

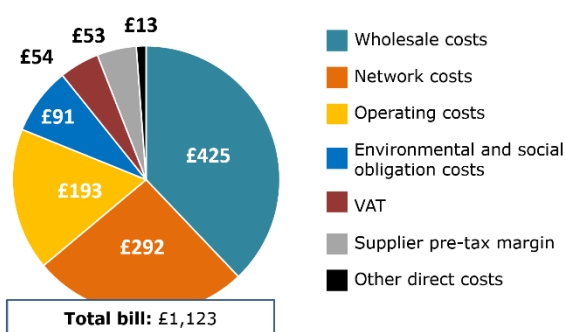
## Joe Perkins speech at the State of the Market Report launch event 31<sup>st</sup> 2017

### Part 1 – introduction

- Thank you Dermot. I’d like to start by adding my own thanks to everyone involved with the development and production of the report.
- As you can imagine, this was a collaborative effort across Ofgem and a number of other organisations, and I’m proud of what we’ve achieved.
- I think the radical transformation of the energy system, in the UK and globally, is one of the most exciting things we’ve seen over the last decade. We’re seeing major changes to the structure of the retail market and increases in renewable generation beyond any expectations just a few years ago.
- The energy system is also going to keep changing in the future, perhaps even more profoundly. Electric Vehicles, Smart Meters and Battery Storage are just three examples of changes with the potential to disrupt the industry.
- Now, I know you’ll all be keen to get on and read your hard copies, but before you do, I’m going to summarise what you’ll find inside.
- Half an hour isn’t enough time to do justice to all of the information and analysis, so necessarily I won’t cover absolutely everything in detail, but I’ll give a flavour of the main findings and analysis.

- But first, why should you care about all of this? And why should we spend our time preparing an assessment of the State of the Market?
- Fundamentally, it’s because everything I’m going to cover relates back to a component of our bills. The wholesale market, the retail market and actions to drive decarbonisation and security of supply are all ultimately paid for by consumers - households, businesses, charities and public bodies.
- However, while bills are important, they aren’t the only measure of success for the energy market.
- Energy is an essential service, key to every aspect of modern life.
- Ofgem’s consumer outcomes reflect this. We balance our aim for lower bills with reliability and safety, quality of service and reduced environmental damage.

Costs that make up an average 2016 domestic dual-fuel bill



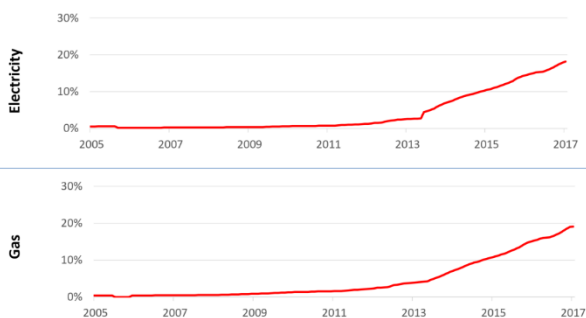
- I should say at this point, that the State of the Market Report doesn't cover electricity and gas networks, so I won't talk about that.
- As you know, network companies are regulated monopolies and so that part of the market works very differently from wholesale and retail. If you're interested in our work on networks then our website is a good place to start.
- Here's a sneak preview of the key messages, which I'll come back to later.
- I'll speak to each section of the report, but I want to keep bringing it back to the impact that each area has for consumers, including on their bills.

1. **Retail markets:** show a two-tier structure, with some consumers getting good deals, but others are left behind.
2. **Wholesale markets:** are competitive and working well, although there is room for improvement.
3. **Decarbonisation:** strong reductions in emissions from the electricity sector although sometimes delivered at a high cost.
4. **Security of supply:** our energy is secure and resilient, although we may pay more than necessary.
5. **Affordability and vulnerability:** prices have fallen, although they are still a worry for consumers, particularly those in vulnerable circumstances.

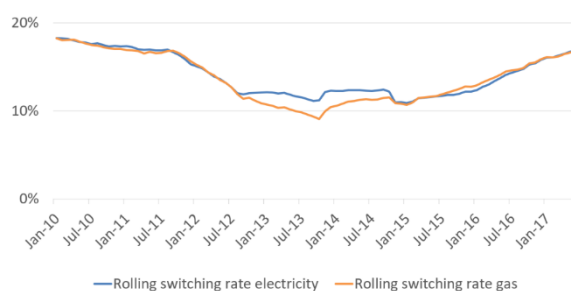
### Part 2 – retail markets

- So first, retail markets. Retail suppliers' operating costs and profit margins account for over 20% of the average bill, or about £250. These have been rising since the start of the decade.
- Retail markets are clearly the most contentious issue in the energy sector at the moment, and one where we're doing a lot of work.
- Dermot recently set out the major changes coming for the retail market, including our role supporting Government's plans for a price cap.
- However, when we look at the structure of the market, there are some important reasons for optimism.

Electricity and gas market share evolution – small and medium suppliers



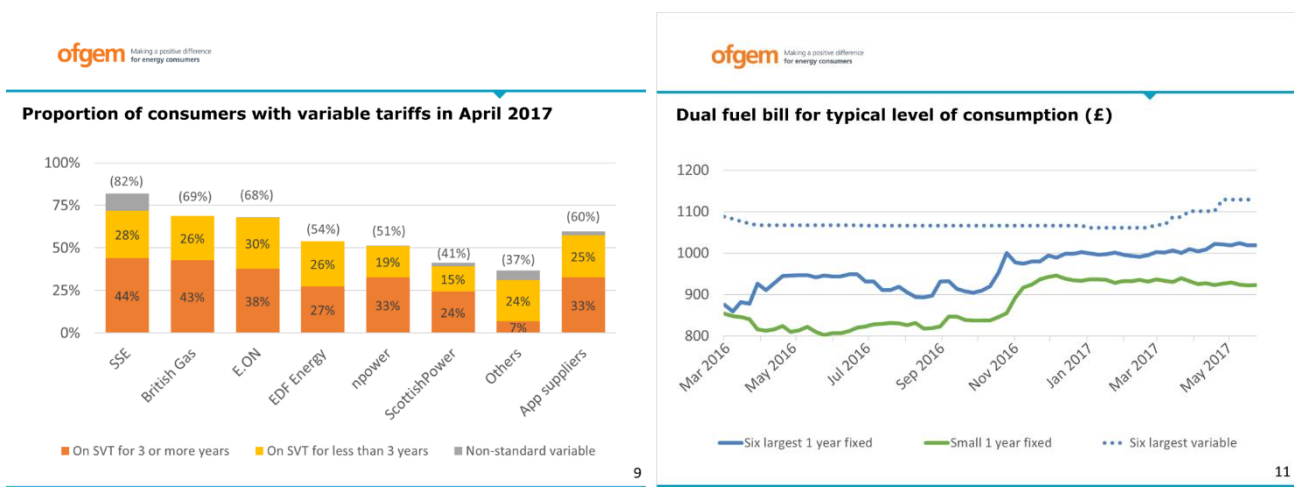
Proportion of consumers switching in the previous 12 months



- As this chart shows, domestic switching rates are rising, up to almost 17% for both electricity and gas in the latest figures, this is the highest rate since 2011.
- This suggests rising consumer engagement in the market, which the findings of our consumer surveys back up.
- Linked to this, the domestic market shares of small and medium suppliers is rising quickly, from near zero in 2010 to almost 20% in 2017 for both electricity and gas. This is quite a major transformation for the market.

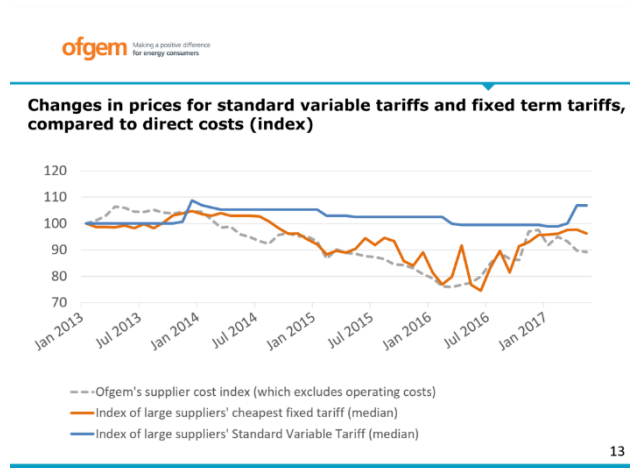
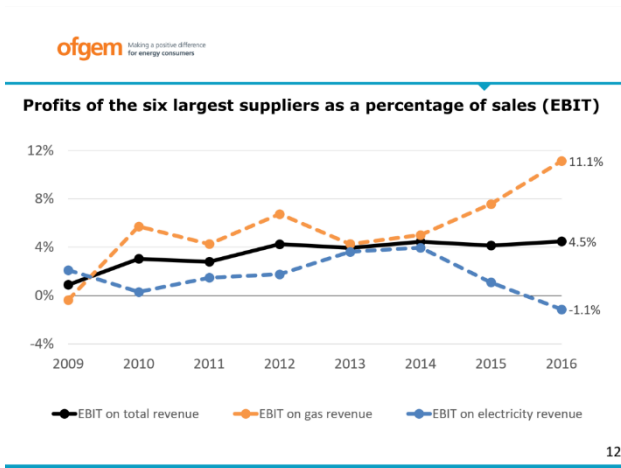
- There are now around 50 suppliers offering both gas and electricity to domestic consumers, and around 60 once you factor in those that supply only electricity or only gas.
- Even when we had higher switching back in 2011, it was still mainly between the Large 6. Now we see new and perhaps more innovative suppliers entering the market.
- All of this is pretty encouraging, although we still need to tackle some of the barriers and risks of switching, such as erroneous transfers and delayed switches.

- Less positively, one of the things our report highlights is that the two-tier market in retail has become more pronounced. Some customers get better deals by shopping around, but others are left behind.
- A large proportion of customers are still on variable tariffs, and many have been on one for a long time.
- As the slide shows, SSE have 82% of their customers on variable tariffs. Overall, about 60% of customers are still on these poor-value deals.



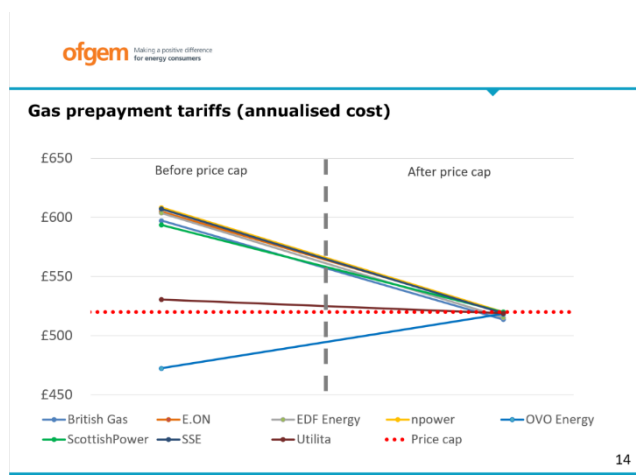
- This slide shows the large difference between the average fixed tariff and the average variable tariff. Based on the figures, consumers with the large six suppliers missed out on £116 of savings, or around 10% of their bill by remaining on a default tariff rather than switching to a fixed term tariff.
- In fact, consumers could save even more by switching away from the Large 6 suppliers to the cheapest available tariffs in the market, which could save almost £100 more, as the green line for smaller suppliers on the chart shows.
- The differential between fixed and variable tariffs has also risen over the last five years.
- There is a similar story if you look at prices within small or medium suppliers, comparing their Standard Variable tariffs with the fixed deals they offer.
- Non-domestic consumers are in a similar position, where the average electricity prices can be 50% higher for small businesses as for the largest consumers, and gas can be twice as expensive.
- There is some difference in the cost to serve these different types of consumers, but levels of competition and engagement also play a role in the difference.
- The profit margins large retail suppliers make are rising, shown by the black line on the slide. The increase has carried on since the start of this decade.
- However, one piece of good news, depending on your perspective, is that profit in absolute terms is falling for the Large 6 suppliers, as they lose customers. While some of the increased margin is down to cost efficiencies, the level of engagement plays a role too.
- Our analysis in the State of the Market Report indicates that suppliers make higher profits on customers who pay a standard variable tariff than on customers with cheaper fixed tariffs, as you'd expect.

- In fact, we estimate that if SVTs were reduced so that they provided the same gross profit margin as fixed tariffs, then suppliers would have made a 6% loss, unless they could significantly reduce their operating costs.
- This slide illustrates the difference. Notice how the orange line representing the index of large suppliers' cheapest fixed tariffs follows changes to the dotted line of the cost index fairly closely.
- The blue line of Standard Variable Tariffs doesn't follow costs in the same way.



- This relationship suggests that vigorous competition for engaged consumers has kept competitive pressure on fixed term tariffs so that they track costs. Customers on standard variable tariffs miss out on this.
- *We clearly need to deal with this issue, and we will continue to work on it.*

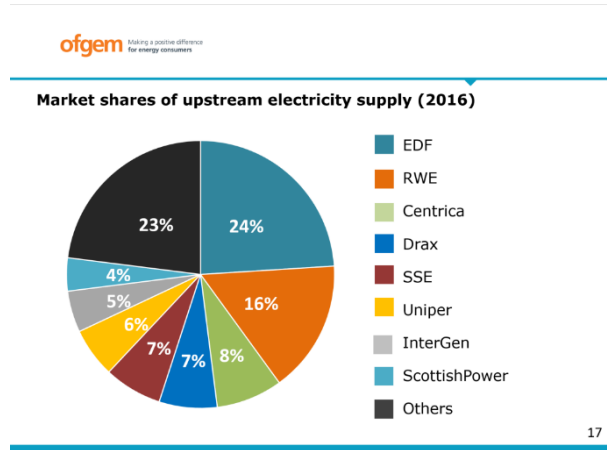
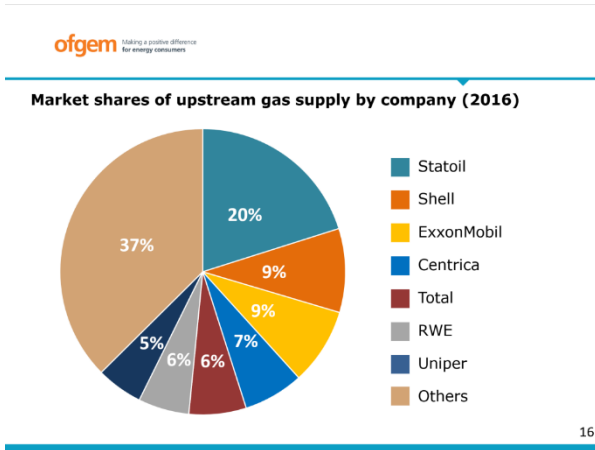
- One other encouraging area in 2017 is the prepayment meter price cap, which Ofgem imposed in April, following the CMA's recommendation.
- Similar to customers on Standard Variable Tariffs, prepayment customers typically pay a higher price than those who have a fixed direct debit tariff. They don't have access to the same range of tariffs as those using other payment methods, particularly cheap fixed tariffs.
- As a result of the PPM price cap, the market average price for a dual fuel prepayment customer fell by around £60.
- In fact, in a reversal of the previous trend, PPM customers now pay less per unit of electricity than most SVT consumers.
- There is also convergence between PPM tariffs. As this chart shows, for gas, PPM tariffs across different suppliers before the cap were quite dispersed. These have now largely converged on the level of the cap.



- I won't show you the same chart for electricity, but it shows a similar trend.
- In summary there are some positive signs, such as increasing levels of engagement and falls in PPM prices, but we, and other actors in the industry, still need to do more to protect those left out by the two-tier market, and make sure all customers reap the benefits of competition.
- As Dermot said two weeks ago at the Energy UK conference – change is coming to this market.

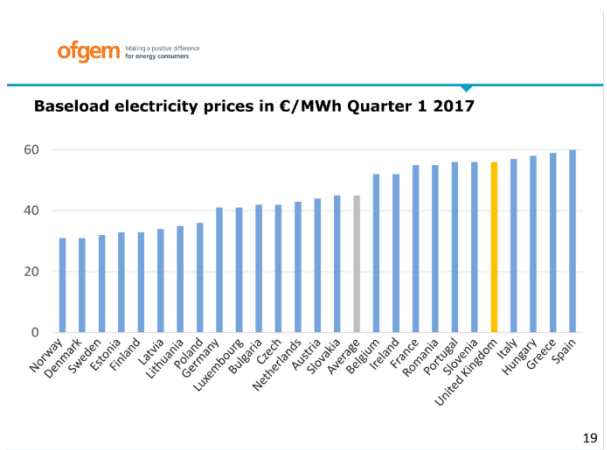
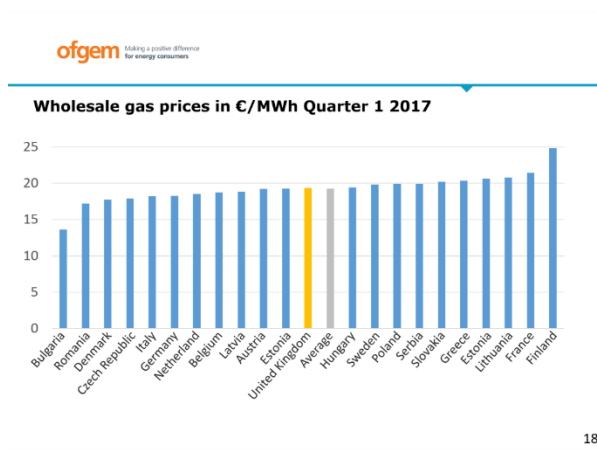
**Part 2 – wholesale markets**

- Moving on from retail, I'll now cover our analysis of wholesale markets.
- Wholesale costs make up the largest single element of a bill, around 38% of the total, or £425 per year. However, in absolute terms its contribution has fallen by about 30% over the last five years.
- Most of this is down to global commodity prices, but we also benefit from competitive wholesale gas and electricity markets.



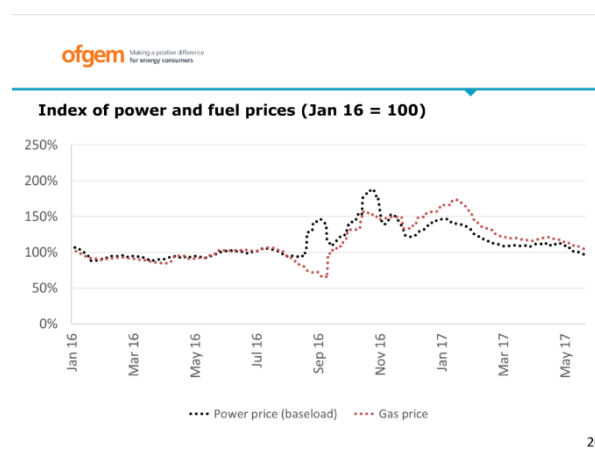
- This slide shows that there are a large number of gas producers, and in general, individual producers do not have market power.
- Wholesale electricity markets tell a similar story, if not quite so positive. There are 149 firms with a license to generate electricity in Great Britain, and four approved interconnectors to France, the Netherlands, Northern Ireland and the Republic of Ireland.
- There are also a huge number of smaller generators, I expect many of you here will have solar cells on your roof, or a domestic wind turbine. You're all adding to the diversity of the generation mix.
- The level of market concentration is falling for generation, and the total installed capacity is rising while demand remains broadly level. For comparison, we're also less concentrated than most other European markets.

- What does this all mean in terms of outcomes in the market?
- As of the first quarter of this year, our gas prices were around 19 euros 30 per MWh, which is the same as the European average. As the slide shows, we're not the most expensive in Europe, nor are we one of the cheapest.
- More worryingly, our wholesale electricity prices were one of the highest in the European Union during 2016 and 2017.



- In the first quarter of this year, we paid on average 56 euros per MWh of baseload power, compared to the European average of 45 euros.
- For electricity, we're significantly more expensive than some of the other European countries.
- How can I say this at the same time as my overall message that the wholesale market is working well?
- This is substantially due to policy factors, including UK carbon price support and network charges, which GB generators bear unlike most continental counterparts.
- For example, we estimate carbon price support may have added £13/MWh to wholesale prices, and balancing charges add around £2.50. Other countries choose to add these costs to retail prices, and if you look at retail prices to consumers, the UK is in a much better position.
- Therefore, we shouldn't take the relatively high prices as an indication that our wholesale market isn't working well.
- Increased interconnection should also encourage our prices to converge with Europe in the future.
- In addition, the price alone doesn't tell us how well wholesale markets in the UK are working, we can look at other indicators. The State of the Market Report covers several of these, such as bid-offer spreads and churn ratios.
- I'd like to pick out just one of these to talk about, which is the way the electricity price follows the gas price.

- Gas plants are generally the marginal generators, who ramp up or down to meet demand. Therefore, they usually set the price. If gas prices fall, fuel costs for gas plants fall, so competition should put downward pressure on electricity prices.
- As you can see from the graph, there is a strong correlation between electricity prices and gas prices.
- In fact, the correlation coefficient between day ahead gas and power prices is 0.76. For context, a coefficient of 1 would mean a perfect linear relationship between the two, so 0.76 indicates a strong correlation.

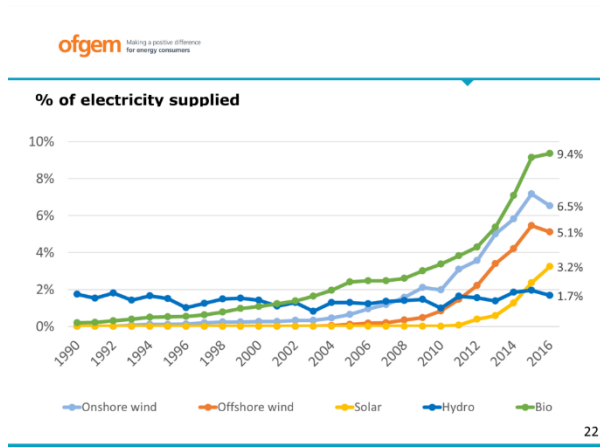


- Although this doesn't prove that the market is competitive, it is a healthy sign.
- Similarly, when we look at the profits of large electricity generators, our assessment agreed with the CMA's findings that the level of profit is not excessive.
- Average margins for the six largest generators were 11% in 2016, 5% lower than the average of the last eight years, consistent with competition applying downward pressure on price.
- Overall, our analysis points towards a well-functioning, wholesale market for both gas and electricity. But there are some areas for improvement, such as interconnection.

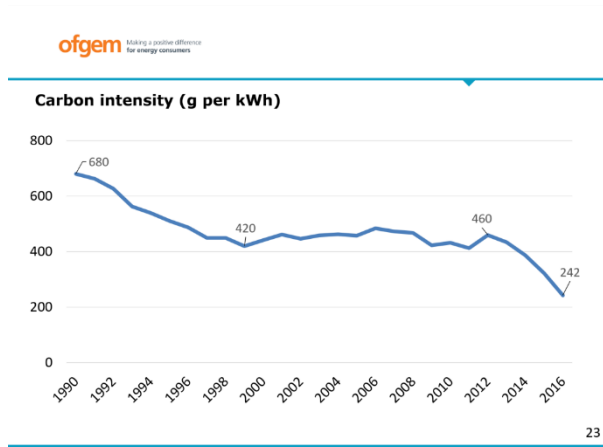
#### Part 4 – decarbonisation

- I'll move on now to decarbonisation – the costs on bills for decarbonisation policies are about £90 a year.
- This is a success story, we're well on our way to achieving the challenging targets set for emissions reduction.
- Since the 2008 Climate Change Act, over half the reduction in the UK's greenhouse gas emissions has come from a cleaner electricity system.
- While some of this results from changes to the amount of power produced and consumed, the way we produce electricity has also profoundly changed.
- If you look back to the 90s or even early 2000s, renewable generation was fairly marginal.
- Renewables now generate a significant chunk of our electricity. The highest proportion of this comes from Biomass, shown by the green line on the graph.

- Onshore and offshore wind and solar have also increased sharply, represented by the other lines on the graph. Hydro hasn't increased by as much,



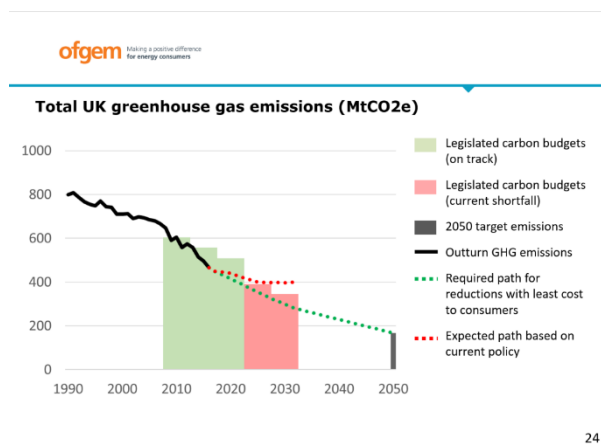
22



23

- Nuclear power also consistently provides about 20% of our electricity.
- Add these together, and low-carbon sources of power now contribute 45% of electricity generation. There's a decent chance this will rise above 50% in the coming years.
- Alongside this, Coal plants, which are one of the most polluting technologies, have fallen from 40% of electricity generation in 2012, to just 9% in 2016.
- All of this is reflected in the average carbon intensity of our electricity, which has dramatically fallen. In terms of grams of carbon dioxide per kilowatt-hour, each unit of electricity is now two thirds cleaner than in 1990, the baseline year for our carbon reduction targets.

- You can see two big reductions on the timeline. The first was during the 'dash for gas' in the 1990s, and there's a second similar reduction recently, as renewables grew and coal came off the system.
- As this chart illustrates, the UK is on track to meet its first three carbon budgets, which cap the amount of greenhouse gases the UK can emit.
- However, the expected path for emissions based on current policy, shown by the red dotted line, only meets our legislated carbon budgets up to 2022.



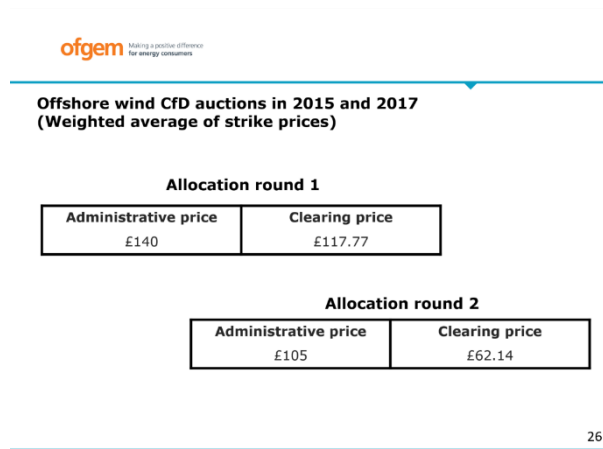
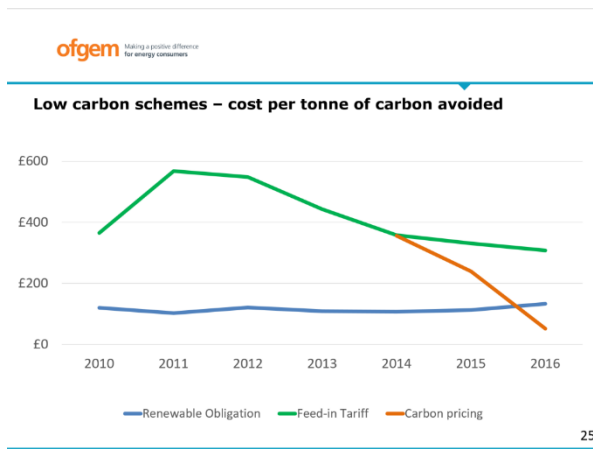
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- After this point, we will need further policies will be needed to achieve the required reductions. The Government's recently published Clean Growth Strategy sets out proposals for the 2020s in this area.

- From our perspective, two big areas which could contribute to these reductions are the decarbonisation of transport and heat, which are closely related to electricity and gas markets.
- Transport was the most polluting sector in the economy in 2016. In fact, emissions from transport are still very close to 1990 levels.
- Electric vehicles are one part of the solution to this problem. Over 100,000 plug-in vehicles are now licensed in the UK.
- This is small compared to the total of 38 million vehicles on the roads, but the uptake of electric cars is accelerating.
- In heat, which has seen around a 15% reduction in emissions since 1990, there are two main ways to reduce emissions.
- The first is to make energy efficiency improvements to buildings, such as insulation and more efficient boilers.

- This has been the source of most reductions so far.
- Last year, more than two thirds of households with lofts had loft insulation, and a similar proportion of households with cavity walls had cavity wall insulation.
- However, progress in improving efficiency has slowed. Emissions from heating buildings were higher in 2016 than in 2014, even after adjusting for mild winters. Fewer homes are having insulation installed, so clearly further action is needed here.
- The second route to reducing emissions from heat is to decarbonise the fuel used to heat buildings.
- At the moment, 82% of households use gas for heating, 6% use electricity and 7% use oil.
- In 2010, government expected renewables could supply 12% of heating by 2020. Currently it is only 4%, so progress is slower than anticipated.

- I'll move on to how much this is costing now. The progress we've made reducing emissions relies on financial support in the form of subsidies and also on Carbon pricing.
- But this hasn't come cheap.
- Returning to my theme for this presentation, there's only one group who ultimately pays for them, which is consumers.
- Overall, the gross cost of low carbon policies was over 7 billion pounds last year. This isn't small change, and it means that it is vitally important to get the best possible deal for consumers from the process.
- As you can see from the chart, the cost per tonne of carbon avoided ranges from about £100 per tonne for carbon pricing, all the way up to almost £600 for feed in tariffs.



- One of the encouraging findings of our report is that competition is dramatically reducing the cost of low carbon generation for consumers.
- Using offshore wind as an example, you can see that for both auctions – the administratively set strike price is much higher than the outcome of competitive auctions later.
- The savings available when competition was used in the first auction were about £20 per MWh, and about £40 in the second. Most recently, we've seen offshore wind projects bidding for support at under £60 per MWh – which is way below any predictions even a year ago.
- This shows there is the potential to achieve decarbonisation of energy at a relatively low cost to consumers.
- But I would say that the flipside to this is that, when competition isn't used, consumers don't get such a good deal.
- In fact, the CMA estimated on the basis of one of the allocation rounds for support without competition that consumers are paying up to 300 million pounds more per year than necessary.



- Overall, this is a success story, but the increased scale of low-carbon generation in coming years means that we need to make sure competition is used to get the best possible deal for consumers.

### Part 3 – security of supply

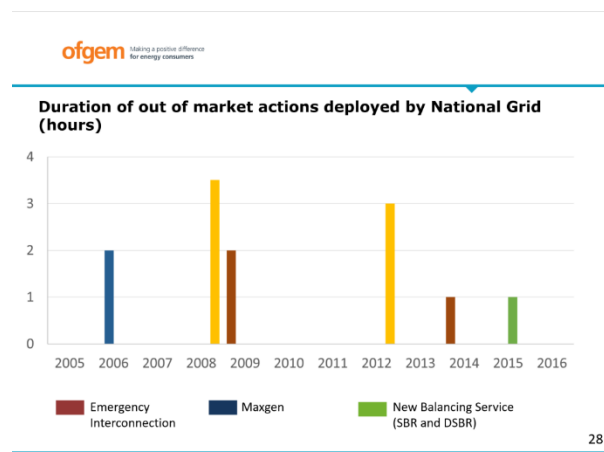
- I'll now speak on security of supply, which concerns whether or not we have enough electricity and gas available to meet demand.
- It's vital that consumers and businesses are confident they can heat and power their homes and commercial premises when needed.
- This requires the energy system to operate efficiently and to be resilient to demand and supply shocks.
- Security of Supply doesn't directly relate to one of the particular segments of the breakdown of a bill. But, the costs of secure capacity find their way back to bills in several ways.
- The transition to clean energy presents challenges for ensuring secure supplies, since an increasing proportion of our electricity comes from inflexible sources. You can't just switch a wind turbine or a solar cell on and off when you need electricity.

- Overall, this area is another success story, secure energy supplies have been maintained without resorting to contingency measures.

- Focussing on electricity, the capacity margin, or difference between the amount of electricity demand and amount available was not as tight as forecast in 2016, indicating that there was adequate generation capacity available.

- National Grid can use 'out of market' measures to balance the system if the demand and supply provided by the market do not match each other, in particular, if there is a supply shortage in the winter.

- As you can see from the chart, these actions are quite rare.



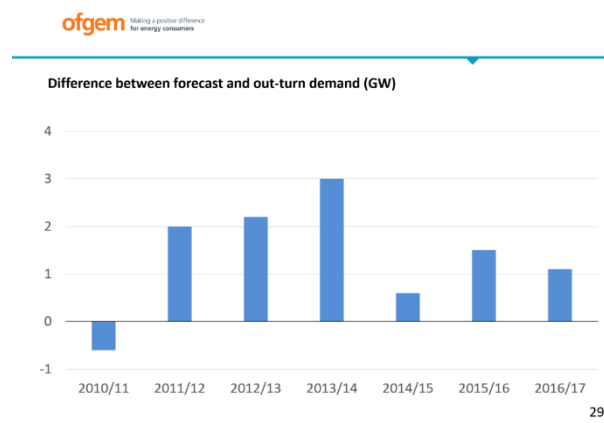
- In fact, in 6 of the last 12 years there weren't any actions at all. So, the market balances itself most of the time.
- Wholesale market prices encourage this balancing, since the price of power rises when margins are tight, encouraging more generators to provide electricity. The reverse is true when there is excess capacity.
- There is a similar story in the gas market, where actions from National Grid to balance the gas system are falling, and they have never needed to deploy emergency balancing measures.

- Government also has a role in supporting security of supply. One of the ways it now does this is through the capacity market.

- The capacity market provides a payment to generators who commit to availability during the winter peak, providing an extra source of revenue for them, and extra security for consumers.

- Four auctions have now been held, for capacity starting from this winter.

- One thing I'd like to highlight is that the amount of capacity bought in the auctions, and the cost of this for consumers depends on National Grid's forecasting of demand.

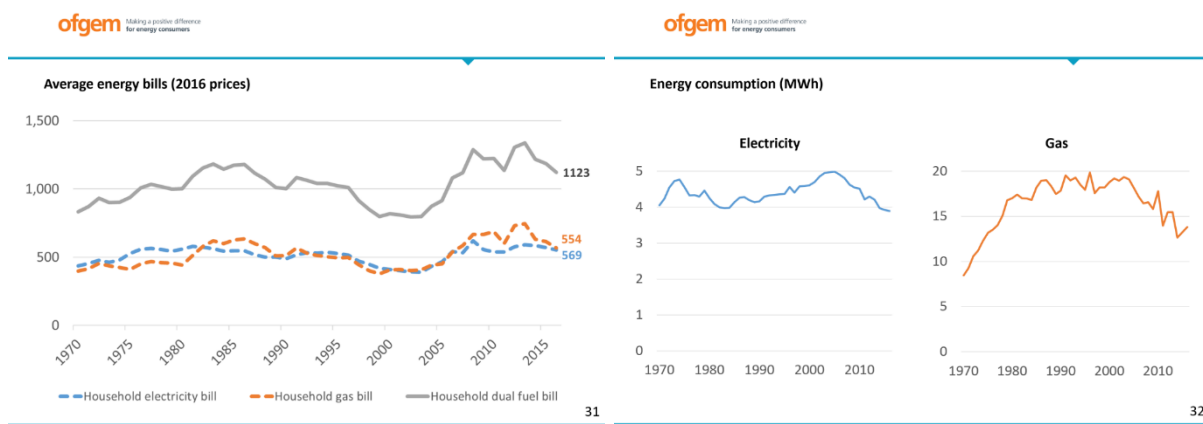


- As you can see from this slide, the forecast has actually been 1 or 2GW higher than actual demand since 2011.

- It's not easy to make forecasts, and I'm not trying to apportion blame.
- However, there is a risk that consumers are paying for more capacity than we need. Given that the gross costs of the capacity market are around one billion pounds each year, this is something we, Government and National Grid will need to monitor closely.
- We are incentivising National Grid to improve its forecasting to bring it closer to actual demand.
- In a similar vein, relating to the points I made earlier about system balancing, National Grid's cost relating to balancing were over a billion pounds in 2016, which was around a third higher than the year before.
- The capacity market should help to mitigate some of the difficulty and we should see balancing costs fall.
- However, our system now performs well above the reliability standards government set, based on value for money.
- This suggests we could be paying more than is necessary to maintain security of supply.
- Now, I don't want to suggest we should let the lights go out to penny-pinch, but we should at least be thinking in terms of value for money for consumers when considering how to approach security of supply.
- This is something we'll come back to in future State of the Market Reports.

### Part 6 – affordability and vulnerability

- Finally, I'd like to bring everything back together by talking about bills overall, affordability, and then zoom in on consumers in vulnerable circumstances, who we have a special obligation to protect.
- The average household's dual fuel bill was £1,123 in 2016.
- This represents a fall since the last peak four years ago, but is still relatively high by historical standards. The same trend emerges for separate gas and electricity bills.

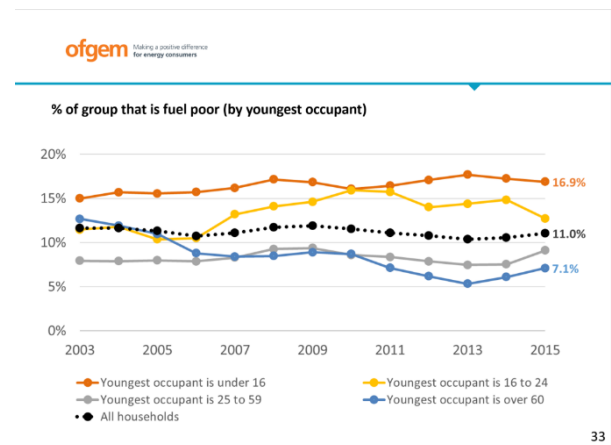


- There was a period in the 1980s where bills were at similar levels to now, but most of the time they were lower in real terms.
- Consistent with this, 30% of consumers reported that they are worried about paying their energy bills in our recent survey.
- Although this is around half the proportion who were worried in 2013, it still represents a significant proportion of households.
- Digging into these numbers, there are different factors at play. One is changes in price per unit of electricity or gas, as I discussed earlier. However, the level of consumption also affects the total bill.
- Households use around 20% less energy than 10 years ago, which helps reduce their bills.
- Encouragingly, a lot of this can be put down to efficiency improvements, such as installing insulation or more efficient boilers.

- On the other hand, we are concerned that some of the reduction in average consumption is because consumers who are less able to make energy efficiency improvements have self-rationed their gas consumption in response to price increases.
- Analysis by the Department for Business, Energy and Industrial Strategy estimates that consumers responding to higher prices could explain just over a third of the reduction in gas consumption.
- Once you break this figure down by demographics, it highlights that self-rationing is a particular risk for low-income consumers.

• This brings me on to my final section, on vulnerability.

- Focussing first on England, the overall level of fuel poverty, represented by the black line on the chart remains stable at around 11 or 12%.
- Wales and Scotland have falling fuel poverty rates, albeit using different definitions and from a higher base.
- One of the things we've been able to do with the State of the Market Report is drill down into the demographics behind this, which consumers are more likely to suffer from fuel poverty and what can we do about it?



- For example, in England, Households with children under 16 have had consistently high rates of fuel poverty, shown by the orange line on the slide. Also, the proportion has risen from 15% to almost 17%.
- Older consumers, the blue line, are now the least likely group of consumers to experience fuel poverty, in contrast to the figures from earlier in the 2000s, when they were one of the groups most likely to be in fuel poverty.

- In fact, a number of the measures we looked at for the report highlighted ways younger, particularly urban, consumers lose out.
- For example, a higher proportion of young households have prepayment meters than older consumers.
- Electric heating is also more common in young households than it is for consumers in general.
- Now, I don't want to suggest that fewer pensioners in fuel poverty is a bad thing! In fact, the policies in place to protect older consumers have been very successful.

Policy	Eligible	Payment to individuals
Winter Fuel Payment	All pensioners	£100 - £300
Warm Home Discount: Core Group	Low-income pensioners	£140
Warm Home Discount: broader group	Consumers on a low income and vulnerable to fuel poverty	£140
Cold Weather Payment	4.1 million benefits claimants	£25 for each cold week of weather

- Adding up different schemes such as the Winter Fuel Payment and Warm Homes Discount, low-income pensioner on Pension Credit could receive up to 440 pounds of support per year, depending on their age.
- It's right that we continue to protect older consumers in vulnerable circumstances, for example through our safeguard tariff for those eligible for the Warm Homes Discount, which takes effect this Winter.
- However, we will also need to bear in mind the need to protect other groups of vulnerable consumers. Our PPM price cap is one way we've started to address this, but we're also looking to extend that safeguard tariff more widely.

## Part 7- Conclusion

- I'll wrap up now. You can see the overall messages there across the areas we've looked at.
- But in summary, I'd say that our report highlights two things.
- First, some areas are significant causes for concern. The two-tier nature of the retail market, and particularly the risks faced by vulnerable consumers are clear reasons why we can't be complacent.
- We need to do more, so does government, and so do other players in the industry, to stop some consumers being left behind.
- However, there are some other success stories, such as in wholesale markets overall, and in the dramatic progress towards decarbonisation.
- I'd like to reiterate my thanks for all of the work that went into the report, and to all of you for attending today.
- Once we're finished, we can continue the discussion using the hashtag energymarket.

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- 3. Decarbonisation:** strong reductions in emissions from the electricity sector although sometimes delivered at a high cost.
- 4. Security of supply:** our energy is secure and resilient, although we may pay more than necessary.
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