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REPORT

THE TRUE COST OF ENERGY



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ABOUT IPPR

IPPR, the Institute for Public Policy Research, is the UK's leading progressive thinktank. We produce rigorous research and innovative policy ideas for a fair, democratic and sustainable world.

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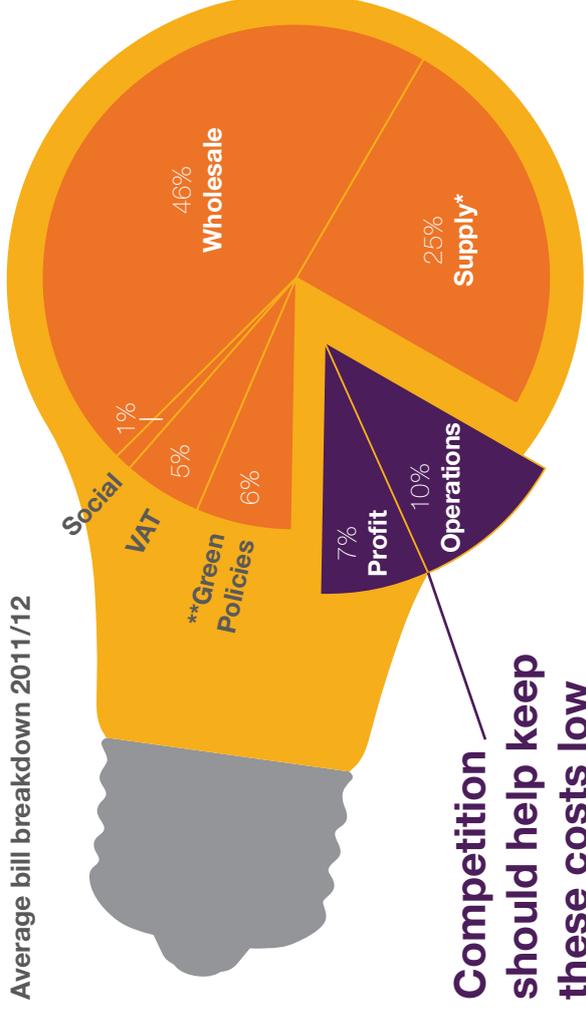
THE TRUE COST OF ENERGY

Percentages may not add to 100 due to rounding. *Includes transmission, distribution, metering and other costs. **Includes consumer energy efficiency subsidies. Support for low-carbon generation is included in wholesale price. †Source: Ofgem (2011) The Retail Market Review: Findings and Initial Proposals.

The average energy bill has shot up over recent years

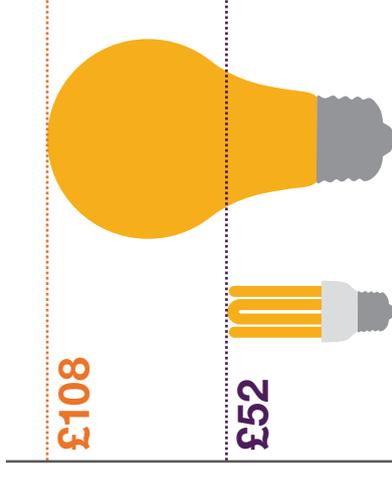


Average bill breakdown 2011/12

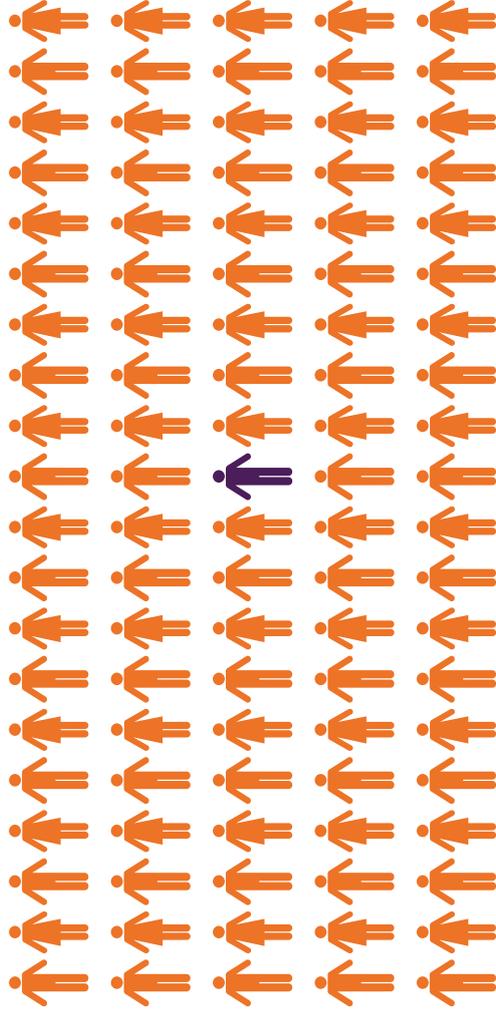


Competition should help keep these costs low

But savings don't seem to be happening – the least efficient customer spends twice as much per on their operations than the most efficient

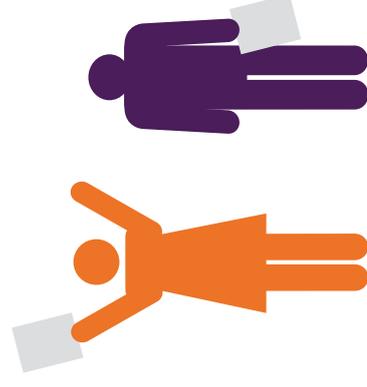


Competition isn't working – 99% of all consumers are with one of the Big 6 energy suppliers†



Some people pay £330 more a year than their neighbour for energy. 5 million people could be being overcharged

Energy prices should be fair



BILLS COULD BE LOWER WITH MORE COMPETITION. ACTION IS NEEDED NOW

EXECUTIVE SUMMARY

The cost of an average energy bill has risen dramatically in recent years: from £605 in 2004 to £1,060 in 2010 (CCC 2011b). Higher energy bills were a key factor in the increase in inflation in 2010/11 and are contributing to the squeeze in living standards faced by many families in the UK.

There has been a vigorous debate about the cause of these price rises, in particular the contribution that has been made by environmental and social policies.¹ Evidence shows that the rises were mainly due to increases in the wholesale cost of gas (DECC 2011a). The government's independent advisers, the Committee on Climate Change (CCC), calculated that the wholesale cost of gas added £290 to the average energy bill between 2004 and 2010, compared with £75 for environmental and social policies (CCC 2011b).

The level of profits made by energy supply companies has also been the focus of scrutiny. The energy supply market in the UK was opened to competition in the late 1980s. But there are a number of reasons for thinking that competition in the energy supply market is not in good health.

First, the market is dominated by six large energy companies (the 'Big 6'²) that retain 99 per cent of all energy consumers (Ofgem 2011f). A number of smaller suppliers exist but they are too small to constitute a substantial 'competitive fringe' (Ofgem 2008). Second, the number of consumers that switch supplier annually (often taken as a measure of competition) has reached an historic low. In Q4 2011, the Department for Energy and Climate Change (DECC) recorded the lowest number of people to switch electricity supplier since records began in 2003, while the numbers switching gas were second-lowest only to Q1 2003 (DECC 2012a). In total, the proportion of consumers who switched in 2011 was around 15 per cent (ECCC 2012).

This report sets out to establish what impact a lack of competition in the energy supply market is having on consumers' energy bills. In order to answer this question we estimate the cost to energy companies of supplying households with gas and electricity. We do this through extensive analysis of data published by the energy markets regulator, energy companies and industry associations, among other sources.

It is important to note that any attempt to estimate the costs of energy supply is hampered by the lack of publicly available data. Nevertheless we have collected evidence that allows us to question existing assumptions of suppliers' costs and to draw conclusions from this about the state of competition in the market.

We conclude that there is a lack of competition in the energy supply market and that some consumers are paying over the odds as a result. We put forward recommendations for increasing competition in the energy supply market and exerting downward pressure on energy prices.

Key findings: the costs of energy supply

We estimate the costs to energy companies of supplying electricity and gas for the financial year 2011/12.³ Our interest is primarily in how competition in the energy supply market

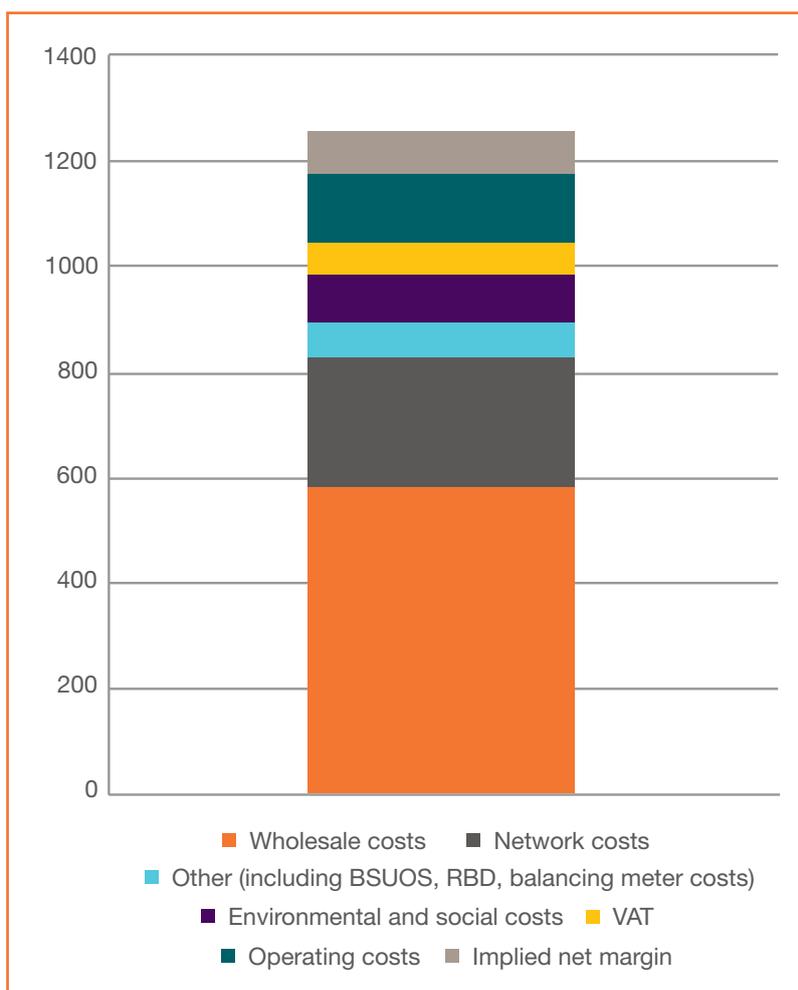
1 For example, see <http://www.dailymail.co.uk/news/article-512280/British-consumers-pay-1bn-year-fuel-bills-subsidise-renewable-energy.html> and <http://www.telegraph.co.uk/earth/energy/solarpower/9152403/We-must-cut-our-overheated-energy-costs.html>

2 This includes British Gas, EDF, E.ON, Npower, Scottish Power and SSE.

3 Our analysis follows the approach taken by Ofgem in its quarterly series of publications on suppliers' costs (Ofgem 2010–2011) and refers to a typical, standard tariff.

affects consumers' bills, so we focus on those costs which are subject to competition and over which suppliers have the greatest control. Below we highlight several key findings.

Figure 0.1
Illustrative breakdown of
a typical energy bill (£)



Operational costs

Contrary to what we would expect from a competitive market, operational costs per customer account across suppliers have diverged since 2007.⁴

Competition should ensure energy suppliers are engaged in a 'relentless pursuit of efficiency' (Ofgem 2008). This is particularly true in relation to operational costs, which according to economic theory should converge over time (ibid). However, our findings suggest the opposite has occurred.

We examine what energy suppliers spend on operating costs per customer account – a common measure of operational efficiency. Evidence shows the difference between energy suppliers spending on operational costs was in fact greater in 2010 than in 2007. In 2007, Ofgem found that the least efficient supplier was spending 90 per cent more on each

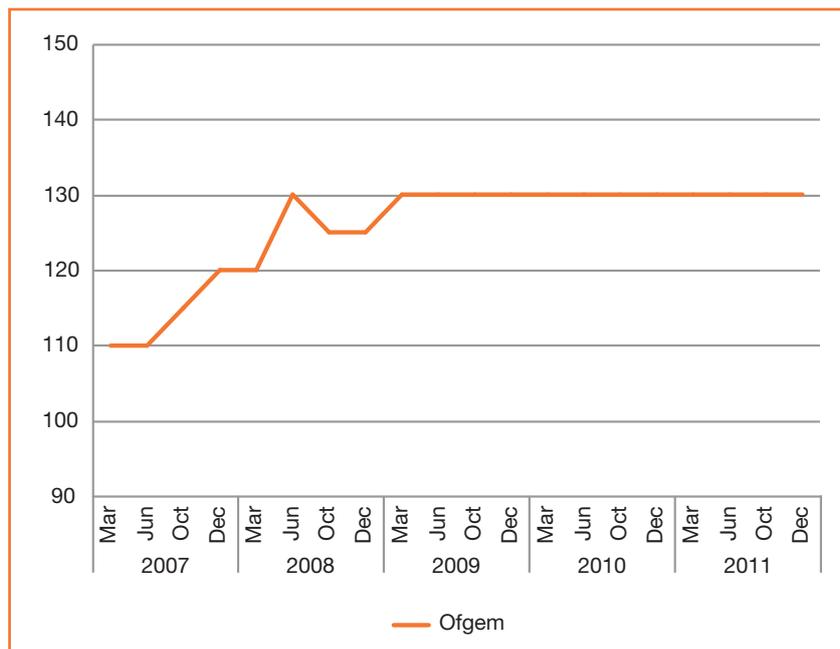
⁴ We have also looked at the suppliers' revenues in relation to energy sold – another measure of operational efficiency – and found them to differ by up to 100 per cent.

customer account than the supplier with the lowest costs (ibid). We estimated figures for 2010⁵ and found that the least efficient supplier was spending 113 per cent more than the most efficient.

In a properly competitive market, suppliers should achieve efficiency savings in aspects of their operations which could be passed on to consumers in the form of lower bills. There is insufficient publicly available data to determine whether or not energy companies are achieving annual efficiency savings. However, Ofgem's own statistics give reason to doubt that these are being achieved.

First, Ofgem's quarterly analyses of suppliers' costs show no sign of operational efficiency savings over time. Figure 0.2 shows that Ofgem's estimates of operating costs increased from 2007 to 2009 before levelling out. In 2011, Ofgem's estimates were £9 per customer per year higher in real terms than in 2007.

Figure 0.2
Ofgem estimates of suppliers' operating costs, 2007–2011 (£)



Source: Ofgem 2010–2011

Similarly, Ofgem's most detailed publication of suppliers' operational costs provides useful insights (ibid). We used evidence from this publication to model how suppliers' costs may have changed over time in response to different levels of competition in the energy supply market.

Our findings suggest that if competition was effective and had driven the suppliers to achieve annual efficiency savings⁶ of 2.5 per cent from 2008 up to 2010/11, Ofgem's

⁵ We did this by cross-referencing data on the Big 6's operating costs with evidence on customer account numbers and combined this with similar statistics compiled by British Gas to arrive at an estimate.

⁶ The costs of acquiring customers through PR and marketing, often termed the 'costs of competition' and the cost of bad debt are assumed not to have been subject to efficiency savings and to have stayed at their 2007 levels. This is because a competitive market will not necessarily drive suppliers to make efficiency savings in their costs of competition as they will with other operational costs, and bad-debt levels appear to have been affected by the economic downturn (see full report).

average estimate for 2010/11 at £119 is £11 too high per customer per year. However, even if there had been no efficiency savings since 2007, our findings suggest Ofgem's estimates are still at least £5 too high.

There are two conclusions to draw from this: either Ofgem's estimates are broadly accurate, which suggests the suppliers have not achieved efficiency savings and competition in the market is not working properly, or the suppliers have achieved efficiency savings but these savings have not been captured by Ofgem. If Ofgem has not captured efficiency savings that the suppliers have achieved then the profit margins implied by its estimates are too low.

In summary, our analysis raises questions about whether competition is driving the suppliers to make the efficiency savings in their operations that we would expect. The onus is therefore on the suppliers and Ofgem to demonstrate whether efficiency savings have been achieved and whether consumers have benefitted from lower bills as a result.

Environmental and social obligations

IPPR analysis suggests that the costs to suppliers of delivering environmental and social policies may be as much as £9 per customer per year less than Ofgem has reported, a total of £241 million across all UK consumers.⁷

Our estimate is based on impact assessments carried out by DECC at the time when the policies were introduced. Ofgem reveals little information about how it has arrived at its figure which prevents us from explaining why the difference between the two estimates exists.

What is clear is that there is little understanding of the costs energy suppliers incur by delivering the energy efficiency obligations. The only comprehensive evaluation of suppliers' energy efficiency obligations to date, estimated delivery costs to be 23 per cent below the government estimates (Eoin Lees Energy 2008). A more recent evaluation of the existing obligations on suppliers⁸ was unable to find sufficient data on costs to draw any conclusions (DECC 2011d). This uncertainty is reflected in the wide ranging estimate of costs to suppliers for delivering the forthcoming energy company obligation, which DECC has put at anywhere between £0.5 billion and £3 billion by 2015 (DECC 2011e).

Uncertainty about the costs of the energy efficiency obligations makes it difficult to assess value for money. It also introduces uncertainty into Ofgem's estimates of suppliers' costs and implied profit margins.

The impact on energy bills of increasing competition in the supply market

The rising cost of energy bills is a cause for much concern. However, while a lot of attention has been devoted to the cost of the government's environmental policies as well as the impact of rises in the wholesale cost of gas⁹ little attention has been paid to the potential costs of a flawed competitive market.

We model a number of scenarios to see how different levels of competition in the supply market could affect energy bills in 2020. First, we approximate the costs of an average

7 This assumes 26.8 million customer accounts, as was recorded by Ofgem in 2007 (Ofgem 2008).

8 The Community Energy Savings Programme and the Carbon Emissions Reduction Target.

9 For example, see <http://www.guardian.co.uk/environment/damian-carrington-blog/2012/mar/19/energy-gas-climate-change>.

bill in 2020 where there is minimal competition from 2012 onwards: the 'Very weak' scenario.¹⁰ We then model a range of scenarios for escalating levels of competition ('weak', 'mid', 'strong'). We set efficiency savings¹¹ and profit margins in accordance with these escalating levels of competition.

We are guided in this by precedents from regulated markets and other industries. This includes evidence of efficiency savings achieved in the telecoms sector of up to 7 per cent and from price-regulated energy supply companies in the range of 0.5 per cent to 4.2 per cent per year. We believe it is reasonable to expect the suppliers to make efficiency savings of 2.5 per cent a year, which is the same as the regulated gas supplier (Phoenix Supply) in Northern Ireland, but believe this is a conservative target. Precedents from across the UK suggest an appropriate profit margin for a price-regulated energy supply business is between 1 and 1.5 per cent, and a margin of 3 per cent or slightly more is reasonable for a supply business exposed to full competitive risk. The results are shown in table 0.1.

Table 0.1
Potential energy bill savings in 2020 by increasing competition in the market*

		2011	2020			
			Very weak	Weak	Mid	Strong
Modelled factors	Annual efficiency savings		0	1%	2.5%	4%
	Net profit margin		7%	6%	4%	3%
Approximate cost components and bill (£)	Wholesale costs	581	683	683	683	683
	VAT and other costs	457	508	508	508	508
	Operational costs	125	125	115	102	90
	Net profit margin	88	99	78	52	38
	Annual consumer bill	1,255	1,415	1,385	1,345	1,320
Annual bill savings compared to 'Very weak' scenario (£)				30	70	95

*Note: All in 2011 prices (£).

We take the mid-range scenario as a reasonable approximation of a healthy competitive market, where suppliers achieve annual efficiency savings of 2.5 per cent and set profit

10 These models should not be misinterpreted as an attempt to accurately represent consumers' energy bills in 2020. Our interest is in the *difference* between the scenarios that result from the suppliers achieving different rates of efficiency improvements. This informs us about the impacts of competition on bills.

11 These projections model efficiency savings across all operational costs including bad debt and the costs of competition (see footnote 6 above). Evidence highlighted in this report suggests that in 2011 the impact of the economic downturn on bad-debt costs has been largely overcome and therefore, going forward, there should be opportunities for efficiency savings. The costs of competition are included to highlight that suppliers can control these costs and that there may be opportunities for efficiency savings in this area.

margins at 4 per cent. Under this scenario, £70 is saved from the average annual bill. Across all consumers this would create a saving of around £1.9 billion.¹² This level of savings in 2020 would cover the costs to consumers of the electricity market reform, the carbon price floor, the feed-in tariff (FIT), the warm home discount and most of the renewables obligation combined (DECC 2011a).

Our analysis shows there is a clear case for taking action to improve competition in the energy supply market. We examine the policy implications of our findings and put forward a number of policy recommendations for achieving this.

Policy implications

The Big 6 are functioning as an oligopoly which ultimately produces negative outcomes for consumers by restricting competition. The aim of regulatory intervention should be to put pressure on the suppliers from a number of different directions to address this.

Competitive pressure in the energy supply market results from two sources: first, 'switchers' who actively seek out a good deal from their energy provider and choose between tariffs with different suppliers; second, pressure emerging from the suppliers themselves, both incumbents and new entrants, as they seek to expand or protect their customer bases. For effective competition it is necessary to have pressure from both sources.

The focus of much recent policy has been on encouraging more people to switch to a cheaper provider or tariff, including a recent consumer energy summit led by the prime minister and attempts by the new energy and climate change secretary Ed Davey to encourage collective purchasing of energy. Though these efforts are important, there is a need to redress the balance: pressure from suppliers, both incumbents and new entrants must also be strengthened.

This is supported by our view that there is a need for greater fairness in terms of costs charged to energy consumers. People cannot choose to 'opt out' of buying energy. Regulation of the supply market must aim to produce beneficial outcomes for the majority of consumers and not simply those that are most active, particularly at a time of high unemployment and when incomes are squeezed.

Recommendations

Ofgem is undertaking a major process of reform, the Retail Market Review (RMR), to try and improve competition in the energy market and is therefore the main focus of our recommendations. We also draw out some broader lessons from this work for energy policy as a whole.

The Retail Market Review

Better regulation of the energy supply market by Ofgem is needed to improve competition and to ensure that pricing is fairer for consumers. Some groups have called for radical interventions to reduce energy bills, for example by capping the retail prices of the Big 6 and imposing a levy on their profits, the proceeds of which would be used to fund energy saving measures for consumers.¹³ These interventions would not address the systemic problems with competition in the market outlined above and may have unintended

¹² This assumes a static number of customer accounts at 26.8 million.

¹³ <http://action.compassonline.org.uk/page/s/end-the-big-six-energy-fix>

consequences, such as undermining the ability of the Big 6 to raise capital to invest in new energy infrastructure.

However, there are concerns about the regulator's ability to deliver change in the energy sector. The RMR is Ofgem's second major package of reforms to improve competition in the supply market since the Energy Supply Probe, which was published in 2008. Ofgem's research shows that on a number of measures market conditions have deteriorated since 2008¹⁴ (Ofgem 2011f). Ofgem has proposed a broad set of reforms under the RMR but has not sufficiently addressed why the Energy Supply Probe failed. Further, there are no benchmarks or targets against which progress will be judged. If over the medium term, the market shows few signs of improved levels of competition, policymakers should consider alternative regulatory approaches such as a return to price regulation or regional franchises.

- **Ofgem should specify measurable objectives for its RMR reforms and set clear timelines against which progress can be assessed.**
- **Ofgem must act with greater urgency to improve market conditions. The RMR should be seen as the last chance for the current market structure.**
- **If the RMR fails to significantly improve levels of competition, government should intervene and investigate alternative regulatory approaches to the market.**

Tariff reform

In the RMR, Ofgem has proposed major changes to the range of tariffs the suppliers can offer (Ofgem 2011d). The proposals primary aim is to improve transparency within the market and the ability of consumers to compare tariffs.

Ofgem's preferred RMR 'core' proposal will introduce a two-tier tariff system. Suppliers will be able to offer only one standard tariff per payment method but will not be limited in the number of fixed term tariffs they can offer. It will also introduce a standardised cost element for standard tariffs, which will include the costs of energy efficiency obligations.

There is reason to doubt whether the RMR core proposal will achieve Ofgem's aims. The introduction of a two-tier tariff system is likely to add complexity to the market and could make it harder for consumers to compare tariffs. Inclusion of the energy efficiency obligations in the standing charge would be regressive and not in line with the polluter-pays principle, and cannot currently be based on an accurate estimate of costs.

Any regulation of tariffs must take into account potentially conflicting priorities. For example interventions that seek to improve simplicity could restrict the potential for innovation in tariff types. In order to better strike this balance, an alternative approach would be to introduce an absolute restriction on the number of tariffs that suppliers can have in operation. Suppliers would have to offer at least one standard tariff per payment method but beyond this would be able to choose which types of tariff they offered. If suppliers had their full quota of tariffs in operation they would have to adhere to a 'one-in, one-out' policy, so that as they introduce a new tariff onto the market another would need to be removed.

14 Across 16 indicators, 12 showed no improvement or deteriorated, three slightly improved and only one, relating to the cost reflectivity of tariffs, was considered to have improved, although our analysis shows that this last verdict is questionable (Ofgem 2011f).

Restricting the overall number of tariffs in this way would immediately improve simplicity in the market. This should make it easier for consumers to choose between offers. It would also allow suppliers to innovate by providing different tariff offerings as long as they remained within their quota. Smaller suppliers could benefit from this arrangement by offering tariffs for niche customer segments not covered by the Big 6 within their quotas.

- **Ofgem should abandon its proposals to introduce a two-tier tariff system and include the costs of energy efficiency obligations in a standing charge for standard tariffs.**
- **Ofgem should consider introducing an absolute limit on the number of tariffs suppliers can have in operation at any one time.**

Wholesale power market liquidity

Ofgem has proposed measures to address illiquidity in the wholesale power market as a means to unblock this suspected barrier to new entrants to the energy supply market (Ofgem 2011e). In interviews with IPPR, several (but not all) of the small suppliers identified illiquidity in the market as a key barrier to growth. Barriers to entry must be tackled and it is right that Ofgem is focusing on this area.

However, it is important to balance this aim with the need to design the structure of the wholesale market in such a way that the substantial investment needed in new low-carbon generation infrastructure can be secured. In particular, the success of the Coalition government's electricity market reform policy depends on pricing being sufficiently transparent to attract new generators into the wholesale market, and for this adequate liquidity is vital. We are concerned that Ofgem is not adequately considering the needs of independent generators in its reforms.

Ofgem has proposed a mandatory auction of 25 per cent of annual generation by the Big 6. It is unclear why this amount has been chosen and why other reform options such as a pooling arrangement have not been considered.

- **Reforms to improve liquidity in the wholesale power market must be fully incorporated into the electricity market reform policy. Ofgem and DECC should work closely together on the reforms.**
- **There should then be an investigation into the full range of options for improving liquidity in the wholesale market.**

Tariff cost-reflectivity

Ofgem has proposed major reforms in the RMR yet is failing to effectively enforce reforms it has already introduced. Four years ago Ofgem found that some customers were being charged different prices for using the same amount of energy and that these differences were not representative of the suppliers' costs.

A licensing requirement¹⁵ was introduced for suppliers stipulating that the tariffs they offer for customers who use different payment methods must be 'cost reflective'. Effective enforcement of the requirement should mean that suppliers offer fair prices to customers irrespective of whether they regularly switch tariff or supplier.

¹⁵ Standard license condition (SLC) 27.2A stipulates that any difference in terms and conditions between payment methods for paying charges for the supply of electricity or gas shall reflect the costs to the supplier of the different payment methods. The license condition clarifies that price is included in the definition of 'terms' (Ofgem 2011f).

In March 2011 Ofgem launched a formal investigation into Scottish Power who they believed was in breach of this requirement (Ofgem 2011f). It is now over a year later and Ofgem has yet to provide an update on how this investigation is progressing. IPPR analysed the tariffs offered by suppliers and found evidence to suggest several were not offering cost reflective tariffs.

IPPR's analysis also identified evidence that some companies were engaging in loss-leading pricing. We found evidence that some suppliers overcharge their 'sticky' customer base to cross-subsidise loss-leading, discounted tariffs targeted at more active consumers. We have estimated that up to five million customers could be being overcharged.

Loss-leading is a concern for two reasons. Firstly, vulnerable groups are overrepresented among sticky customers and therefore stand a greater risk of being overcharged. Secondly, smaller suppliers struggle to compete against loss-leading discounts. In interviews with IPPR several smaller suppliers¹⁶ stated that loss leading by the Big 6 was a significant barrier to their growth. Despite this Ofgem is not investigating how loss leading may effect competition in the market. With regards to the licensing requirement on cost reflectivity, Ofgem has explicitly stated its intention is not to remove 'best offer' deals from the market (Ofgem 2010b).

It is difficult to accurately assess the suppliers' costs. It follows that it is also difficult to assess whether the tariffs they offer for customers are cost reflective. Nevertheless, this should not prevent effective enforcement by the regulator of the licensing requirement on cost reflectivity.

Firstly, it is clear that the requirement cannot be effectively implemented without adequate monitoring of suppliers controllable costs. This should include improved monitoring and reporting of the costs of the energy efficiency obligations on suppliers. However, if the practical challenges in assessing suppliers costs are such that the requirement is unenforceable then it should be abandoned and alternative measures sought.

- **Ofgem should immediately provide an update on the investigation into whether Scottish Power has breached the licensing requirement on tariff cost reflectivity.**
- **Ofgem should extend the scope of the RMR to address the issue of loss-leading tariffs. It should consider expanding the licensing requirement on cost reflectivity to apply to all tariffs including fixed-term tariffs and those with introductory discounts.**
- **Ofgem must confirm whether it stands by the licensing requirement on cost reflectivity for tariffs according to payment type. If so it must provide assurance that adequate systems are in place to monitor the suppliers' operational costs and the costs of metering.**
- **The government must undertake to publish regular evaluations of the costs to suppliers from delivering the energy efficiency supplier obligations.**

Monitoring and accountability

In researching this paper our methodology has been limited to publicly available data. Details on individual suppliers' costs are commercially sensitive and this must be taken into account when information is being published. However, Ofgem already publishes a

16 IPPR interviewed four of the six smaller suppliers in the course of researching this report. All four highlighted loss leading was a significant barrier to their growth.

regular account of suppliers' costs at the aggregate level. These reveal very little detail about how these estimates are made. We have therefore had to model our estimates for some costs on the basis of evidence published by Ofgem that dates back to 2007.

It is in the public interest for Ofgem to publish a more thorough and comprehensive account of suppliers' costs in aggregate so that analysis of the market is based on the most recent and comprehensive data available.

- **Ofgem's published estimates of suppliers' costs are not sufficiently transparent. Ofgem must expand its regular publication of costs to include its estimate for each specific cost component and details of how this has been computed.**

Broader lessons for energy policy

In this report we have made the case for supporting smaller suppliers and new entrants as a way to drive cost efficiencies in energy supply. A more diverse pool of businesses could also help to foster innovation which is vital if the UK is to compete and prosper internationally in the emerging clean energy markets such as energy services, renewable generation, and smart grids and meters. Efforts to enhance competition in the supply market are hampered by the dominance of the Big 6, however emerging markets offer an opportunity to encourage a more diverse mix of companies.

- **Policymakers should actively encourage a broader 'ecosystem' of businesses in emerging energy sectors such as energy services, renewable generation, smart grids and metering. In designing policy, they should consult with a wide range of stakeholders and ensure that new regulations do not entrench the dominance of the Big 6 in new markets. This will help create more efficient and competitive markets for the benefit of consumers while creating the potential for innovation and industrial growth.**

1. INTRODUCTION

This report sets out to establish the cost for energy utilities of supplying households with gas and electricity. In an extensive analysis of data published by Ofgem, energy companies and other sources, we question both the accuracy of existing assumptions of costs and the extent to which they are appropriate for a fully functioning, competitive energy market. From this we draw conclusions about the state of competition in the energy supply market.

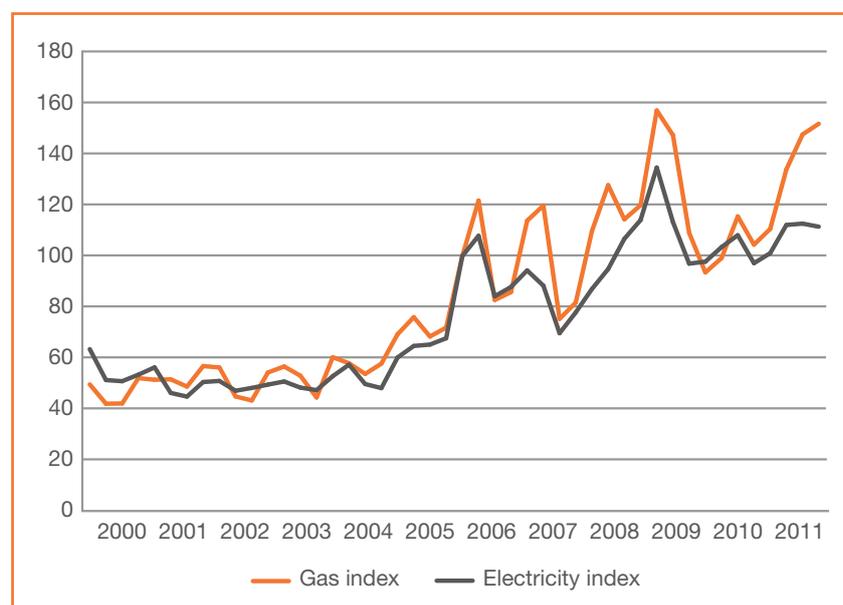
We conclude that there is a lack of competition in the energy supply market and that some consumers are paying over the odds for their energy use as a result. We put forward recommendations for increasing competition in the energy supply market and exerting downward pressure on energy prices. We also examine the role played by the regulator Ofgem and ask whether its strategy for reform is sufficient to improve the state of competition in the energy supply market. Finally, we draw wider lessons from the research to consider implications for energy policy more broadly.

Context

Higher energy bills have been a key factor in recent inflation and are contributing to the squeeze in living standards faced by many families in the UK. The cost of an average energy bill rose from £605 in 2004 to £1,060 in 2010 (CCC 2011b). The scale of such increases has led to greater scrutiny of the energy supply market and in particular the different elements that make up the average consumer bill.

Recent reports by independent government advisers the Committee on Climate Change (CCC 2011b) and the Department for Energy and Climate Change (DECC 2011a) have stated that recent increases are mainly due to the rise in the wholesale cost of gas. The CCC calculated that rises in the wholesale cost of gas added £290 to the average consumer energy bill between 2004 and 2010 (CCC 2011b). Figure 1.1 shows how the wholesale costs of electricity and gas have risen over the last six years, with gas prices an important driver of the wholesale price of electricity (DECC 2012b).

Figure 1.1
Changes in the prices of fuels purchased by the major UK power producers, and of gas at UK delivery points, used to indicate wholesale prices*

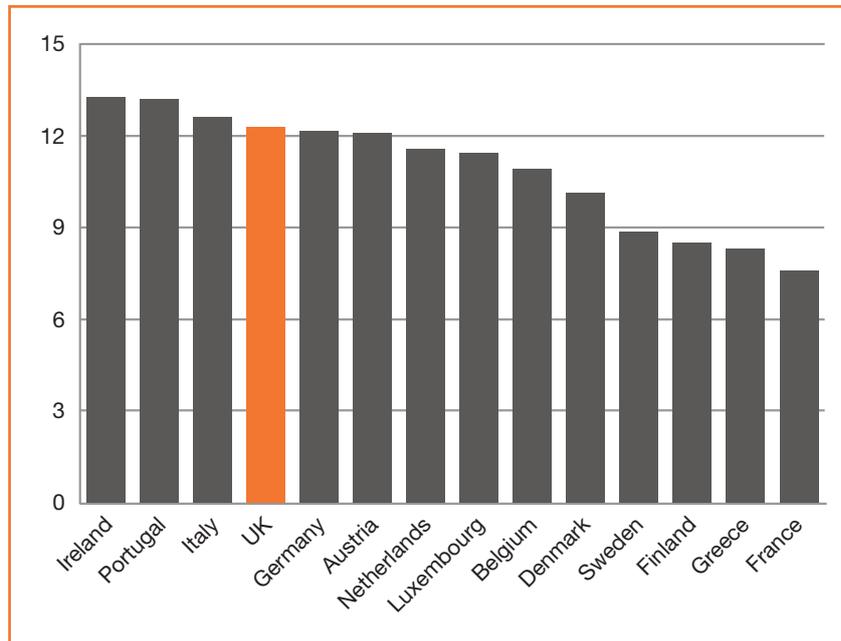


Source: DECC 2012b
Note: Q4 2005 as base with both indices at 100.

As trends in the price of wholesale energy are largely outside of the control of energy suppliers, the focus of our analysis is the energy retail market – the business of supplying gas and electricity to consumers.

The energy retail market in the UK was liberalised in the late 1980s. But there are a number of reasons for thinking that liberalisation has not led to a properly functioning competitive market. First, the UK’s performance compared to the rest of the EU on retail prices is mixed, even though it has pursued a competition agenda for much longer than many other European countries. In 2010, the UK had the fourth most expensive consumer price for electricity (excluding tax)¹⁷ in the EU-15 and it was only in the middle of the pack on gas (see figures 1.2 below and 1.3 over). The Netherlands, a country that like the UK has enjoyed a large indigenous gas supply, has in contrast the second lowest price. Only when tax is included do consumer prices in the UK compare more favourably: this is because the UK tax levels for gas and electricity are the lowest (DECC 2012b). International comparisons are far from being a perfect measure of relative efficiency and competition in the supply market but the UK’s performance is surprising nevertheless.

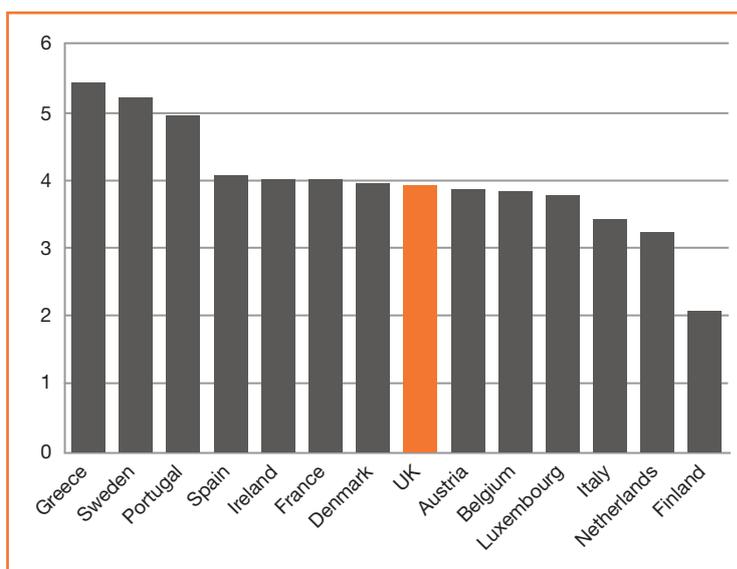
Figure 1.2
2010 electricity prices for UK and other EU-15 countries for medium-sized domestic consumers, with tax excluded



Source: DECC 2012b
Note: Price data not available for Spain.

¹⁷ It is more appropriate to look at prices exclusive of tax because tax is a government instrument and not a feature of market efficiency.

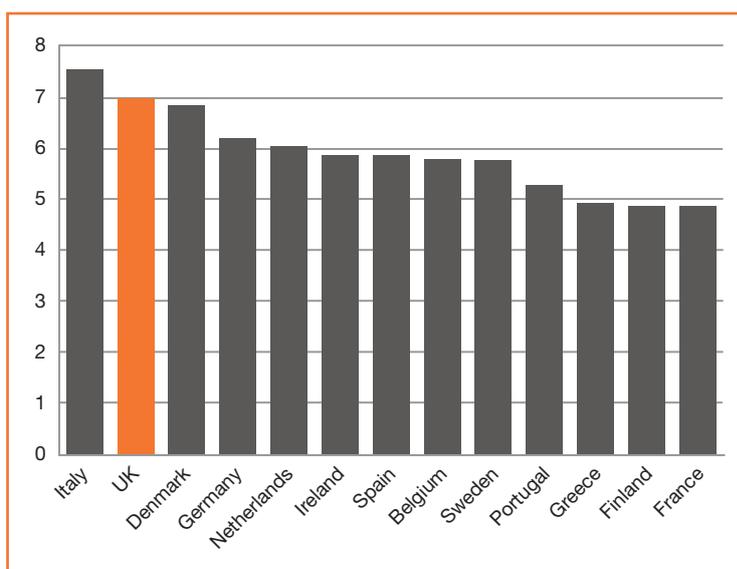
Figure 1.3
2010 gas prices for UK and other EU-15 countries for medium-sized domestic consumers, with tax excluded



Source: DECC 2012b
Note: Price data not available for Germany.

Nor has the UK electricity market been particularly successful in driving down wholesale electricity prices, an important part of the rationale for retail competition. Figure 1.4 shows that in 2010, the UK had the second highest prices for extra-large industrial consumers¹⁸ among the EU-15, exceeded only by Italy.¹⁹

Figure 1.4
Electricity prices for UK and other EU-15 countries for extra-large industrial consumers exclusive of tax, used to illustrate wholesale prices



Source: DECC 2012b
Note: Prices not available for Luxembourg and Austria.

¹⁸ Extra-large industrial consumers effectively pay wholesale prices for energy. The comparative position of the UK is similar for large and medium categories.

¹⁹ International price comparisons are always complex and may reflect major factors such as the legacy of the capital stock and exchange rates; the latter, however, should currently favour the UK in any comparison, given the devaluation of sterling over recent years.

Another reason to question the health of competition in the energy market is the fact that the UK supply market is dominated by six large companies that retain 99 per cent of all energy consumers (Ofgem 2011f). The so-called Big 6 include British Gas, EDF, E.ON, Npower, SSE and Scottish Power. These companies have their origins in the electricity and gas suppliers that operated as monopolies before the market was opened to competition. Through a number of divestments, mergers and acquisitions, we have arrived at the companies that exist today, several of which are foreign owned. A pattern of vertical integration exists in the sector, with each of the Big 6 having major interests in energy generation as well as supply. Some also have an increasing role in energy services markets.

A number of smaller suppliers exist but they are too small to constitute a substantial 'competitive fringe' (Ofgem 2008). Domination of a market by six businesses does not in itself indicate that competition in that market is ineffective, but the fact that since liberalisation no new entrant has achieved a scale of operations to challenge the Big 6 suggests there are significant barriers to entry for newcomers.

Third, consumer switching rates are showing signs of long-term decline and have reached a historic low. By switching suppliers, consumers can place strong incentives on suppliers to reduce costs, improve services and develop innovative products, and therefore switching rates are an indicator of the level of competition in the market²⁰. Ofgem has described consumer switching as the 'engine' of competitive energy supply markets (Ofgem, 2008: 43). In Q4 2011 DECC recorded the lowest number of people to switch electricity supplier since records began in 2003, while the numbers switching gas were second lowest only to Q1 2003 (DECC 2012a). In total the proportion of consumers who switched supplier in 2011 was around 15 per cent (ECCC 2012). The proportion of consumers who look regularly for a better deal for their gas or electricity supply is between just five to 10 per cent of all consumers (Ofgem 2011f). Low switching rates are likely to be due to a combination of factors including: complex tariff structures, high apathy rates, low levels of trust that a better deal can be found, and energy simply being an 'uninteresting consumer product' (Which? 2012; see box 1.1 over).

So it is clear that there are reasons to doubt that the energy market is properly competitive. There are also reasons to be concerned about the impact this is having on consumers. An example of this is exploitation by some energy companies of their 'sticky' customers, so-called because they do not switch for many of the reasons outlined below.

The Big 6 inherited large numbers of sticky customers from the period of monopoly provision. Some energy suppliers have been found to charge sticky customers higher rates for the same use of energy than more active customers who shop around (Ofgem 2008). Most recently, Ofgem found this difference to be £18 per year for customers on standard-credit accounts (Ofgem 2010b). Low income and vulnerable groups are overrepresented among sticky customers as we explain below.

20 Monitoring of activity in the market focuses mainly on the number of consumers who have switched supplier. Less focus tends to be paid to the number of consumers who switch tariff yet remain with the same supplier which is another important feature of competition.

Box 1.1 Understanding low switching rates

Low switching rates are due in part to the nature of energy as a consumer product. Electricity and gas are bought to support some other need or purpose, rather than to be enjoyed in their own right; they are homogenous products regardless of the company that supplies them. Areas for potential differentiation between suppliers' offerings are small: service levels in metering and billing are one area, tariffs that are tied to different types of energy generation, for example renewable sources, are another. Price is currently the key differentiator and the primary customer consideration: a survey for Ofgem found 80 per cent of consumers switched to save money; only 7 per cent who switched were looking for better service (Ipsos Mori 2011). It has been suggested that people only have themselves to blame if they fail to 'shop around' regularly for a low price for energy. It is sometimes assumed this is due to laziness or apathy, but there are a number of important and valid reasons why people may choose not to switch tariff. These include:

- too much choice and complexity in the tariffs on offer
- the time and trouble involved in making a switch
- mistrust of the suppliers and suspicion of their offers
- belief that a supplier has put them on the best deal
- belief that regulation is in place to ensure the prices they pay are fair
- loyalty to a business due to their retention of a national brand

Sources include Ofgem 2008, 2011f

In 2008, Ofgem found that a high proportion of vulnerable consumers, who stand to gain the most by switching, are unlikely to do so (Ofgem 2008). Ofgem has defined energy consumers into types including 'proactive consumers', who regularly research the market and switch to find a better deal, 'reactive consumers', who have switched supplier at least once but do not regularly research the market and typically only switch in response to a call from a sales person, and 'inactive consumers', who have never switched or done so only once and say they are unlikely to switch again in the future. In 2007, 24 per cent of reactive consumers and 29 per cent of inactive consumers were in social groups DE compared to 17 per cent of proactive consumers. Also, a greater proportion of over 65s were represented in the inactive group (28 per cent) than the proactive group (12 per cent). More recent research by MORI for Ofgem identified how consumers in social groups D and E, those in rented accommodation, those in rural areas and those without internet access tended to switch less (Ipsos Mori 2011).

Regulation and reform

To try and improve the level of competition in the market, the energy markets regulator, Ofgem, is undertaking a major set of reforms, the Retail Market Review. Initial proposals were published in March 2011 and subsequent consultations on individual components of the proposals are at different stages of completion (Ofgem 2011f). This is the second major package of reforms aimed at improving competition since the Energy Supply Probe in 2008. With the publication of the Energy Supply Probe, Ofgem launched reforms aimed at supporting consumers, addressing barriers to growth for smaller suppliers and addressing discriminatory unfair-pricing practices (see box 1.2). According to Ofgem's own evaluation these reforms were not successful, with market conditions appearing

to have *deteriorated* since 2008 (Ofgem 2011f). Across 16 indicators, 12 showed no improvement or deteriorated, three slightly improved and only one, relating to the cost reflectivity of tariffs, was considered to have improved, although our analysis shows that this last verdict is questionable (Ofgem 2011f).

Box 1.2 Action to address discriminatory pricing practices

Ofgem first noted that the suppliers often offered tariffs according to payment types that were not cost reflective in 2007. They observed a tariff differential of £80 between an average direct-debit tariff and an average standard-credit tariff across the Big 6 (Ofgem 2008).²¹ This compared to a difference in costs for suppliers of £37 in serving these different types of customers. In response, in 2009, Ofgem introduced a new licensing requirement for suppliers stipulating that cost reflectivity be the key criteria by which tariff differentials were justified (Ofgem 2009). An update on progress made a year later found the differential had *increased* to £109, having risen in 2008/09 and subsequently fallen (Ofgem 2010a). Ofgem stated that they were unable to assess whether the differential was justified because their most recent cost data was from 2007 before the credit crisis and recession. Having raised this with suppliers, Ofgem said the rise could be reflective of an increased concentration of bad-debt costs onto the non-prompt paying group of customers. In 2007, Ofgem had estimated bad-debt costs to constitute £18 of the £37 differential between standard-credit and direct-debit customers. Therefore, if we attribute the increase solely to rises in bad debt costs, Ofgem accepted that average bad-debt costs for standard-credit, non-prompt paying customers in 2010 were £47, *more than 250 per cent higher* than they were in 2007. This increase seems very high, in particular when there is evidence to show that some suppliers have reduced their overall bad-debt costs from 2008 to 2011.²² Ofgem's explanation also fails to account for £43 of the difference between the suppliers tariffs that was first identified in 2007 and remained in 2010.

Ofgem's most significant action on discriminatory pricing practices to date was the launch of an investigation into Scottish Power. Ofgem had observed a tariff differential between Scottish Power's dual-fuel standard-credit and direct-debit offerings of £114 per year, excluding any prompt-pay discount, and concluded this was much wider than it believed to be cost reflective (Ofgem 2011f).

In 2010, Ofgem also found that the use of introductory, time-limited online offers to attract new customers (for example, a customer receiving 15 per cent off their bill for the first three months after having switched supplier) had increased since 2008. Despite noting the lack of transparency around these offers, and a lack of clarity for consumers about what happens to prices at the end of the offer period, the regulator maintained that these offers have a role in a vibrant, competitive market. Ofgem stated its goal was 'not to eradicate differentials between best offer and standard tariffs' (Ofgem 2010b:16). Our analysis will show that discounted tariffs can present a barrier to entry and growth for smaller suppliers, and we address this issue in our recommendations.

21 Ofgem's figures are based on an annual energy consumption of 3.3MWh for gas and 20.5MWh for electricity.

22 British Gas investor day presentation, 7 September 2011: <http://www.centrica.com/index.asp?pageid=26&year=2011>.

The RMR is an important opportunity for reform in the energy supply market. We discuss the proposed reforms and the scope and significance of the review in our policy recommendations.

The energy supply market is only one aspect of the very complex jigsaw that is the UK energy sector. The energy sector is at the beginning of a rapid period of transformation: Ofgem has estimated that £200 billion of investment is needed in the sector over the next decade to make sure the lights stay on, the country is on track to meeting our 2050 emission reduction targets and the grid becomes 'smart', enabling hyper-sophisticated levels of energy management (Ofgem 2010a). Decisions on one area of energy policy must take into account the ramifications across the sector as a whole. This understanding underpins the analysis throughout this report.

Aims and methodology

This report aims to examine the costs of energy supply in the UK. We do this by calculating how much it currently costs to supply energy to consumers by analysing publicly available data sources including Ofgem evidence, DECC impact assessments and other published documents including by the energy companies (see methodology outlined in the appendices).

Ideally an independent analysis would begin with first-hand examination of the suppliers' accounts; however, this has not been possible. Even if it had, it would not be easy to disentangle the supply capabilities of the Big 6 from other aspects of their businesses. Much of Ofgem's data necessarily originates from the Big 6 and will therefore reflect their judgments on a number of material issues of cost allocation and presentation.

Our analysis follows the approach taken by Ofgem in a series of quarterly reports (Ofgem 2010–2011). We estimate the average costs to suppliers of providing electricity and gas to a typical consumer on a standard, dual-fuel tariff; our analysis does not cover consumers on fixed-term tariffs or tariffs for consumers not connected to the gas grid. We have used Ofgem's estimates of the average consumers' consumption and bill.

We believe Ofgem's analyses are the most convenient starting point and a useful set of benchmarks against which to place alternative views on costs. The Ofgem analysis does not measure one of the most important and sensitive components of a customer bill, the profit margin in energy supply. In order to help clarify this issue, Energy UK, an industry body representing the Big 6 suppliers, commissioned a series of reports from the economic consultant NERA, which attempted to produce a more comprehensive statement of costs and revenues (NERA 2009–2011). NERA has examined the differences between its account of costs and Ofgem's (NERA 2011; see appendix A) and the substantial degree of reconciliation between their estimates increases our confidence in the baseline levels of costs and revenues from which our own analysis starts. We have also made use, as has NERA, of one other estimate of costs, published by Consumer Focus (Consumer Focus 2010).

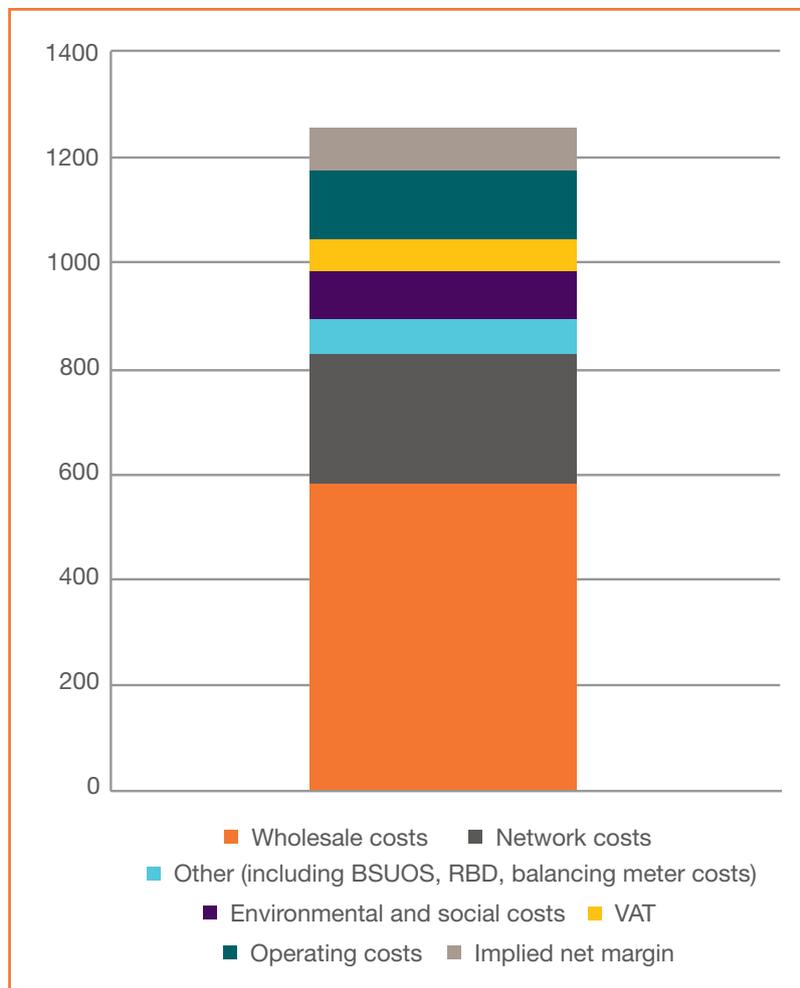
As suppliers costs can vary considerably over time, our estimate focuses on the period March 2011 to March 2012, the period of the last four quarterly Ofgem estimates. We refer to the financial year 2011/12 throughout the report as a fair approximation of this period.

2. THE COSTS OF ENERGY SUPPLY

The costs of supplying energy can be broken down into three categories: first, wholesale energy costs; second, costs necessarily incurred by energy suppliers in transporting energy to consumers, including transmission and distribution costs, the costs of maintaining and reading meters and the costs of imposed environmental and social policies, as well as VAT; and finally, the suppliers' own operating costs.

Below is an illustration of the individual costs that make up the typical energy bill.

Figure 2.1
Illustrative breakdown of
a typical energy bill



We interrogate each of these elements of the typical energy bill, addressing each of the categories outlined above, before turning to the issue of profit margins and profitability. As our interest is primarily in how competition in the energy supply market affects consumers' bills, we focus on those costs that can be controlled by the suppliers and are therefore potentially affected by competition. Costs that are essentially fixed by regulation are of less interest. Throughout we compare our estimates to those published by Ofgem and NERA in their quarterly reports series.

2.1 Wholesale costs

There is a limited amount of data with which to analyse wholesale electricity costs. While the current wholesale market or 'spot' prices can be observed for gas, the same is not true for electricity. Prior to the introduction of the new electricity trading arrangements (NETA) in 2001, all electricity generated was bought and sold on a 'spot' basis through a pool. Under the current market arrangements, buying and selling is predominantly through bilateral trades. One consequence of this is that electricity pricing is significantly less transparent than it was before 2001.

A further issue in understanding wholesale costs is the high degree of 'vertical integration' in the sector, which refers to the fact that the Big 6 energy companies own significant electricity generation and (to a lesser extent) upstream gas interests as well as supplying these products. This degree of integration inevitably raises questions about how these businesses deal with pricing or valuation when transferring energy from their upstream and generation arms to their supply businesses.²³

Suppliers also typically hedge their purchasing by predicting, and then buying, their energy requirements ahead of time, for example using contracts for up to 12 or 18 months ahead. This reduces the risks that come from purchasing only in the potentially volatile spot market. In addition, suppliers must acquire electricity with an hour-by-hour quantity/time profile that matches the profile of consumer demand. The price of electricity varies significantly over the day whereas hourly fluctuations in consumer demand are of much less significance for gas. Seasonal gas demand can be highly affected by the weather.

Ofgem analysed its quarterly estimates of wholesale prices for 2009 using account data provided by the Big 6 (Ofgem 2011b) and found them to be largely accurate. Given the lack of transparency and the fact that our principal interest is in the retail side of the market, here we presume Ofgem's estimates for 2011/12 are similarly accurate and take the average across the year of £581. The methodology undertaken by Ofgem is outlined in appendix B.

2.2 Costs which are specific to energy suppliers

2.2.1 Environmental and social costs

This includes the cost of energy efficiency obligations and policies that support renewable generation, such as the renewables obligation and feed-in tariffs, as well as financial support provided to low-income customers through the Warm Home Discount.

Energy efficiency obligations

The carbon emissions reduction target (CERT) and the Community Energy Savings Programme (CESP) are obligations placed upon energy suppliers with over 250,000 customers (DECC 2009, DECC 2010) to deliver energy efficiency improvements to households. The scale of the obligations differs between suppliers in proportion to the size of their customer base. For each policy, a notional carbon emissions reduction target is set that the suppliers must reach by gaining carbon credits for each package of eligible measures installed. A similar mechanism is proposed under the energy company obligation (ECO), which is due to be introduced in January 2013.

²³ Ofgem studies indicate that the Big 6 observe different conventions in accounting for wholesale costs (Ofgem 2011b) but beyond this there is very little transparency on the suppliers' actual practices.

It is expected that the energy companies seek the most cost efficient way of fulfilling the energy efficiency obligations and that the costs are passed on in full to consumers, as the following quote from DECC helps to illustrate:

‘[I]n a competitive energy supply market, companies are incentivised to meet their obligations at the lowest cost to themselves, thus minimising any costs passed through to their customers and maximising their chance of retaining or attracting customers.’

DECC 2011e: 198

However, there is much uncertainty about the costs of delivering energy efficiency obligations. For illustration, DECC has estimated the costs to energy companies of achieving the ECO to be in a range of £0.53 billion per year to £3.09 billion per year but with a central estimate of £1.3 billion (DECC 2011e). A recent evaluation of CERT and CESP was unable to find sufficient data on costs to draw any conclusions (DECC 2011d). DECC has noted that in the past, suppliers have found ways to ‘game the system’²⁴ (DECC 2011e), which will have lowered delivery costs.

The only evaluation of the costs of supplier energy efficiency obligations, which looked at the predecessor to CERT, the energy efficiency commitment, found that delivering this cost the energy companies 23 per cent less than expected (Eoin Lees Energy 2008). A difficulty in predicting costs is uncertainty around levels of demand from consumers for energy efficiency measures (CCC 2011a).

There is also a risk that suppliers are paying too much to carry out their energy efficiency obligations. Some social housing landlords who have worked with energy companies on the delivery of CESP have expressed concerns that suppliers’ tendency to use preferred contractors or to carry out work in-house can mean the costs of the work do not necessarily represent best value for money. This has in some instances led to landlords being asked to contribute more funds to a scheme than they thought necessary (ACE 2011 and associated private correspondence). This poses the risk of inefficiencies in how energy efficiency obligations are being carried out, with higher costs to consumers as a result.

The lack of an up-to-date evaluation on the delivery costs of energy efficiency obligations means we must take our estimates from DECC’s impact assessments for CERT (DECC 2010a) and CESP (DECC 2009). Based on our average consumer consumption estimates this stands at around £49 for the average customer annually.

Uncertainty about the costs of the energy efficiency obligations is a concern. It makes it difficult to assess value for money of the policies and also introduces uncertainty into any estimate of the suppliers’ costs and profitability.

Renewables obligation

The renewables obligation is a requirement on electricity suppliers to source electricity from renewable sources by purchasing renewables obligation certificates (ROCs) that are issued to generators of renewable electricity by Ofgem. We should expect that suppliers have to pay a market price for ROCs; it is likely that this will be quite close to, and will certainly not exceed Ofgem’s ‘buy-out’ price for ROCs, which is essentially the penalty rate suppliers have to pay for failing to supply enough ROCs. Ofgem indicates a 2011/12

24 Suppliers were found to be distributing large numbers of compact fluorescent light bulbs (CFLs) to consumers, without ensuring that they were installed, as a low-cost way to meet their target. This led to many consumers having ‘a cupboard full’ of unused CFLs. DECC took action to stop this practice.

buy-out price of £38.69/MWh, with ROC certificates equivalent to 12.4 per cent of all energy supplies (Ofgem 2011c). This translates to about £4.80/MWh over all electricity supplies, and when applied to our annual consumption estimate for financial year 2011/12 of 4MWh, adds a cost of around £19 to the average customer bill.

Feed-in tariffs

Feed-in tariffs are a form of subsidy for small-scale renewable electricity technologies that was introduced in April 2010. Through the scheme, suppliers with more than 50,000 customers have to make regular payments to small-scale generators of renewable electricity. October 2011 is the first time Ofgem included the cost of FITs in their quarterly estimate of suppliers' costs.

Solar deployment under the FIT has been far greater than expected, and the government has acted to try and reduce demand for the technology. New subsidy rates were introduced for solar from April 2012 that are expected to add £5 to each customer's energy bill in 2012, having added £2 in 2011 (DECC 2011b). This gives a figure of approximately £3 for financial year 2011/12.

The FITs also apply to other technologies. However, we do not include the costs for these other technologies in our analysis, noting that solar has been by far the most widely deployed technology and will have had the most impact on bills. Also there has been less demand for anaerobic digestion plants than anticipated.

Warm Home Discount (social-supplier obligations)

In April 2011, the Government launched a scheme called the Warm Home Discount, which obliges suppliers with more than 250,000 customers to provide support to low income homes with relatively high fuel costs through discounts on their energy bills. The expected impact on the average energy bill for the average consumer was £10 in the financial year 2011/12 (DECC 2011c).

A summary of our estimates for environmental and social-supplier costs is given in table 2.1. It shows that if DECC's central estimates for the costs of suppliers' energy efficiency obligations are correct, we estimate total environmental and social costs on the average bill in 2011/12 to be £81. This is lower than Ofgem's average estimate for 2011/12 of around £90. Ofgem reveals little information about how it has arrived at its figure which prevents us from explaining why the difference between the two estimates exists.

Table 2.1
Suppliers' environmental
and social policy costs

Environmental and social-supplier costs	Costs (to the nearest £)
Energy efficiency obligations CERT and CESP	£49
Renewables obligations certificates (ROCs)	£19
Feed-in tariffs	£3
Warm Home Discount	£10
Total	£81

2.2.2 Transmission and distribution

For both electricity and gas, suppliers incur both transmission and distribution costs. Typically this covers the cost of securing energy from the individual generators and transmitting it over the high-voltage transmission network, together with the costs of the local distribution networks.

Suppliers and generators pay a charge for using the national transmission network (regulated monopolies the 'national grid' for electricity (Scottish Hydro Electric Transmission Limited and Scottish Power Transmission Limited in Scotland) and the 'national transmission system' for gas) and for using the local distribution networks (of which there are 14 for electricity and eight for gas). Prices for distribution vary according to individual customer consumption and location. As the prices suppliers pay are heavily regulated and largely fixed (see appendix C for more details), we take Ofgem's estimates for 2011/12, which average at £247, to be accurate.

2.2.3 Metering and other costs

Metering costs include the provision, maintenance and reading of meters in consumers' homes. A market in providing these services to suppliers exists, with some carrying out tasks in-house, and costs are therefore not published.

Drawing on previous estimates by Cornwall Energy (Consumer Focus 2010), and applying these to estimates of the current breakdown of account types, we calculate the average costs of metering for an electricity and gas meter combined in 2011/12 to be £62 (see appendix D for detailed methodology). The actual figure is likely to be substantially lower if economies of scale and the increasing numbers of online accounts, where people can submit their meter readings via the internet, are taken into consideration. Our estimate is comparable with the £30 costs charged by Welsh Water for maintaining and reading a single small water meter (Welsh Water 2011). Welsh Water is a not-for-profit, regulated water company and so it is reasonable to assume the amount charged for these services is cost reflective.

Cornwall Energy Associates derived an estimate for the cost of electricity balancing in 2008 to be £2.23/MWh from National Grid sources (Consumer Focus 2010). By accounting for inflation²⁵ and multiplying this out, based on the average electricity consumption figure of 4MWh per consumer, we arrive at a current cost estimate of £9.50. Other costs such as reconciliation by difference (RBD)²⁶ we cannot account for.

Our estimate of the cost of metering and 'other' for 2011/21, based on these limited data sources, is £71. This is higher than Ofgem's average for the year at £66 but we note how Ofgem's estimate increased significantly in its December 2011 analysis to £81. NERA's average estimate was consistently higher, averaging at £89. This is due to the inclusion of 'other costs' that make up a third of the total yet which are unspecified and relate to a residual amount in Ofgem's analyses NERA could not account for.

2.3 Operating costs

The operational (or indirect) costs for selling energy to consumers include aspects such as customer service and billing (costs to serve), accommodating for bad debt, the costs of working capital and the costs of marketing (costs to compete). Suppliers are able to exert significant control over these costs and they are a primary area in which suppliers may seek to gain competitive advantage over one another.

A majority of consumers state that they choose tariffs on the basis of cost above all other considerations (Ipsos Mori 2011). Given the primacy of cost as a consumer concern, we would expect competitive pressure to drive suppliers to seek efficiencies in their operational spending and in so doing to offer cheaper tariffs than their competitors.

25 The inflation rates we use throughout our analysis are based on the GDP price deflator. http://www.hm-treasury.gov.uk/data_gdp_fig.htm

26 This is the method of reconciling the difference between actual (metered) and deemed (estimated) measurements of gas allocated to small supply points, typically to domestic properties.

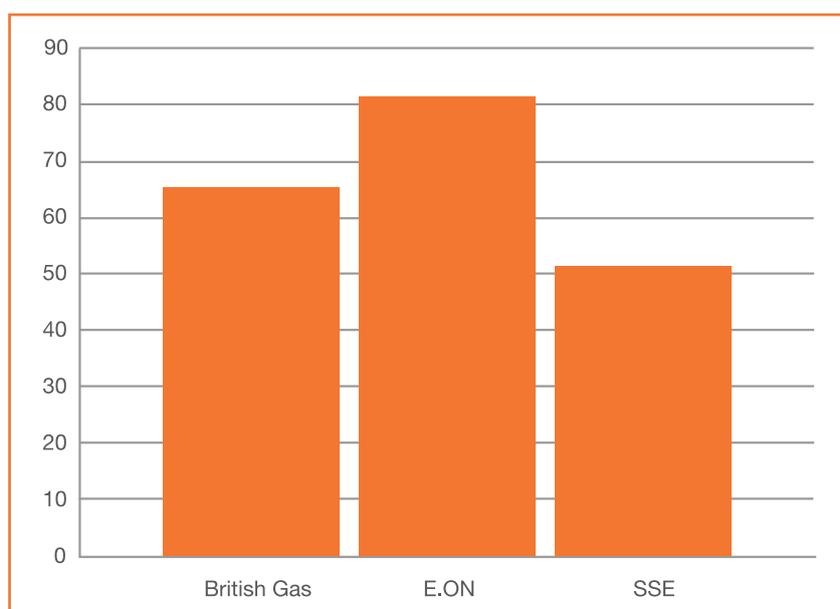
We therefore look first at differences in the operational efficiency of the suppliers before providing up-to-date estimates on operational costs.

2.3.1 Operational efficiency across the suppliers

In a fully competitive market, economic theory would suggest a tendency for the aggregate costs of different suppliers to converge (Ofgem 2008), since the primacy of cost as a consideration for consumers when buying energy, and the absence of any real differentiation in the product would tend to drive out higher-cost competitors. That does not mean that every supply business would have the same cost in every category, since they might apply different strategies for minimising cost. Moreover, if different classes of consumer had different costs to serve, then the suppliers' business strategies might target different markets, again leading to some variation in cost outcomes for different companies. However in energy supply one would not expect these variations to be large.

In 2007, Ofgem noted a concern that the supplier with the highest costs according to the number of accounts it had was spending 90 per cent more on each account than the supplier with the lowest costs (Ofgem 2008). To arrive at a more recent statistic for how much the suppliers spend on each customer account, we crossreferenced evidence on the suppliers' customer numbers²⁷ against evidence on the suppliers' operational costs where it was available (Ofgem 2011b; Ofgem 2012); we were unable to locate data on how many customers EDF, Npower and Scottish Power have and so they are omitted from the statistic. The results are shown in figure 2.2. According to these estimates E.ON's operating costs per account in 2010 at £90.18 were 73 per cent higher than SSE's at £52.

Figure 2.2
Operating costs per account for some suppliers (£)



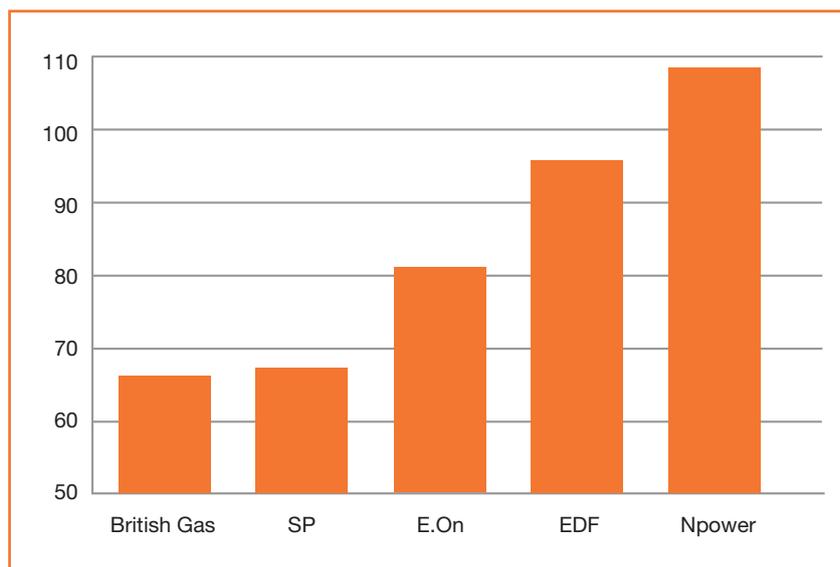
Source: Corporate publications and Ofgem 2012

Note: British Gas and E.ON for calendar year 2010. SSE figure is for financial year 2010/11.

²⁷ Corporate publications sources and figures: British Gas September 2011 investor relations presentation claims 15.5 million customers in 2010 (<http://www.centrica.com/index.asp?pageid=26&year=2011>); E.ON statutory accounts claim 7.4 million customers in 2010: http://www.eon-uk.com/downloads/E_ON_UK_plc_statutory_accounts_2010.pdf; SSE annual reports claim 8.73 million customers year ending 31 March 2011: http://www.sse.com/uploadedFiles/Controls/Lists/Reports_and_Results/SSE_AnnualReport2011.pdf. Dual-fuel (electricity and gas) accounts are counted as two accounts.

British Gas has compiled an estimate of suppliers' operating costs per customer account, which is shown in figure 2.3.²⁸ British Gas' estimates for their own costs in 2010 (around £67) are almost the same as ours (£66) but are around £7 higher for E.ON. They do not include an estimate for SSE. For Npower they estimate costs at around £109, which is 63 per cent higher than those of British Gas. If we combine the two estimates (we do not know the accuracy of British Gas' data but presume they are broadly correct) the differential between the highest and lowest performing business in terms of operating costs per account is 113 per cent. This is significantly higher than the 90 per cent differential observed by Ofgem in 2007. This suggests competitive pressure is failing to drive the convergence in the suppliers' costs that should be expected within the market.

Figure 2.3
Operating costs per account, by supplier



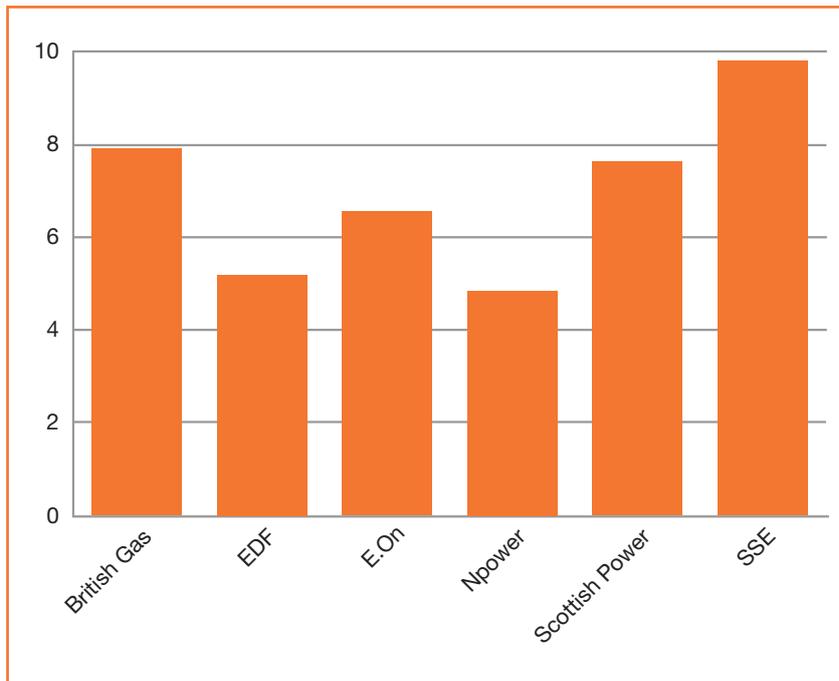
Source: Reproduced from British Gas investor day presentation, 7 September 2011²⁹

Operating costs per customer account are one way to measure the operational efficiency of the suppliers. Another useful measure of operational efficiency is how much revenue the suppliers' generated in relation to their operating costs. The analysis we have conducted (see figure 2.4 over) shows that in 2010 the suppliers ranked in the same order of efficiency for how much revenue they generated in relation to their operating costs as they did for how much they spent on operating costs per account (as discussed above) (data taken from Ofgem 2011b and Ofgem 2012). This means there is some degree of correlation between the two measurements. According to the measure of revenue generated in relation to their operating costs SSE was the most efficient, followed by British Gas, Scottish Power, E.ON, EDF and finally Npower. Similarly to operating costs per account, the difference between the best and worst performing supplier is shown to be very large in 2010 at over 100 per cent (£9.85 of revenue by SSE compared to £4.87 by Npower).

²⁸ British Gas investor day presentation, 7 September 2011: <http://www.centrica.com/index.asp?pageid=26&year=2011>.

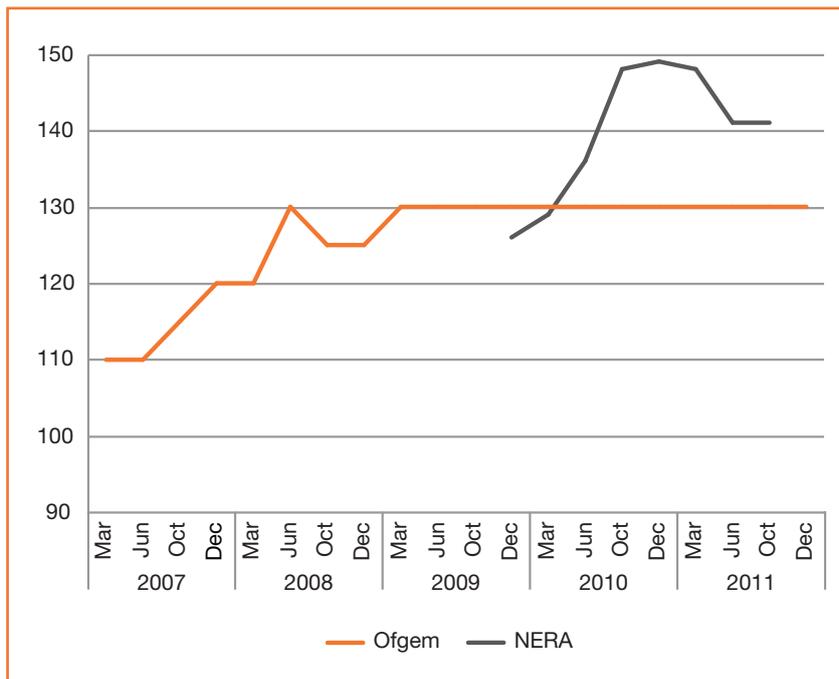
²⁹ Available at <http://www.centrica.com/index.asp?pageid=26&year=2011>.

Figure 2.4
Operating costs per pound of revenue generated



Source: Ofgem 2012

Figure 2.5
Ofgem and NERA's estimates of operating costs over time (nominal figures shown)



Sources: Ofgem 2010–2011, NERA 2009–2011

Our analysis shows that competition is not driving a convergence in the suppliers' operational efficiency as economic theory would suggest.

Another outcome of competition in the market should be to drive the suppliers to find efficiency savings in their operations; a lack of efficiency savings would suggest competition is not being effective. We note how neither Ofgem nor NERA's series of quarterly analyses indicate efficiency savings have been made over time; both in fact show increases (figure 2.5 on previous). In 2011 Ofgem's estimates were £9 per customer per year higher in real terms than in early 2007. In mid-2011 NERA's estimates were around £8 higher in real terms than in late 2009.

We now look at individual operating costs in more detail with a particular focus on the issue of efficiency savings.

2.3.2 Costs to serve, bad debt and overheads

Ofgem has defined costs to serve as:

'[C]osts attributable to providing services to customers, including billing and payment processing, cost of call centres relating to answering and resolving customer issues, debt-management costs and recovery of debts, bad-debt write-offs and provision for bad debts.'

Ofgem 2008: 83

In 2008, Ofgem estimated the costs to serve for suppliers, specifying the costs of bad debt and overheads as individual components, according to each of the three main payment types for customers.³⁰ These are:

- **Direct debit:** Where a fixed amount is periodically taken from a bank account, usually monthly or quarterly.
- **Standard credit:** Where customers pay for energy used in arrears, usually quarterly on receipt of a bill (payment is by numerous methods including cash, cheque, credit card or standing order).
- **Pre-payment meter:** Where customers pay in advance for their energy directly via a special type of meter that has been fitted in their property.

By analysing Ofgem's evidence we have estimated that the average cost to serve a customer for both electricity and gas in 2007 was £80.36^{31,32} (Ofgem 2008; see appendix E for methodology). A breakdown of these costs by tariff payment type is given in table 2.2 (over).

30 Ofgem also calculated the cost savings for customers who receive bills and can upload meter readings online. These are excluded from our analysis because the discounts offered to online accounts are not included in Ofgem's bill estimates.

31 It is possible that some of the evidence taken by Ofgem from the suppliers was not an accurate representation of their costs. In particular it is unclear why the costs of bad debt were higher for prepayment customers than for standard credit customers. Following the Energy Supply Probe a licensing requirement was introduced for the suppliers to ensure they offer prepayment customers cost reflective tariffs, which could have equalised these cost estimates.

32 This analysis makes no allowance for cost efficiencies that arise for suppliers from serving dual-fuel customers as opposed to customers on separate gas and electricity accounts. In reality, costs for a dual-fuel account would be expected to be lower than the stated figures, and separate accounts higher; a previous estimate has calculated a dual-fuel account to cost 25 per cent less to serve than separate accounts (NERA 2009–2011, December 2009 publication).

Table 2.2
Costs to serve dual-fuel
customers by payment
type (£)

Payment type	Costs to serve	Bad debt	Overheads	Average total costs to serve electricity and gas per customer
Direct debit	54	3	3	60
Standard credit	61	21	4	86
Pre-payment meter	100	22	4	126

Source: Ofgem energy supply probe

To arrive at an estimate of current costs we must consider how they may have changed over time. In the Energy Supply Probe, when reporting that suppliers' costs to serve had increased by 11 per cent between 2005 and 2007, Ofgem stated its concern.

'We would expect competitive pressure to force costs to serve down ... Increases in the costs to serve do not seem to be consistent with a relentless drive towards increased efficiency'

Ofgem 2008: 85

Below is a list of precedents and comparisons with other markets and different sectors for the rate at which operational efficiency improvements could be expected to occur. Not all of these examples are directly comparable with energy suppliers as different businesses will have different areas in which they can find efficiencies. Nevertheless, they do provide a useful benchmark.

- In 2008, Utility Regulator, the regulator in Northern Ireland, deemed annual efficiency improvements of 2.5 per cent per year were appropriate for the gas supplier, Phoenix Supply (Utility Regulator 2008). In reaching this conclusion they drew on Ofgem's gas distribution price control review (Ofgem 2007), which originated the 2.5 per cent figure, and the decision of the Commission for Energy Regulation (CER) in Ireland, in 2007, to set an efficiency factor of 4 per cent for Bord Gais Supply. Shortly after, CER was due to review this decision, taking into account international comparisons in a range of 0.5 per cent to 4.2 per cent. In addition, also in line with Ofgem, Utility Regulator included an allowance for real price effects that would produce a net annual efficiency factor of 0.9 per cent, primarily on labour costs.
- British Gas has claimed to have reduced its back office costs from £25 million in 2008 to £15 million in 2009 and £9 million in 2010, a reduction of 40 per cent year on year.³³
- Operating in a comparable industry, the telecoms sector, BT claims to have achieved a 7 per cent decline in its total operating cost base in 2011, building on a 5 per cent cost reduction in 2010 (BT 2011), and Sky reported a 3.5 per cent reduction in its subscriber management and supply chain costs in 2011 (BSB 2011).
- By sharing services and sourcing materials in bulk, HM Prison Service, the National Health Service and the Department for Work and Pensions were able to reduce back office costs by up to 30 per cent and procurement costs (for example on IT equipment and stationery) of up to 39 per cent (HMT 2009).

33 British Gas investor day presentation, 7 September 2011. <http://www.centrica.com/index.asp?pageid=26&year=2011>.

- The energy markets regulator, Ofgem, itself operates under a five-year cost control regime that pegs their expenditure growth at three percentage points below the retail price index in order to drive efficiency improvements (Ofgem 2011a).

We conclude a reasonable target for the suppliers is to achieve 2.5 per cent efficiency savings a year, which is the same as is required of the price-regulated gas supplier in Northern Ireland. As some of the examples above show such significant efficiency savings, we believe it also reasonable to consider that greater savings may be possible.

The economic difficulties of recent years must, however, be taken into account. For example, bad-debt costs could be expected to have risen in 2008 and beyond, as the financial crisis and recession took hold, and customers faced more difficulty in paying their bills on time. Despite this, in a recent investor presentation,³⁴ British Gas counterintuitively reported having *reduced* its costs of bad debt as a proportion of its revenue from 2.6 per cent in 2008, to 1.7 per cent in 2009 and 1.5 per cent in 2010, and was expected to achieve 1.1 per cent in 2011; in total this is a 58 per cent reduction over the three years since Ofgem's Energy Supply Probe. While this performance was not necessarily achieved across all of the suppliers, it does show that even during a period of severe economic difficulties, suppliers can exert significant control over their bad-debt costs and may therefore have prevented rises.

One explanation for the performance of British Gas, if we compare their costs with those of NIE Energy Supply (NIEES), the regulated electricity supplier in Northern Ireland, is that they had very high bad-debt costs to begin with. NIEES recorded bad debt of just 0.45 per cent of revenue in 2009/10 and expected it to be the same in 2010/11 (NIE Energy 2009). NIEES forecast this to rise to 0.56 per cent for 2011/12 and 2012/13 as competition in their market increased and more people switched, leaving behind unpaid final accounts, but they were set a target level of bad debt at 0.5 per cent of annual revenue by the regulator. British Gas' reductions in bad-debt costs could be a sign of competitive pressure, effectively driving them to make efficiency improvements, but questions exist about how and why costs were originally at the levels they were. Taking NIEES as a yardstick and British Gas' anticipated results for 2011, we suggest bad-debt costs at 1 per cent of revenue is a reasonable target level for suppliers in a competitive market, even in the current economic climate.

NERA (2009–2011) has provided the most detailed estimates on the costs of bad debt. Based on information from the suppliers, they estimate the costs of bad debt on an average dual-fuel account to have risen from £14 in 2009 (at 1.2 per cent of revenue) to just above £20 in December 2010 (1.9 per cent) but then to return back to £14 in October 2011 (1.1 per cent). We assume NERA's average cost for 2011/12 of £17 is correct but note that it is on a downward trajectory.

Customer service costs may also have been impacted by the recent economic difficulties. For example, people who have struggled with their bills may have made more calls to their supplier than usual, pushing up customer service costs. However, we can only expect this to make a marginal difference to costs, and this should not hinder the drive to improve operational efficiency. Indeed, it remains the case that these costs are the most highly controllable by the suppliers and any increases could be interpreted as an indication of poor costs management.

34 British Gas investor day presentation, 7 September 2011. <http://www.centrica.com/index.asp?pageid=26&year=2011>.

To arrive an estimate for costs to serve and operating costs in 2011/12, we take the evidence from the Energy Supply Probe (Ofgem 2008) for suppliers' costs in 2007, and model how they might differ according to different efficiency savings scenarios. These include zero efficiency savings, 2.5 per cent annual efficiency savings, which is reasonable to expect in a competitive market, and 5 per cent. Our estimates are shown in table 2.3.

Table 2.3
Suppliers' costs to serve and overheads in 2011/12 with different efficiency savings achieved since 2007 (£)

Payment type	Zero per cent annual efficiency saving		2.5 per cent annual efficiency saving		5 per cent annual efficiency saving	
	Costs to serve	Overheads	Costs to serve	Overheads	Costs to serve	Overheads
Direct debit	59.33	3.30	53.96	3.00	48.96	2.72
Standard credit	67.01	4.39	60.95	4.00	55.30	3.63
Pre-payment meter	109.86	4.39	99.92	4.00	90.66	3.63

Note: All figures adjusted for inflation.

By combining these estimates with a projection on the current breakdown of customer account types (see appendix E), and our estimated costs of bad debt, we estimate the total of costs to serve, operating costs and bad debt to be £90.25 with zero efficiency savings, £83.62 with 2.5 per cent annual efficiency savings and £77.44 with 5 per cent annual efficiency savings. All of our modelled estimates come out as significantly lower than NERA's, which averaged out at £106 in 2011 (NERA 2009–2011).

2.3.3 Costs of competition

Ofgem (2008: 83) has defined the costs of competition as including:

- **Acquisition costs:** The marketing and sales activities to attract new domestic customer accounts, and costs associated with influencing existing customers to change tariffs.
- **Account closure costs:** The administrative costs attributable to closing accounts including any associated costs of resolving queries and issues relating directly to the loss of domestic customers.
- **Customer retention costs:** The marketing and sales costs attributable to retain existing customers.

In the Energy Supply Probe, Ofgem reported that overall expenditure by suppliers on the costs of competition increased by 21 per cent from 2005 to 2007 (Ofgem 2008). Costs to compete are not necessarily subject to the same pressure for cost-reducing efficiency improvements that might be expected for costs to serve in a competitive market. For example, increases in the costs of competition could be consistent with a greater level of competition as suppliers put increasing resources into battling for market share. However, it is difficult to judge whether this money is 'efficiently' spent; in other words, could the same outcomes be achieved with a lower level of expenditure. For instance, it is hard to judge the exact value companies create by spending on marketing.

What is clear is that the costs of competition constitute a significant part of the suppliers' operating costs and make up a significant proportion of the average bill. In a regulated market, of course, these costs would not exist for consumers.

For our cost estimate, we assume that costs to compete have neither decreased nor increased since the energy supply probe in 2007.³⁵ By applying inflation, we arrive at an

³⁵ The total amount spent on marketing by the suppliers in 2007 was shown to be around £700 million and the total number of accounts was 49.1 million (Ofgem 2008). Annual spend per energy type was therefore £14.

estimate of £31 for an average dual-fuel customer for 2011/12. This is similar to NERA's average estimate for 2011/12 of £33 (NERA 2009–2011).

2.3.4 Costs of working capital

In the Energy Supply Probe, Ofgem estimated the cost of working capital for standard-credit customers, who pay in arrears, to be £12 a year. According to our projections on account numbers (see appendix E), this would mean an average cost in 2011/12 (allowing for inflation) of around £4 shared across all consumers.

NERA includes a category of costs that were incurred implementing measures following the energy supply probe, which it estimates to be £1. As Ofgem's measures are intended to drive competition in the market, achieve best practice with respect to consumers and will be absorbed into the suppliers' existing operations, we do not think it is appropriate to include these costs.

To conclude this section we estimate total operational costs for 2011/12, which includes costs to serve, operating costs, bad debt, the cost of competition and the cost of capital.

We have estimated how different levels of competition might have affected operational costs by modelling scenarios in which the suppliers have achieved different rates of efficiency savings since 2007. We estimate the suppliers' total operating costs to be £125 if competition has been ineffective and there have been no efficiency gains in costs to serve and operating costs since 2007, £119 if competition has been effective and there have been annual efficiency gains of 2.5 per cent, and £112 if competition has been highly effective and there have been annual efficiency gains of 5 per cent.

Our modelling suggests Ofgem's estimates of operating costs at £130 may be too high. We conclude one of two possibilities: Ofgem's estimates are broadly accurate, the suppliers have not achieved efficiency savings and competition in the market is therefore ineffective; or, the suppliers have achieved efficiency savings but these savings have not been captured by Ofgem and they have not been passed on to consumers. If the latter is true, the suppliers' profit margins implied by Ofgem's estimates are too low.

2.4 Total costs

We bring together all of the findings above in table 2.4 (over) to show our breakdown of the different elements that constitute the average energy bill. Ofgem's estimates are also included to aid comparison. Our estimate for total costs in 2011/12 includes scenarios allowing for how different levels of competition may have driven different efficiency savings in costs to serve and operating costs (of zero per cent, 2.5 per cent and 5 per cent since 2007 annually).

Overall the differences between our estimate of suppliers' costs and those of the regulator are slight. This is not that surprising because we have built our estimates from publicly available data sources and the lack of transparency on suppliers' costs means we have had to rely heavily upon evidence published by Ofgem. Indeed, our analysis draws directly on Ofgem's estimates for wholesale costs and transmission and distribution costs, which are the two largest cost components. The lack of transparency in the market is a cause for real concern, not least because our analysis has shown there is great uncertainty around some cost components. Moreover, small differences in estimates of suppliers' costs can make big differences to estimates of how profitable they are, as is discussed below.

Table 2.4
Estimate of costs for 2011/12 for a consumer with annual consumption of 16,900kWh of gas and 4000kWh of electricity (£)

	IPPR estimates			Ofgem (average of estimates for 2011/12)
	0%	2.50%	5%	
Annual operational efficiency saving (costs to serve and operational costs) applied since 2008				
Customer bill	1,255	1,255	1,255	1,255
Wholesale costs	581	581	581	581
VAT and other costs	459	459	459	463
Environmental and social costs	81	81	81	90
Other (including BSUOS, ³⁶ RBD, balancing and meter costs)	71	71	71	66
Network costs	247	247	247	247
VAT	60	60	60	60
Operating costs	125	119	112	130
Implied net margin (£)	90	96	103	83
Implied net margin (%)	7.2%	7.6%	8.2%	6.8%

Note: All figures rounded to the nearest pound. Numbers may not add due to rounding.

2.5 Profitability

Ofgem's quarterly estimates of costs include an implied net profit margin (but this should not be misinterpreted as a measure of the suppliers' actual profitability; see appendix A). Ofgem recently referred to sharp increases that it had observed in the profit margin on the dual-fuel bill as evidence that competition in the market may not be fully effective (Ofgem 2011f). Our reliance on publicly available data sources introduces uncertainty into our cost estimates but our analysis suggests Ofgem's estimates of profit margins could be 0.5–1.5 per cent too low. Box 2.1 explores what an acceptable level of profitability in the energy sector might be.

Box 2.1 What level of profitability is 'efficient' for a competitive energy supply market?

Energy supply businesses are essentially trading businesses; they buy energy at one end and sell it at the other, adding value through customer service, billing and by offering different products. Supply is a relatively small part of the energy value chain – which also includes fuel production, generation, transmission and distribution – representing only around 7 per cent of the added costs (Ofgem 2008), and even less of the capital employed.

36 'Balancing services use of system' charges are made by the system operator, National Grid, for keeping the electricity system 'in balance' (energy balancing), and maintaining the quality and security of supply (system balancing).

It is common to judge a company's level of profit in relation to its capital employed. Energy supply businesses, however, require a low level of fixed capital assets;³⁷ working capital with which to buy energy is their main capital requirement. Therefore an alternative method is to look at profit as a percentage of revenue. Operating costs are low in relation to the volume of an energy companies' trade with much of their costs being passed through to consumers. We could therefore expect profit margins to be low.

To judge what an efficient level of profitability in a competitive energy supply market might be, we can look to examples of suppliers from regulated markets, and make comparisons with other industries.

Profit margins should to some degree reflect the riskiness of the activity being undertaken. A business facing full commercial and competitive risks should earn a higher margin than one that is either in a regulated monopoly position or is not facing full competition. Not least, a higher degree of risk of mismatch between contractual obligations to buy and sell energy carries a requirement for a stronger balance sheet and correspondingly higher capital employed.

A report by the Monopolies and Mergers Commission into Scottish Hydro in 1994, published before energy supply was open to competition in Great Britain, considered that 0.5 per cent was an adequate margin for regulated energy supply (Ofgem 2008). On the first steps towards liberalisation of the market in 1998, Offer and Ofgas (the market regulators at the time) set a 1.5 per cent profit margin price control for energy supply believing that this adequately reflected the increased risks of competition (*ibid*).³⁸ More recently, Utility Regulator set the margin for Phoenix Supply, the regulated gas supplier in Northern Ireland, at 1.3 per cent in 2007, when there was expected to be no competition, rising to 1.5 per cent in 2008, to take account of the emergence of competitors (Utility Regulator 2008). Lastly, in a recent consultation on price controls for NIEES, the regulated electricity supplier in Northern Ireland, Utility Regulator proposed to set a profit margin of 1.7 per cent of regulated sales, which took into account the fair degree of competition that already existed within the market (Utility Regulator 2011). As part of this consultation a response was submitted by NIEES, which was commissioned from the analysts NERA, which argued that a 3 per cent profit margin was appropriate for an energy supplier that was fully exposed to competitive market risk.

37 These can be assumed to be largely confined to the complex billing systems they operate. Metering, which does have a substantial asset base, is the responsibility of separate meter-operating companies, although some of these will be associated with the big vertically integrated energy companies.

38 We note that between 1998 and 2008, when Ofgem and Ofgas set their price controls, the amount of revenue of the energy suppliers more than doubled and will have increased further as wholesale prices have risen in recent years. This could create some downward pressure on margins as the operational cost requirement reduces further in proportion to the cost pass-through. This effect may be limited, however, as the amount of capital at risk has increased.

BOXED TEXT CONTINUED

To make comparisons on margins between different industries, the capital asset requirement of a business and the proportion of costs that pass through must be considered. This was recognised by the Competition Commission (formerly the Monopolies and Mergers Commission) in its report into the costs BT charged users to connect to mobile phones. The Competition Commission took as a key consideration the extent to which turnover is accounted for by bought-in services, and noted that comparisons with the retail sector, which involve substantial capital employed, were inappropriate (Ofgem 2008).

Ofgem has reported how the costs of bought-in goods relative to costs incurred is four times lower in grocery retailing, and capital employed is much higher (38 per cent of costs in grocery retail compared to less than 5 per cent in energy supply)(Ofgem 2008). One might expect, therefore, the profit margins in energy supply to be less than in grocery retail, which the Competition Commission found to be between 2 and 6.4 per cent or less for the big supermarkets (Competition Commission 2008). There is arguably a greater risk of mismatch between the amount of goods bought in and the level of demand in energy supply than in grocery retailing (for example, unseasonably warm or cold weather in winter can significantly affect consumer demand for gas) which will incur greater cost. Also the Big 6 have to offer supply terms to customers no matter what their debt risk.

These precedents suggest a margin of between 1 and 1.5 per cent on turnover is appropriate for a regulated energy supply market, and a margin of 3 per cent or slightly more is reasonable in a competitive market. The higher margin typical of a competitive market is a cost to consumers that is the direct result of having competition.

2.6 Conclusion

Overall, our analysis raises important questions about whether competition in the energy supply market is effective and truly delivering for consumers.

We have identified evidence to suggest that competition is not driving convergence in the operational efficiency of the suppliers. We have also identified that Ofgem's estimates of costs appear to show no evidence of efficiency savings from which we draw one of two conclusions: either Ofgem's estimates are broadly accurate, which suggests that the suppliers have not achieved efficiency savings and that competition in the market is therefore ineffective; or, the suppliers have achieved efficiency savings but these savings have not been captured by Ofgem and have not been passed on to consumers. If the latter is true, Ofgem's estimates for suppliers' profit margins are too low. The onus is therefore on the suppliers and Ofgem to demonstrate whether efficiency savings have been achieved and whether consumers have benefitted from lower bills as a result.

In the process of completing our analysis we have encountered a lack of transparency and a dearth of publicly available data on which to base estimates. This is compounded by the fact that there is little monitoring by government of some cost components, in particular the costs to suppliers of the energy efficiency policies. We address this and other key findings in our policy recommendations.

If competition in the energy market was working properly it would exert downward pressure on bills by driving suppliers to make efficiency savings. Below we model some scenarios for the impact of improved levels of competition on energy bills.

2.7 The impact on energy bills of increasing competition in the supply market

Much attention has been devoted to the cost of the government's environmental policies as well as the impact of rises in the wholesale cost of gas.³⁹ Our interest is in how the energy supply market itself affects consumers' bills.

We model a number of scenarios to see how different levels of competition in the supply market could affect energy bills in 2020. First, we approximate the costs of an average bill in 2020 where there is minimal competition from 2012 onwards: the 'very weak' scenario.⁴⁰ We then model a range of scenarios for escalating levels of competition ('weak', 'mid', 'strong'). We set efficiency savings and profit margins in accordance with these escalating levels of competition.

We are guided in this by precedents from regulated markets and other industries which suggest that the suppliers could be expected to achieve efficiency savings in their operations of 2.5 per cent a year, if not more, and achieve 3 per cent in overall profitability (see box 2.1) if competition is working effectively.

The projections model efficiency savings across all operational costs including bad debt and the costs of competition. Evidence, highlighted earlier in this report, suggests that in 2011 the impact of the economic downturn on bad-debt costs has been largely overcome and therefore, going forward, there should be opportunities for efficiency savings. While the suppliers' costs of competition need not be subject to the same drive for efficiency savings as is expected of costs to serve in a competitive market, they are included to highlight that suppliers can control these costs and that there may be opportunities for efficiency savings in this area. The results are shown in table 2.5 (over).

In the mid-range scenario, where suppliers achieve annual efficiency savings of 2.5 per cent and set profit margins at 4 per cent, £70 is saved from the average annual bill. This is a reasonable approximation of what the impact might be on bills if competition were to be improved. This level of savings in 2020 would cover the costs to consumers of the electricity market reform, the carbon price floor, the feed-in tariff (FIT), the warm home discount and most of the renewables obligation combined (DECC 2011a).

39 For example, see <http://www.guardian.co.uk/environment/damian-carrington-blog/2012/mar/19/energy-gas-climate-change>

40 These models should not be misinterpreted as an attempt to accurately represent consumers' energy bills in 2020. They based on 'best guess' estimates for some cost components. Our interest is in the difference between the scenarios that result from the suppliers achieving different rates of efficiency improvements. This informs us about the impacts of competition on bills.

Table 2.5
Potential energy savings
in 2020 by increasing
competition in the
market (£)

		2011	2020			
			Very weak	Weak	Mid	Strong
Modelled factors	Annual efficiency savings		0	1%	2.5%	4%
	Net profit margin		7%	6%	4%	3%
Approximate cost components and bill (£)	Wholesale costs	581	683	683	683	683
	VAT and other costs	457	508	508	508	508
	Operational costs	125	125	115	102	90
	Net profit margin	88	99	78	52	38
	Annual consumer bill	1,255	1,415	1,385	1,345	1,320
Annual bill savings compared to 'Very weak' scenario (£)				30	70	95

*Note: All figures in 2011 prices.

3. POLICY IMPLICATIONS AND RECOMMENDATIONS

There is strong evidence to suggest there is a lack of competition in the energy supply market and that some consumers will be paying over the odds for their energy use as a result. We have suggested there is scope to reduce consumers' annual energy bills by £70 in 2020 if competition is increased. This is a conservative estimate and savings could potentially be higher.

The Big 6 are functioning as an oligopoly which ultimately produces negative outcomes for consumers by restricting competition. The aim of regulatory intervention should be to put pressure on the suppliers from a number of different directions to address this.

Competitive pressure in the energy supply market results from two sources: first, 'switchers' who actively seek out a good deal from their energy provider and choose between tariffs with different suppliers; second, pressure emerging from the suppliers themselves, both incumbents and new entrants, as they seek to expand or protect their customer bases. For effective competition it is necessary to have pressure from both sources.

The focus of much recent policy has been on encouraging more people to switch to a cheaper provider or tariff, including a recent consumer energy summit led by the prime minister and attempts by the new energy and climate change secretary Ed Davey to encourage collective purchasing of energy. Though these efforts are important, there is a need to redress the balance: pressure from suppliers, both incumbents and new entrants must also be strengthened.

This is supported by our view that there is a need for greater fairness in terms of costs charged to energy consumers. People cannot choose to 'opt out' of buying energy. Regulation of the supply market must aim to produce beneficial outcomes for the majority of consumers and not simply those that are most active, particularly at a time of high unemployment and when incomes are squeezed.

Recommendations

Ofgem is undertaking a major process of reform, the Retail Market Review (RMR), to try and improve competition in the energy market and is therefore the main focus of our recommendations. We also draw out some broader lessons from this work for energy policy as a whole.

The retail market review

Better regulation of the energy supply market by Ofgem is needed to improve competition and to ensure that pricing is fairer for consumers. Some groups have called for radical interventions to reduce energy bills, for example by capping the retail prices of the Big 6 and imposing a levy on their profits, the proceeds of which would be used to fund energy saving measures for consumers.⁴¹ These interventions would not address the systemic problems with competition in the market outlined above and may have unintended consequences, such as undermining the ability of the Big 6 to raise capital to invest in new energy infrastructure.

However, there are concerns about the regulator's ability to deliver change in the energy sector. The RMR is Ofgem's second major package of reforms to improve competition in the supply market since the Energy Supply Probe, which was published in 2008. Ofgem's research shows that on a number of measures market conditions have deteriorated since 2008 (Ofgem 2011f). Across 16 indicators, 12 showed no improvement or deteriorated,

41 <http://action.compassonline.org.uk/page/s/end-the-big-six-energy-fix>

three slightly improved and only one, relating to the cost reflectivity of tariffs, was considered to have improved, although our analysis below shows that this last verdict is questionable. Ofgem has proposed a broad set of reforms under the RMR but has not sufficiently addressed why the Energy Supply Probe failed. Further, there are no benchmarks or targets against which progress will be judged. If over the medium term, the market shows few signs of improved levels of competition, policymakers should consider alternative regulatory approaches such as a return to price regulation or regional franchises.

- **Ofgem should specify measurable objectives for its RMR reforms and set clear timelines against which progress can be assessed.**
- **Ofgem must act with greater urgency to improve market conditions. The RMR should be seen as the last chance for the current market structure.**
- **If the RMR fails to significantly improve levels of competition, government should intervene and investigate alternative regulatory approaches to the market.**

Tariff reform

In the RMR, Ofgem has proposed major changes to the range of tariffs the suppliers can offer (Ofgem 2011d). The proposals primary aim is to improve transparency within the market and the ability of consumers to compare tariffs.

Ofgem's preferred RMR 'core' proposal will introduce a two-tier tariff system. Suppliers will be able to offer only one standard tariff per payment method but will not be limited in the number of fixed term tariffs they can offer. It will also introduce a standardised cost element for standard tariffs, which will include the costs of energy efficiency obligations.

There is reason to doubt whether the RMR core proposal will achieve Ofgem's aims. The introduction of a two-tier tariff system is likely to add complexity to the market and could make it harder for consumers to compare tariffs. Inclusion of the energy efficiency obligations in the standing charge would be regressive and not in line with the polluter-pays principle, and cannot currently be based on an accurate estimate of costs.

Any regulation of tariffs must take into account potentially conflicting priorities. For example interventions that seek to improve simplicity could restrict the potential for innovation in tariff types. In order to better strike this balance, an alternative approach would be to introduce an absolute restriction on the number of tariffs that suppliers can have in operation. This restriction would cover both standard and fixed term tariffs. Suppliers would have to offer at least one standard tariff per payment method but beyond this would be able to choose which types of tariff they offered. If suppliers had their full quota of tariffs in operation they would have to adhere to a 'one-in, one-out' policy, so that as they introduce a new tariff onto the market another would need to be removed.

Restricting the overall number of tariffs in this way would immediately improve simplicity in the market. This should make it easier for consumers to choose between offers. It would also allow suppliers to innovate by providing different tariff offerings as long as they remained within their quota. Smaller suppliers could benefit from this arrangement by offering tariffs for niche customer segments not covered by the Big 6 within their quotas.

- **Ofgem should abandon its proposals to introduce a two-tier tariff system and include the costs of energy efficiency obligations in a standing charge for standard tariffs.**

- **Ofgem should consider introducing an absolute limit on the number of tariffs suppliers can have in operation at any one time.**

Wholesale power market liquidity

Ofgem has proposed measures to address illiquidity in the wholesale power market as a means to unblock this suspected barrier to new entrants to the energy supply market (Ofgem 2011e). In interviews with IPPR, several (but not all) of the small suppliers identified illiquidity in the market as a key barrier to growth. Barriers to entry must be tackled and it is right that Ofgem is focusing on this area.

However, it is important to balance this aim with the need to design the structure of the wholesale market in such a way that the substantial investment needed in new low-carbon generation infrastructure can be secured. In particular, the success of the Coalition government's electricity market reform policy depends on pricing being sufficiently transparent to attract new generators into the wholesale market, and for this adequate liquidity is vital. We are concerned that Ofgem is not adequately considering the needs of independent generators in its reforms.

Ofgem has proposed a mandatory auction of 25 per cent of annual generation by the Big 6. It is unclear why this amount has been chosen and why other reform options such as a pooling arrangement have not been considered.

- **Reforms to improve liquidity in the wholesale power market must be fully incorporated into the electricity market reform policy. Ofgem and DECC should work closely together on the reforms.**
- **There should then be an investigation into the full range of options for improving liquidity in the wholesale market.**

Tariff cost-reflectivity and loss leading

Ofgem has proposed major reforms in the RMR yet is failing to effectively enforce reforms it has already introduced. Four years ago Ofgem found that some customers were being charged different prices for using the same amount of energy and that these differences were not representative of the suppliers' costs.

A licensing requirement⁴² was introduced for suppliers stipulating that the tariffs they offer for customers who use different payment methods must be 'cost reflective'. Effective enforcement of the requirement should mean that suppliers offer fair prices to customers irrespective of whether they regularly switch tariff or supplier.

In March 2011 Ofgem launched a formal investigation into Scottish Power who they believed was in breach of this requirement (Ofgem 2011f). It is now over a year later and Ofgem has yet to provide an update on how this investigation is progressing. IPPR analysed the tariffs offered by suppliers and found evidence to suggest several were not offering cost reflective tariffs (see appendix F).

IPPR's analysis also identified evidence that some companies were engaging in loss-leading pricing. We found evidence that some suppliers overcharge their 'sticky' customer base to cross-subsidise loss-leading, discounted tariffs targeted at more active consumers. We have estimated that up to five million customers could be being overcharged.

42 Standard license condition (SLC) 27.2A stipulates that any difference in terms and conditions between payment methods for paying charges for the supply of electricity or gas shall reflect the costs to the supplier of the different payment methods. The license condition clarifies that price is included in the definition of 'terms'. (Ofgem 2011f)

Loss-leading is a concern for two reasons. Firstly, vulnerable groups are overrepresented among sticky customers and therefore stand a greater risk of being overcharged. Secondly, smaller suppliers struggle to compete against loss-leading discounts. In interviews with IPPR several smaller suppliers⁴³ stated that loss leading by the Big 6 was a significant barrier to their growth. Despite this Ofgem is not investigating how loss leading may affect competition in the market. With regards to the licensing requirement on cost reflectivity, Ofgem has explicitly stated its intention is not to remove ‘best offer’ deals from the market (Ofgem 2010b).

It is difficult to accurately assess the suppliers’ costs. It follows that it is also difficult to assess whether the tariffs they offer for customers are cost reflective. Nevertheless, this should not prevent effective enforcement by the regulator of the licensing requirement on cost reflectivity.

Firstly, it is clear that the requirement cannot be effectively implemented without adequate monitoring of suppliers controllable costs. This should include improved monitoring and reporting of the costs of the energy efficiency obligations on suppliers. However, if the practical challenges in assessing suppliers costs are such that the requirement is unenforceable then it should be abandoned and alternative measures sought.

- **Ofgem should immediately provide an update on the investigation into whether Scottish Power has breached the licensing requirement on tariff cost reflectivity.**
- **Ofgem should extend the scope of the RMR to address the issue of loss-leading tariffs. It should consider expanding the licensing requirement on cost reflectivity to apply to all tariffs including fixed-term tariffs and those with introductory discounts.**
- **Ofgem must confirm whether it stands by the licensing requirement on cost reflectivity for tariffs according to payment type. If so it must provide assurance that adequate systems are in place to monitor the suppliers’ operational costs and the costs of metering.**
- **The government must undertake to publish regular evaluations of the costs to suppliers from delivering the energy efficiency supplier obligations.**

Monitoring and accountability

In researching this paper our methodology has been limited to publicly available data. Details on individual suppliers’ costs are commercially sensitive and this must be taken into account when information is being published. However, Ofgem already publishes a regular account of suppliers’ costs at the aggregate level. These reveal very little detail about how these estimates are made. We have therefore had to model our estimates for some costs on the basis of evidence published by Ofgem that dates back to 2007.

It is in the public interest for Ofgem to publish a more thorough and comprehensive account of suppliers’ costs in aggregate so that analysis of the market is based on the most recent and comprehensive data available.

- **Ofgem’s published estimates of suppliers’ costs are not sufficiently transparent. Ofgem must expand its regular publication of costs to include its estimate for each specific cost component and details of how this has been computed.**

43 IPPR interviewed four of the six smaller suppliers in the course of researching this report. All four highlighted loss leading was a significant barrier to their growth.

Broader lessons for energy policy

In this report we have made the case for supporting smaller suppliers and new entrants as a way to drive cost efficiencies in energy supply. A more diverse pool of businesses could also help to foster innovation which is vital if the UK is to compete and prosper internationally in the emerging clean energy markets such as energy services, renewable generation, and smart grids and meters. Efforts to enhance competition in the supply market are hampered by the dominance of the Big 6, however emerging markets offer an opportunity to encourage a more diverse mix of companies.

- **Policymakers should actively encourage a broader ‘ecosystem’ of businesses in emerging energy sectors such as energy services, renewable generation, smart grids and metering. In designing policy, they should consult with a wide range of stakeholders and ensure that new regulations do not entrench the dominance of the Big 6 in new markets. This will help create more efficient and competitive markets for the benefit of consumers while creating the potential for innovation and industrial growth.**

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APPENDICES

Appendix A: Different approaches to estimating suppliers' costs

Our analysis follows the approach taken by Ofgem in looking at the costs of the typical standard tariff and does not attempt to model the suppliers' profitability (Ofgem 2010–2011). NERA's analysis does look at profitability (NERA 2009–2011). There are important differences in the approaches taken.

First, whereas Ofgem uses the same consumption estimates every quarter to enable comparisons, NERA's vary over time based on information provided to them by the suppliers. The most recent quarterly cost analysis undertaken by NERA (October 2011) uses annual consumption estimates that are lower for electricity and higher for gas than Ofgem. NERA has estimated this accounted for 1 per cent of the difference between their estimate and that of Ofgem for electricity, and 3 per cent of the difference for gas and dual-fuel (NERA 2011), with NERA's estimates being 7 per cent, 4 per cent and 5 per cent lower than Ofgem's respectively. We have used Ofgem's cost estimates for those elements primarily affected by consumption levels (wholesale costs, and transmission and distribution) and so could reasonably expect NERA's consumption levels to reduce our estimated profit margins by similar amounts.

Second, like Ofgem, the average bill amount we have used does not take into account fixed-term discounted tariffs offered by the suppliers while NERA's does. This report argues that the excessive online discounting practices engaged in by some suppliers are anti-competitive, reduce competitive pressure in the market, and should be stopped. Some suppliers are choosing to offer tariffs with flat or negative profit margins and we believe including these will disproportionately impact estimates of costs and profitability.

Appendix B: Ofgem's methodology for estimating wholesale energy prices

Ofgem's analysis begins by sourcing data on the price of forward-hedging contracts, suitably tailored to consumer-demand profiles, before applying a risk-management strategy on pricing. Implicit in their analyses is an assumption that the business model for supply requires hedging for the year ahead. This requires an estimate of wholesale costs to be based on the quantity and the shape of domestic gas and electricity loads, including both seasonal summer/winter shape and time of day characteristics. Ofgem data sources on prices and load shape are fully described in their published papers (Ofgem 2010–2011).

Appendix C: Understanding transmission and distribution charges

Transmission charges

The basis for the charging of suppliers is the (estimated) aggregate demand of domestic or other small users served by a supplier in a particular charging period. Suppliers then apportion their share of this cost to their consumers on a per kWh basis.

Transmission charges are regulated by Ofgem, normally on a five-year cycle. The current price control took effect from 1 April 2012. In common with UK regulatory practice generally, price controls are intended to incentivise cost reduction and to be consistent with a reasonable rate of return for the regulated business. They are usually based on an RPI-X approach where X is usually positive and is often referred to as an efficiency factor.

Distribution charges

Distribution charges vary between the different local distribution networks, and reflect the different cost structures of the distribution companies. They also vary according to the voltage level at which the consumer is connected. Typically, 'distribution use of system' (DUOS) charges for household consumers consist of a standing charge and a consumption charge. The consumption charge may consist of more than one unit rate where metering records data for more than one time block (notably the day/night rates under Economy 7).

Distribution charges are regulated through price reviews carried out concurrently for all distribution network operators by Ofgem. There have been two price controls in force during the 2003 to 2008 period. Most recently regulated price increases have been allowed to fund increased investment in electricity distribution networks. Like transmission, the price controls may be complex but are based on the RPI-X incentive-based approach to regulation. DUOS tariffs are published on the websites of the different network operators.

Appendix D: Adopted methodology for estimating metering costs

1. Apply inflation⁴⁴ to Cornwall Energy's 2003 estimates (Unison 2008) to arrive at an estimate for mid-2011/12.

Table D1
Metering costs by
payment type (£)

		Cornwall Energy 2003 estimates	2011/2012 (inflation applied)
Electricity	Per-year per-meter asset provision and management for a credit meter	10	12.15
	Per-year per-meter asset provision and management for a pre-payment meter	30	36.44
Gas	Per-year per-meter asset provision and management for a credit meter	12.50	15.18
	Per-year per-meter asset provision and management for a pre-payment meter	70	85.03
Reading	Per-year meter reading based on two reads	8	9.72

2. Calculate current metering costs by applying inflation-adjusted figures to expected account breakdown.

In 2007, 16 per cent of the customer base were on pre-payment meters (PPM) (Ofgem 2008). We assume this figure is the same in financial year 2011/12. We also assume all meter types, including PPM, require two visits annually (while PPM meters do not need to be read, some do need to be recalibrated as prices change).

The average supplier cost per dual-fuel customer is therefore £61.83 ($£12.15 * 0.84 + £36.44 * 0.16 + £15.18 * 0.84 + £85.03 * 0.16 + £9.72 * 2$).

However, in practice the costs of metering for an individual consumer are expected to be borne wholly by that consumer, and not shared unevenly by a supplier throughout their customer base, therefore PPM customers will pay more and credit meter customers will pay less.

Cornwall Energy's estimates also form the basis of NERA's calculations (NERA 2009–2011).

Appendix E: Adopted methodology for estimating operating costs

1. Estimate operating costs in 2007 based on Ofgem energy supply probe (2008).

⁴⁴ Using GDP price deflator: http://www.hm-treasury.gov.uk/data_gdp_fig.htm

Table E1
Costs to serve dual-fuel customer by payment type, 2007 (£)*

Payment type	Costs to serve	Bad debt	Overheads	Average total costs to serve electricity and gas per customer
Direct debit	54	3	3	60
Standard credit	61	21	4	86
Pre-payment meter	100	22	4	126

Note: Estimates sourced from Ofgem 2008: 89–90.

Our overall estimate of average costs to serve a customer electricity and gas in 2007 is £80.36. This compares favourably with Cornwall Energy Associates estimate of £40 per separate electricity and gas account (Consumer Focus 2010).

Our estimates do not account for cost efficiencies arising from serving dual-fuel customers as opposed to customers on separate accounts or differences between serving gas and electricity. NERA has previously estimated dual-fuel accounts to cost 25 per cent less to serve than separate accounts (NERA 2009–2011).

2. Estimate account breakdown in 2011/12 using evidence in Ofgem energy supply probe (2008). Assumed continuance of trend in direct-debit accounts growing at around 1.5 per cent annually at the expense of standard-credit accounts (Ofgem 2008: 40). Account breakdown assumed as: direct debit 49 per cent; standard credit 34 per cent; pre-payment meter 16 per cent.
3. Calculate costs according to payment type in 2011/12 with different efficiency savings for costs to serve and overheads. No efficiency improvements are modelled for bad debt.

Table E2
Costs to serve in 2011/12 (£)

Payment type	Zero per cent annual efficiency saving		2.5 per cent annual efficiency saving		5 per cent annual efficiency saving	
	Costs to serve	Overheads	Costs to serve	Overheads	Costs to serve	Overheads
Direct debit	59.33	3.30	53.96	3.00	48.96	2.72
Standard credit	67.01	4.39	60.95	4.00	55.30	3.63
Pre-payment meter	109.86	4.39	99.92	4.00	90.66	3.63

Note: All data sourced from energy supply probe.

Lastly the modelled costs with efficiency savings are combined with the projection of accounts to give an average cost per bill.

Appendix F: An analysis of cost reflectivity and loss-leading in suppliers' tariffs

We looked at the difference between the price of tariffs offered by the Big 6 to customers on different payment methods and compared these with Ofgem evidence on how much it costs the suppliers to provide energy to these customers.

We analysed tariffs using the energy price comparison website Energyhelpline.com, which includes all tariffs from each of the main energy suppliers in the UK in addition to a number of smaller suppliers. The analysis was conducted between 5 December 2011

and 9 December 2011. To observe possible regional variations, the analysis was carried out for four localities chosen to represent areas across Great Britain using the following postcodes: London N4, Sheffield S10, Dumfries DG1, and Aberystwyth SY23.

The annual household energy usage inputted into the price comparison tool was 16.6MWh of gas and 4.5MWh of electricity in line with the average household consumption estimates used by DECC (see, for example, DECC 2011a). The prices analysed were dual-fuel tariffs (where a customer takes both electricity and gas from a single supplier) for each of the main energy suppliers. Three tariffs for each supplier were then reviewed: standard-credit tariffs (where a customer pays for the energy they use in arrears), standard direct-debit tariffs and the suppliers' lowest-cost tariffs. We chose not to include pre-payment meter tariffs as they have already been the subject of much attention regarding the fairness of pricing (see, for example, Ofgem 2010). The results are shown in table F1 (over).

Very large price differences (differentials) were found to exist for some suppliers. Across each of the regions, Scottish Power was found to consistently offer the greatest differential between their standard-credit and cheapest tariff. The difference was greatest in Sheffield at £339 and second greatest in London at £333. Npower had the second largest differential at up to £315. British Gas, SSE and EDF all offered much smaller differentials of up to £126, £100 and £86 respectively. The average differential across the suppliers between the standard-credit and cheapest tariffs was £192.

Scottish Power was also found to offer the largest differential between their standard-credit and direct-debit tariff at up to £209. E.ON was found to offer the second biggest differential of up to £119, while those of the remaining suppliers ranged from £67 to £95. The average differential was £106 across all of the suppliers.

In 2008, Ofgem calculated the difference in costs to suppliers of the different payment methods. Standard-credit accounts, where customers generally pay quarterly in arrears, cost £37 more than direct-debit accounts, where customers generally pay in advance, mainly due to the costs of bad debt and working capital. The costs to suppliers of online accounts were £10 less than standard-credit or direct-debit accounts due to lower billing and metering costs.

We conclude that the tariff differentials identified by our analysis do not reflect suppliers' costs. We note that the tariff differentials offered by some of the suppliers were much lower than others.

Table F1

The price of tariffs compared to standard-credit tariffs offered by the UK's main energy suppliers in December 2011 (£)

		British Gas	EDF	E.ON	Npower	Scottish Power	SSE
London	Direct debit	67	83	117	94	202	75
	Cheapest rate	125	83	219	315	333	99
Sheffield	Direct debit	67	84	115	95	209	74
	Cheapest rate	124	84	192	304	339	98
Dumfries	Direct debit	67	84	114	95	196	73
	Cheapest rate	125	84	229	288	330	95
Aberystwyth	Direct debit	67	86	119	95	195	75
	Cheapest rate	126	86	209	294	332	100