending elements of the regulatory framework to increase the incentives of suppliers to engage these customers (the withdrawal of certain aspects of the simpler choices component of the RMR rules and settlement reform).
267. Third, our remedies seek to harness the incentives of TPIs to unlock customer engagement, by giving them greater access to the data they need to perform this role more effectively and at lower cost. TPIs have grown considerably as an acquisition channel over the past few years and we believe that through our remedies they can continue to grow in importance, lowering acquisition costs for suppliers and lowering search costs for customers. We believe that greater availability of much richer data sets, which can be accessed in a variety of ways, combined with the roll-out of smart meters, which will give greater visibility to customers of the relationship between what they consume and what they pay, have the potential to have a transformative effect on customer engagement.
268. Finally, we note that increasing customer activity is not an end in itself: our aim is to ensure that customers benefit from increased engagement – ie that it results in them being on better deals than they are at present. In this respect we recognise that there is a potential trade-off between the benefits of liberalising channels of engagement and the need to protect consumers from excessive and/or misleading marketing, and we have reflected this in our design of remedies.
269. For example, in relation to the Ofgem-controlled database of disengaged customers, Ofgem will have powers to exclude suppliers from accessing the database if misleading information is given to customers and it will be responsible for continual monitoring of the effectiveness of the database, to

establish which forms of communication from suppliers genuinely help engagement in the interests of customers. And in other areas of our remedies package, we have looked to improve customer understanding and avoid the risk of confusion without undermining competition in the way previous interventions have done. For example, we are recommending the replacement of the RMR rules that restrict competition and lead to gaming with a principle requiring tariffs to be readily comparable.

Costs and benefits of engagement remedies

270. In relation to the costs of implementing the remedies, these are generally very low compared with the size of the detriment. For example, in relation to the Database remedy, we have estimated that the costs of setting up a secure cloud database in which to store details of the Disengaged Domestic Customers could be in the region of £200,000 to £300,000 with ongoing costs of £35,000 to £50,000 per year.
271. The largest cost would be imposed by the Ofgem-led programme, as it would require an ongoing system of testing and trialling interventions. We note that costs may vary substantially, depending on the size and complexity of the trial. In designing the programme and, in particular, the extent of any supplier participation that might be needed, we note that Ofgem will be required to assess the proportionality of the various stages involved in the programme.
272. We believe that the benefits of our remedies will be seen in part through a reduction in the average gains from switching that go unexploited by customers. However, crucially, this would not be achieved by a levelling up of prices (a potential risk of regulatory interventions that seek to constrain price differences) but by a gradual reduction in prices towards the competitive benchmark level, as more efficient suppliers gain customers from the less efficient.
273. We note that, in contrast to the situation for prepayment customers, who do not have access to cheap tariffs, for most domestic customers detriment will be reduced as soon as they engage effectively. We would therefore expect detriment to be reduced throughout the period 2017 to 2020, and in particular from 2018 as the Database remedy and Ofgem-led programme start to take effect. While it is not possible to quantify precisely the price reduction in the next few years, we note, for illustrative purposes, that a fall in average prices by 3% a year from 2017 to 2020 would be sufficient to eliminate the detriment by 2020.

274. We acknowledge the uncertainties in estimating the level of detriment that will be reduced by our remedies over the next few years, but our analysis of the history of liberalised retail markets in Great Britain suggests that appropriately targeted and designed remedies can have material, rapid effects in improving engagement and reducing detriment for the majority of customers.

Microbusiness AECs and detriment

275. Some microbusinesses are much larger than domestic customers – the upper threshold of Ofgem’s microbusiness volume definition for electricity is around 30 times typical domestic consumption – while others spend similar amounts to domestic customers.

Microbusiness AECs

276. In relation to customer engagement, despite positive signs of a recent increase in switching between suppliers, we are concerned that many microbusinesses appear to show limited engagement and that they have limited interest in their ability to switch energy supplier. For example, in 2013 45% of microbusinesses were on default electricity tariffs (ie had been placed on tariff that the customer had not actively negotiated).
277. In relation to transparency, there is a general lack of price transparency concerning the tariffs that are available to microbusinesses, which results from many of them not being published, and a substantial proportion being individually negotiated between customer and supplier. In particular, the limited availability and low usage of PCWs makes it more difficult for microbusinesses to get a view of prices across each market.
278. We have also found that a substantial number of microbusinesses appear to be achieving poor outcomes in their energy supply. EBIT margins were generally higher in the SME markets than other markets (8% rather than 4% in domestic markets and 2% in I&C markets) and beyond what appears to be justified by risk. We observed that average revenues are substantially higher on the default tariff types that less engaged microbusiness customers end up on, compared with acquisition or retention tariffs, which require an active choice by customers. These differences in revenues between tariffs go beyond what is justified by costs.
279. In particular, we compared rollover tariffs (tariffs that customers would pay if they took no action at the end of an existing fixed-term contract), retention tariffs (tariffs that customers actively renegotiate with their existing supplier at the end of an existing contract), and deemed tariffs (a tariff paid until a

customer, typically in new premises, contacts its supplier to enter into its first contract). Our comparison of average unit revenues (earned by the Six Large Energy Firms and a number of independent suppliers, from 2012 to 2014) showed that rollover tariffs were 29 to 36% higher than retention tariffs for electricity (depending on the size of customer), and 25 to 28% higher for gas. Deemed tariffs were 66 to 82% higher than retention tariffs for electricity, and 70 to 116% higher for gas.

280. We therefore have concerns that the less engaged customers on these tariffs are not exerting sufficient competitive constraints on energy suppliers. Our concerns are particularly about the various types of default tariffs that customers can be automatically moved on to if they have not actively engaged with their energy supply (auto-rollovers and replacement contracts), or if they are receiving energy supply in circumstances where they have not agreed a contract (deemed and out of contract tariffs).
281. Specifically in relation to auto-rollover contracts (where customers are signed up for an initial period at a fixed rate, with an automatic rollover for a subsequent fixed period at a rate they have not negotiated with no exit clause) some customers are given a narrow window in which to switch supplier or tariff, which may limit their ability to engage with the markets. This practice has recently been discontinued by the largest suppliers, but not by some of the smaller ones (which still account for a significant share of supply of gas to microbusinesses).
282. Overall, **we have identified a combination of features of the markets for the retail supply of gas and electricity to SMEs in Great Britain that give rise to an AEC through an overarching feature of weak customer response from microbusinesses**, which, in turn, give suppliers a position of unilateral market power concerning their inactive microbusiness customer base which they are able to exploit through their pricing policies (the Microbusiness Weak Customer Response AEC). These features act in combination to deter microbusiness customers from engaging in the SME retail gas and electricity markets, to impede their ability to do so effectively and successfully, and to discourage them from considering and/or selecting a new supplier that offers a lower price for effectively the same product.

Detriment suffered by microbusinesses

283. We estimate that the profits in excess of the cost of capital earned by the Six Large Energy Firms from the supply of gas and electricity to SME customers

amounted to approximately £220 million per year from 2007 to 2014,¹⁵ of which we estimate that approximately £180 million per year related to microbusiness customers.

284. We consider that this is a conservative estimate of detriment, as we have confined our estimate of detriment to a consideration of profits in excess of the cost of capital – that is, we have not included any estimate of inefficiency. We also note that we have not been able to conduct an analysis of supplier bills to produce an alternative, and more direct, estimate of detriment, as we have done for domestic customers.
285. Despite this conservative approach, we believe that the size of the detriment that we have identified is significant. The annual profits in excess of the cost of capital amounted to 5% of average annual microbusiness revenues for the Six Large Energy Firms from FY 2007 to FY 2014. This suggests that prices may have been on average 5% higher between FY 2007 to FY 2014 than would have been the case in a better-functioning market.

Microbusiness retail remedies

286. We have assessed remedies for microbusiness customers considering the same strategic themes as for domestic customers: creating a framework for effective competition; helping customers engage; and protecting customers who are less able to engage to exploit the benefits of competition.

Creating a framework for effective competition

287. Our remedies concerning the electricity and gas settlement systems, as discussed above, would also apply to microbusiness customers. In particular, the plan to move customers in profile classes 1 to 4 to mandatory half-hourly settlement in electricity would affect the majority of microbusiness customers (around 90% of which currently fall into profile classes 3 and 4). Similarly, the remedy to increase the accuracy of the gas settlement system will benefit microbusiness as well as domestic customers.
288. The other remedies that we are introducing with a view to improving the framework for competition for domestic customers either affect very few microbusiness customers or do not apply at all in the microbusiness segments.

¹⁵ The years referred to are financial years.

Helping microbusiness customers engage to exploit the benefits of competition

289. The main remedies we are introducing regarding microbusiness customers are those designed to help them engage to exploit the benefits of competition. These include remedies to:
- (a) increase price transparency;
 - (b) end auto-rollover contracts¹⁶ with certain restrictions (such as termination fees) that restrict microbusiness customers' ability to switch;
 - (c) establish a programme to provide microbusiness customers with information to prompt them to engage; and
 - (d) provide prompts to microbusiness customers on default contracts by enabling rival suppliers to contact them.
290. We believe that our engagement remedies will play a key role in addressing the features giving rise to the Microbusiness Weak Customer Response AEC, and the resulting customer detriment.

Price transparency remedy

291. The price transparency remedy will require suppliers to disclose the prices of all their available acquisition and retention contracts to a large proportion of their microbusiness customers. As an additional measure, it will also require suppliers to disclose their out-of-contract (OOC) and deemed contract prices on their websites. The measure in relation to acquisition and retention contracts will significantly increase microbusiness customers' abilities to access and assess price information. It will also facilitate the development of PCWs catering for microbusiness customers, which will further reduce the high search costs faced by microbusiness customers. As a result, the price transparency remedy will address barriers to accessing and assessing information experienced by microbusinesses.

Auto-rollover remedy

292. The auto-rollover remedy will address barriers to switching that microbusiness customers on auto-rollover contracts face by: (a) increasing the time window during which microbusiness customers would be able to give their termination notice to suppliers; and (b) prohibiting suppliers from

¹⁶ Auto-rollover contracts are fixed-term, fixed-price contracts that microbusiness customers can be moved onto if they fail to negotiate new terms when their existing contract comes to an end.

including certain restrictions (termination fees and the use of no-exit clauses). Our remedies will also prohibit termination fees in relation to evergreen and OOC contracts. These measures will ensure that suppliers will not be permitted to charge termination fees on default contracts with their microbusiness customers, thereby reducing the barriers to switching for such customers.

Programme to provide microbusiness customers with information to prompt them to engage/Database remedy

293. The remedies to establish a programme to identify additional (or new) information from suppliers to prompt microbusiness customers to engage, and to disclose the details of their most disengaged microbusiness customers to rival suppliers would increase the engagement of microbusiness customers on default contracts. By incentivising microbusiness customers to engage, we would expect the competitive constraint on energy suppliers to increase. This would incentivise suppliers to reduce the prices of their available acquisition and retention contracts for microbusiness customers.

Protecting customers who are less able to engage to exploit the benefits of competition

294. We have also considered the case for introducing a price cap for microbusiness customers on prepayment meters, but have decided not to do so, on the grounds that the costs associated with implementing a price cap for the microbusiness segments would be large relative to the potential benefits, which would accrue to a very small number of microbusiness customers (less than 1% of whom are on prepayment meters).

Costs and benefits of the remedies package

295. In developing our remedies, we have been mindful to ensure that they work together as a coherent package, which, as a whole, provides an effective and proportionate means of addressing the Microbusiness Weak Customer Response AEC, and the resulting customer detriment, and have assessed whether the benefits of the remedies package as a whole are likely to exceed the overall costs.
296. In relation to costs, we estimate that the price transparency remedy is likely to impose a one-off cost on the Six Large Energy Firms of approximately £750,000; and on all suppliers these costs could amount to approximately £4.5 million if they all adopted the more expensive online quotation tool option. We do not expect the auto-rollover remedy to impose substantial costs on suppliers, and we estimate that the costs of extending the remedy

that would enable prompts to microbusiness customers on default contracts to the microbusiness segments would be minimal for suppliers.

297. The costs of the Ofgem-led programme may be more substantial but we note that, in designing the programme and, in particular, the extent of any supplier participation that might be needed, Ofgem will be required to assess the proportionality of the various stages involved in the programme.
298. In relation to benefits, we consider that there is substantial scope for price reductions and that the remedies would still be proportionate if they led to only a small reduction in prices for microbusiness customers. On the basis of our profitability analysis, we consider that prices for the microbusiness customers of the Six Large Energy Firms could have been on average 5% lower between FY 2007 and FY 2014 in a better-functioning market, equivalent to £180 million a year – and we expect a material reduction in prices from the introduction of our remedies.
299. We have therefore concluded that the benefits of the remedies package for all microbusiness customers are likely to substantially exceed the costs that it would impose on all suppliers in the microbusiness segments.

Governance of the regulatory framework

300. The rules and regulations governing energy markets are set out in legislation, licence conditions and codes. These regulations have a profound effect on the nature and form of competition in both wholesale and retail markets, and we are therefore concerned that some key aspects of the structure and governance of the regulatory framework – including the roles and responsibilities of institutions and the design of decision-making processes – increase the risk of policies being developed in the future that are not in customers' interests and inhibit the development of policies that are in their interests. We also consider that elements of this framework have contributed to the lack of trust in the sector that many parties have highlighted in the course of our investigation.

Ofgem's duties and objectives

301. In relation to its duties, Ofgem stated that the competition duty had been progressively downrated relative to other duties over the last ten years. It expressed concern that, if we suggested it should change its policies towards improving competition, our conclusions and remedies might be difficult to reconcile with the current structure of its duties.

302. We regard it as a significant cause for concern that Ofgem considers that these duties impose a constraint in practice on its ability to pursue competition-based policies (for example, through placing a priority on approaches that do not promote competition) particularly since we consider that Ofgem has taken some decisions that have not had the effect of promoting effective competition, including: the decision not to approve the introduction of locational charging for transmission losses; the decision to prohibit regional price discrimination; and the decision to introduce the simpler choices component of the RMR reforms

DECC / Ofgem relations

303. DECC and Ofgem have complementary and, in some cases, overlapping responsibilities in relation to regulatory and policy development in the energy sector. In some cases, the implementation of a particular energy policy requires a combination of measures taken by DECC (mainly through legislation), Ofgem (mainly through licence conditions) and indeed the industry (through the amendment of codes). We have two concerns regarding the relationship between DECC and Ofgem.
304. First, we note that two of Ofgem's most important decisions in recent years (neither of which we consider to have benefited customers)¹⁷ were taken against a backdrop of DECC taking powers – or stating its readiness to take powers – to implement changes in primary legislation in the event that Ofgem did not act. We do not know how material this context was in influencing Ofgem, but the coincidence of DECC's and Ofgem's actions risked creating the perception of a lack of independence on the part of Ofgem.
305. We note that it is always possible that DECC and Ofgem will disagree on a particular area of policy. However, where this is the case, we think that the absence of a mechanism through which Ofgem's views are routinely and transparently expressed, so that stakeholders can understand why a particular decision is being made, leads to a lack of transparency in regulatory decision-making.
306. Second, we identified inefficiencies in the implementation of certain policy objectives (for example, the introduction of 17-day switching and half-hourly settlement for certain categories of customer) due to a lack of effective coordination.

¹⁷ The introduction of the simpler choices component of the RMR reforms in 2013 and of Standard Licence Condition 25A in 2009, prohibiting regional price discrimination.

Effective communication on the impact of policies and policy trade-offs

307. Climate and energy policies have to balance the competing objectives of: reducing emissions; ensuring security of energy supply; and ensuring energy prices are affordable. We have considered whether a lack of independent scrutiny of such policies – and the policy trade-offs within them – might be one of the factors that increases the risks of inefficient policy design in the future.
308. There are several institutions already providing independent analyses of energy sector impacts. We note, however, that these analyses could be communicated more effectively to a wider audience, in particular interactions between policies and policy trade-offs within policies. Clearer communication around these issues may increase the transparency of the information already available and improve the quality of the public debate and policy decision-making.

Framework for financial reporting

309. We have observed that there is a lack of shared understanding of the factors that have led to price increases, in particular the relative contribution of wholesale costs, network costs, policy costs and profit.
310. Trusted and transparent information on the costs incurred, and the profits earned, by energy companies may help to inform the public debate and reduce the risk of errors in policymaking, by providing clear information about whether and where intervention is required. It may also help to improve confidence in the regulatory system on the part of policymakers and the general public, which itself may improve the stability of the regulatory regime.
311. The absence of such trusted and transparent information is a potentially material problem, undermining regulatory stability. Parliamentary committees, customer groups, policy think tanks, Ofgem and political parties, among others, have all expressed their dissatisfaction with the status quo concerning the transparency of financial reporting. This is a particular concern given the importance of these bodies in contributing to the general perception of the industry and policy relating to it.
312. Based on our experience, we consider that the Six Large Energy Firms' current reporting systems are unable readily to provide all the market-orientated financial information that regulators and policymakers require. Our view is that improvements could be made to the regulatory framework for

financial reporting that would improve the robustness of information available to Ofgem, and hence overall transparency of costs, profits and profitability.

313. Overall, **we have found that a combination of features of the wholesale and retail energy markets in Great Britain give rise to an AEC through an overarching feature of a lack of robustness and transparency in regulatory decision-making** which, in turn, increases the risk of policy decisions that have an adverse impact on competition. More particularly, we have found that:
- (a) Ofgem's statutory objectives and duties may constrain its ability to promote effective competition;
 - (b) there is a lack of a formal mechanism through which disagreements between DECC and Ofgem over policy decision-making and implementation can be addressed transparently;
 - (c) the impact of government and regulatory policies over energy prices and bills has not been effectively communicated; and
 - (d) there is a lack of a regulatory requirement for clear and relevant financial reporting concerning generation and retail profitability.

Industry codes

314. Industry codes are multilateral agreements that define the terms under which industry participants can access the electricity and gas networks, and the rules for operating in the relevant markets. Whereas, at the time of privatisation, there were two codes covering largely technical matters, there are now 11 codes, comprising over 10,000 pages of rules that cover a range of commercial and policy areas. Industry participants have a key role in the governance of these codes, and, under the current regime, proposed reforms that can have substantial impacts on competition and the delivery of policy objectives are implemented through code changes (the proposals to introduce half-hourly settlement and cash-out reforms are recent examples).
315. Current governance structures give industry participants a key role in decision-making even though their incentives are often not aligned with those of customers. Further, we note that incentives often differ between firms, leading to lengthy and costly regulatory processes and delays in decision-making. Examples of this include the long-running deliberations over whether to introduce locational charges for transmission losses over the past 25 years and Project Nexus, which is needed to address the deficiencies in the gas settlement system but has been continually delayed since being initiated seven years ago.

316. We are also surprised to note that some decisions that appear to us to be fundamental to ensuring effective competition and meeting the needs of customers appear to be loosely governed under the industry codes, and not to have involved any formal role for Ofgem. For example, in relation to competition for customers on prepayment meters, we understand, based on the relevant provisions set out in the Supply Point Administration Agreement, that there are no formal mechanisms in place to monitor the allocation of gas tariff pages and to govern the distribution of tariff pages between suppliers. This is of particular concern since the lack of access to gas tariff pages has been one of the factors inhibiting new entry into the prepayment segments, to the detriment of prepayment customers.
317. Our central concern is that Ofgem has insufficient ability to influence development and implementation processes for code changes, particularly where they affect competition or are needed to implement policy changes, increasing the risk of changes that are in customers' interest not being delivered in a timely and efficient way. Customer detriment is likely to be particularly acute where a change is needed to achieve policy objectives or to support competition and innovation (eg Project Nexus, which facilitates the development of tariffs that rely on smart meters).
318. We have found **a combination of features of the wholesale and retail gas and electricity markets in Great Britain that are related to industry code governance and which give rise to an AEC** through limiting innovation and causing the energy markets to fail to keep pace with regulatory developments and other policy objectives. These features are as follows:
- (a) parties' conflicting interests and/or limited incentives to promote and deliver policy changes; and
 - (b) Ofgem's insufficient ability to influence the development and implementation phases of a code modification process.

Detriment arising from problems in the regulatory framework

319. The problems we have identified relate to the processes, structures and institutions involved in regulatory decision-making in the energy sector. They are systemic in nature, having an impact across all of the energy markets that we have identified. While the detriment arising from these AECs is, by its nature, difficult to quantify, we consider that it is likely to be very substantial.
320. First, the costs of energy policies – the transfers and subsidies put in place to achieve government policy objectives such as reducing greenhouse gas

emissions – will comprise an increasing proportion of customers’ energy bills. On the basis of current announced plans, DECC estimates that climate and energy policies will add 37% to the retail price of electricity paid by households in 2020.¹⁸ Further, some policies – such as the roll-out of smart meters – are expected to improve energy efficiency and hence reduce energy bills. Given the central role that government policies are expected to play in determining energy bills in the future, we believe it is vital that policy decisions are robust, and informed by a transparent analysis of their impacts on customers.

321. Second, energy markets are highly regulated, and the nature of competition in these markets is shaped by the design of the regulatory regime to a much greater extent than in most other markets. This is particularly the case for wholesale markets, which currently comprise around 50% of the costs faced by electricity and gas customers, and where the nature and size of technological and regulatory changes expected over the next few years are substantial. We also note that many of the competition problems that we have identified in the retail energy markets – the settlement systems for gas and electricity, which fail to give suppliers the right incentives, the introduction of the RMR simpler choices reforms, which have stifled innovation – are regulatory in nature, reflecting specific provisions in legislation, licence conditions and industry codes.

Remedies relating to the governance of the regulatory framework

322. We have developed a package of remedies designed to improve the governance of the regulatory framework. The proposed remedies relate to five specific areas: Ofgem’s duties and objectives; the relationship between DECC and Ofgem; the analysis of the impacts of policy and regulation; the regime for financial reporting; and governance of the industry codes.
323. While the package is broad, affecting the full range of regulatory instruments and processes (legislation, licence conditions and industry codes), it is based on a simple set of principles, which recognise the importance of: well-defined powers and objectives aligned with the interests of customers; clear responsibilities and transparent, coordinated implementation; robust analysis underpinning decision-making and improving transparency; and an independent and authoritative regulator.

¹⁸ 2014 prices. Source: DECC (November 2014), [Estimated impact of energy and climate change policies on energy prices and bills](#).

Ofgem's duties and objectives

324. Our view is that Ofgem's statutory objectives and duties may, in certain circumstances, constrain its ability to promote effective competition. In particular, Ofgem told us that it considered that its duty to pursue its principal objective by 'wherever appropriate promoting effective competition' had been progressively downrated relative to other duties over the last ten years.
325. Our remedy is a recommendation to DECC to amend primary legislation in order to clarify Ofgem's statutory objectives and duties and thereby remove any constraint (actual or perceived) on Ofgem's ability to pursue its principal objective (protecting the interests of existing and future customers) by promoting effective competition where it considers this appropriate.

Relationship between DECC and Ofgem

326. We have decided on two remedies that are designed to recalibrate the relationship between DECC and Ofgem in a way that recognises Ofgem's independence while allowing for appropriate coordination of activities to deliver overarching policy goals:
- (a) First, we are recommending legislation to establish a clear process requiring Ofgem to publish opinions on all draft legislation and policy proposals that are relevant to its statutory objectives and that are likely to have a material impact on the GB energy markets.
 - (b) Second, we are recommending to DECC and Ofgem that they publish detailed joint statements setting out action plans for the implementation of proposed DECC policy objectives that are likely to necessitate Ofgem interventions, with clear responsibilities and timetables.

Transparent analysis of the impacts of policy and regulation

327. As noted above, government policies are having an increasing impact on energy bills and yet we have found that there is a lack of effective communication concerning the forecast and actual impact of government and regulatory policies on energy prices and bills. This has led to a lack of trust between stakeholders and is one of the features contributing to an overarching feature of a lack of robustness and transparency in regulatory decision-making.
328. To help address this, we recommend to Ofgem that it publishes annually a state of the market report which would provide analysis regarding issues such as the evolution of energy prices and bills over time; the profitability of

key players in the markets; the social costs of policies and distributional impacts arising from them; and the impact of initiatives relating to decarbonisation and security of supply. We are also recommending the creation of a team within Ofgem to take this work forward.

Regime for financial reporting

329. We have found that current regulatory requirements do not provide for clear and relevant financial reporting of generation and retail profitability. Our remedy seeks to address this, and in so doing to help ensure that Ofgem will be better placed in the future to make decisions using relevant financial information and to provide a clear and trusted assessment of the GB energy markets. This in turn should inform the public debate and support the development of appropriate policies.

330. Our remedy will require the Six Large Energy Firms to:

- (a) report their generation and retail supply activities on market rather than divisional lines;
- (b) report a balance sheet as well as a profit and loss account separately for their generation and retail supply activities;
- (c) disaggregate their wholesale energy costs for retail supply between a standardised purchase opportunity cost and a residual element; and
- (d) report prior year figures prepared on the same basis.

331. We are recommending that Ofgem introduces relevant changes in the licence conditions of the Six Large Energy Firms.

Governance of industry codes

332. We have found that the current system of industry code governance limits innovation and pro-competitive change and causes the energy markets to fail to keep pace with relevant policy objectives.

333. Our remedies package for codes will see Ofgem taking a more proactive role in code development, by setting a Strategic Direction and engaging actively in the code modification process through its influence over licensed code bodies. Further, we are recommending that Ofgem takes powers to initiate code modifications where these are necessary to deliver the Strategic Direction and be given powers to take substantive control of any ongoing strategically important modification proposals, as appropriate.

334. We are recommending to DECC that it seek to pass legislation: giving Ofgem the ability directly to modify industry codes in certain exceptional circumstances; and making the provision of code administration and delivery services activities that are licensed by Ofgem. This will give Ofgem a means of requiring code bodies to take on an expanded role to deliver code modifications consistent with the Strategic Direction.

Overview of the new regulatory framework

335. Our remedies are individually incremental but in combination represent a substantial reform package. They represent a ‘reset’ of the regulatory framework governing the energy sector, clarifying and recalibrating the roles and responsibilities of Ofgem, DECC and industry to help ensure that regulatory and policy decisions in the future are robust, efficient and timely, and driven by a concern for the interests of current and future customers.
336. Ofgem will be at the heart of this new regulatory framework, with a simpler and clearer focus on the interests of customers, an additional role to scrutinise and comment on government policies, greater access to relevant financial information from industry and greater powers to drive through changes to industry codes when these are needed to meet broader policy objectives and are in the interests of customers and competition.
337. We believe that the individual elements of our remedies package are mutually reinforcing. For example, the roles given to Ofgem to comment on and scrutinise the impacts of government policies on the one hand, and undertake greater scrutiny of companies’ financial returns on the other, will help both to:
- (a) improve the robustness of the decision-making process, the quality of regulatory decisions and transparency in public debates about energy; and
 - (b) bolster the perception of Ofgem as an authoritative, trusted and independent regulator, consistent with the greater responsibilities it will have in relation to code governance and reform.
338. We consider that our reforms are fully consistent with the government’s *Principles for Economic Regulation*¹⁹ and its *Better Regulation Framework Manual*.²⁰ In particular, our remedies should ensure that new policy proposals and existing policies and regulations are subject to robust scrutiny

¹⁹ BIS (April 2011), *Principles for Economic Regulation*.

²⁰ BIS (March 2015), *Better Regulation Framework Manual: Practical Guidance for UK Government Officials*.

in terms of their costs and benefits. Further, our proposed remedies relating to the code governance process and mechanisms to improve coordination between DECC and Ofgem should serve to streamline and rationalise the policymaking process, reducing overall regulatory burdens.

Dissenting view

339. One panel member, Martin Cave, felt that the retail remedy package was unlikely to succeed in reducing, in a timely way, the significant level of detriment identified. In his current view, a short-term price cap, covering a substantially larger number of customers, is required to reset the market.

Final decision on AECs and remedies

340. A comprehensive list of AECs and remedies is provided in Section 20 of this report.