



Making a positive difference
for energy consumers

David Gray Speech at Utility Week Congress 11th October 2017

Energy system transformation or revolution?

Good morning, and thank you for the invitation to speak to you today.

The theme of my presentation is the future and its uncertainty, or rather, its unpredictability. It was Winston Churchill who quipped:

"I always avoid prophesying beforehand because it is much better to prophesy after the event has already taken place."

Taking that advice on board, I'll start by looking back over three fundamental changes we've seen in the energy sector over the last decade.

I'll then identify some of the areas I think will lead to major changes in the future, but where the precise implications are unpredictable.

Lastly, I'll touch on what we're doing as a regulator, given we have to work within this unpredictable world.

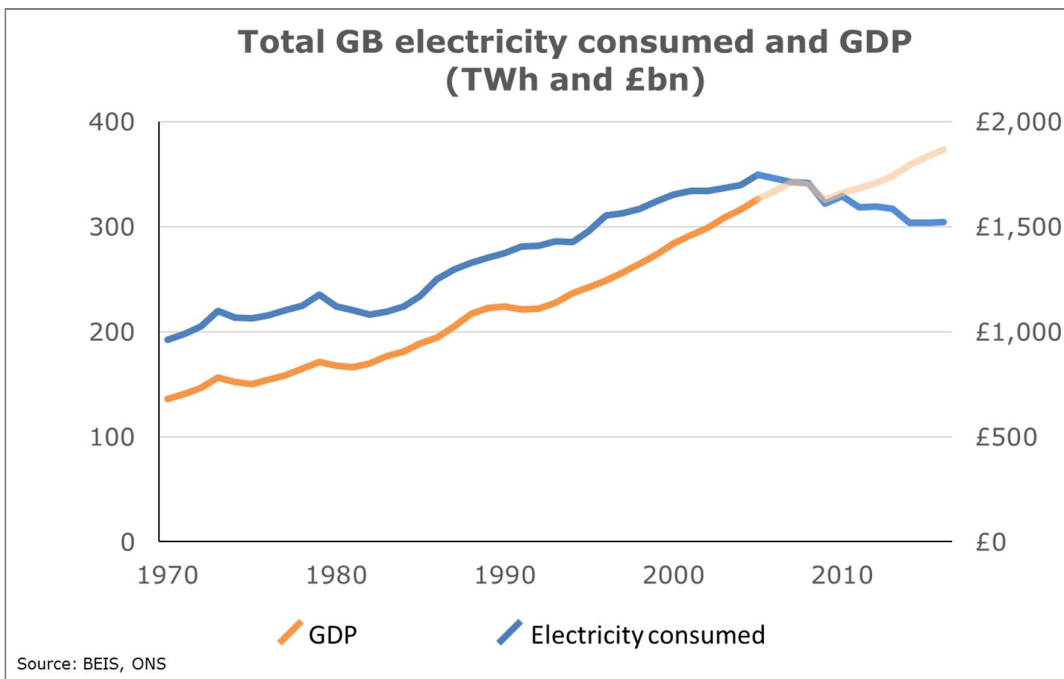
Although I will refer mainly to electricity, much of what I will speak about relates to gas as well.

Part I – a bit of hindsight

We've always had to deal with some uncertainty in the energy market. Particularly in relation to wholesale price volatility.

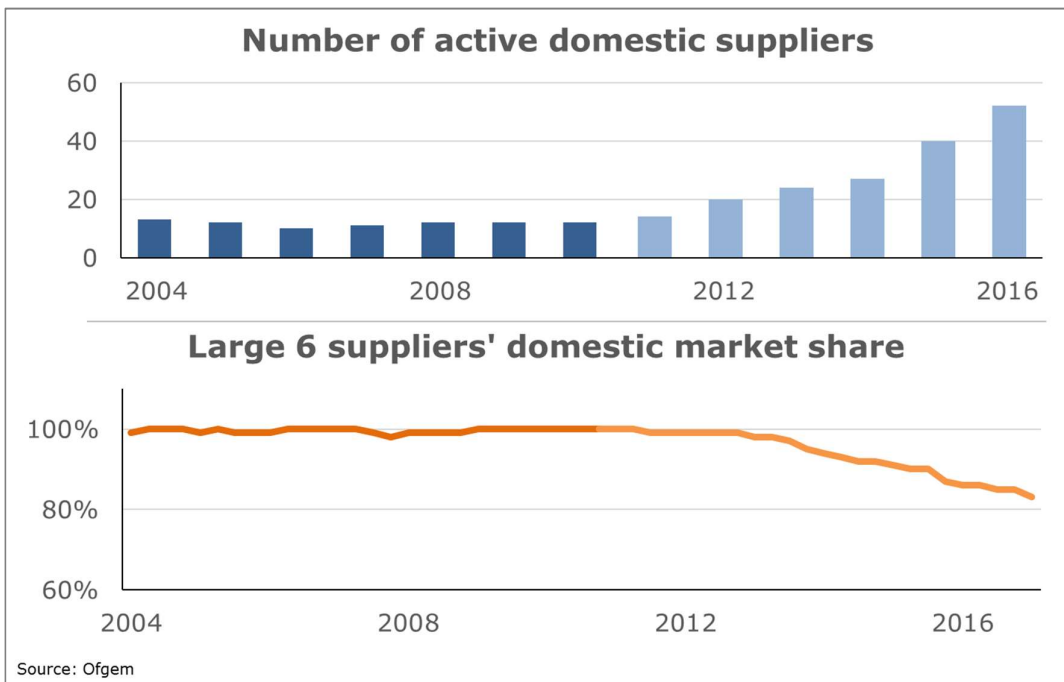
However, it is clear the energy sector is now transforming. We've seen substantial change over the last 10 years - and at an increasing pace.

Perhaps most obviously, the shape of the sector has changed. In the past, we were used to a world in which energy demand rose steadily – closely linked to GDP growth.



By way of example, you can see up until around 2005, GDP and electricity consumption rose together.

Later, give or take one financial crisis, GDP continued to grow, so we might have expected electricity consumption to grow as well. But, I think you can tell where I'm going by now...the opposite happened. Electricity consumption has fallen since 2010, and is back around the same level as the mid 90s.



Similarly, we were used to the vast majority of consumers buying from the large 6 suppliers, perhaps with a few small players around the edges.

Using domestic consumers as an example, you can see that, for a long time, there were only the large 6 and around 5 small suppliers, and the large 6 had close to 100% of the market.

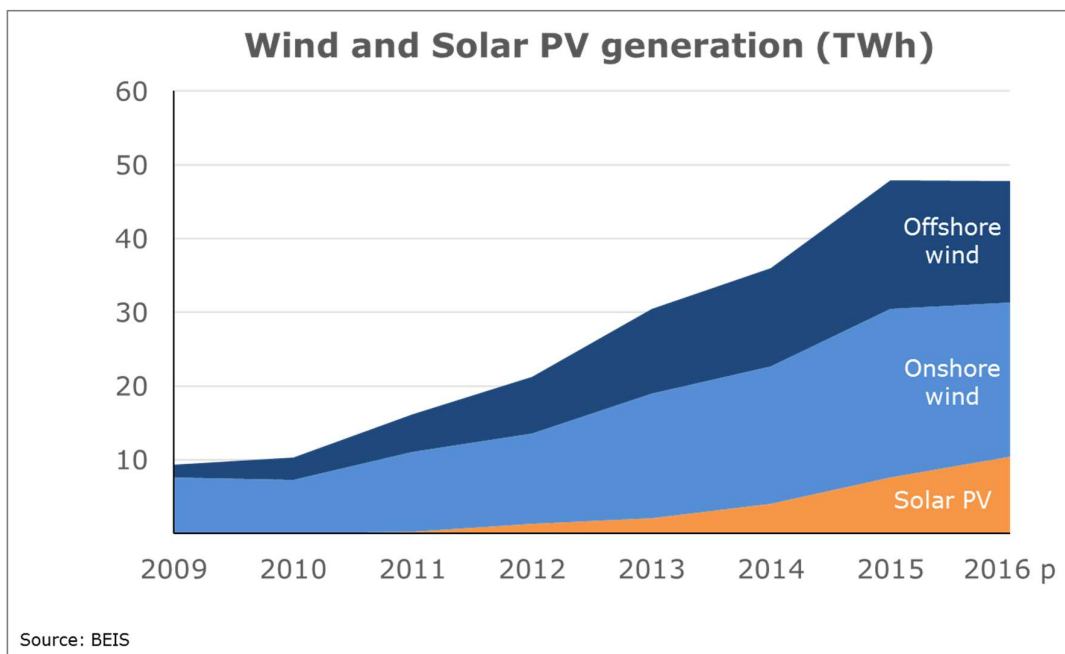
We might well have thought that was a feature of the market, which we just had to work with ...

In fact the number of suppliers entering the market accelerated quickly, and there are now over 50 domestic suppliers, and a similar number for the non-domestic side of the market.

The large 6 still have a substantial share of the market, but we're up to about 18% of domestic consumers who have switched to small or medium sized competitors.

So, there's genuine choice in the market now. Price Comparison Websites and other intermediaries give consumers new ways to engage, and reduce the cost and effort involved.

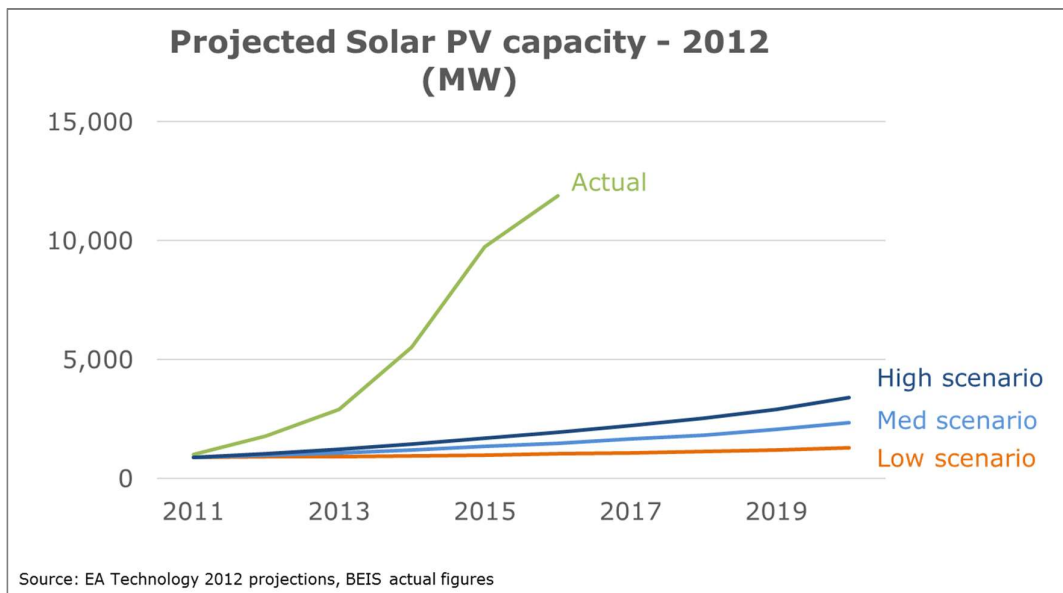
Thirdly, and perhaps most significantly, the growth of renewable electricity has exceeded all expectations.



This started slowly, but has now reached almost 25% of electricity generation – beyond what most in the sector would have thought possible.

This shows just how far we have come since the start of this decade. Incidentally, the slight flattening in 2016 is down to unfavourable weather conditions rather than any slowdown in deployment, so we'd expect it to pick up again.

We didn't exactly forecast this....



As recently as 2013, we thought that even in a high scenario, we'd have around 2 GW of Solar PV capacity installed in Great Britain by 2016.

These were the forecasts we used during development of the current electricity price controls...

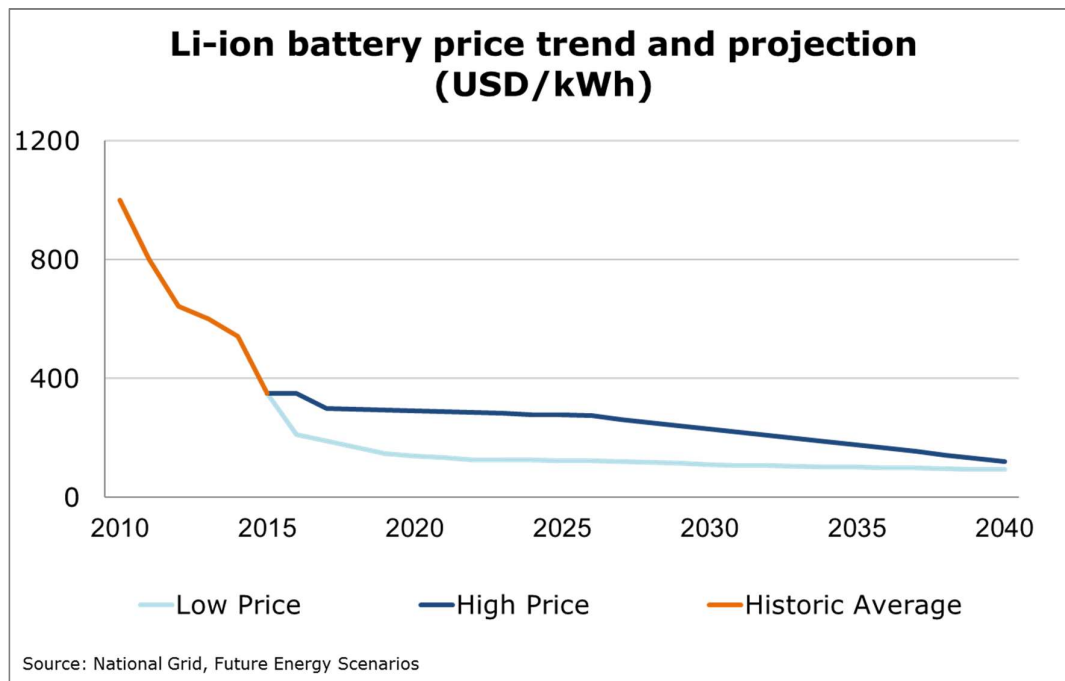
In practice it's turned out to be about 6 times higher than that.

We've also seen the cost of renewables outperform expectations.

Take large scale solar as an example. In a period of just 3 years the estimate of costs has significantly fallen, with even near-term deployment cost estimates falling by about a quarter.

I could make similar cost comparisons for other renewables. The CfD auction results from September made for interesting reading, with offshore wind projects delivering for strike prices of £74.75 and £57.50 per MWh, both at the very low end of expectations. These are a far cry from over £110 in the first auction round, and administrative strike prices around £140.

New technologies such as battery storage aren't as established, but we're starting to see impressive cost reductions there as well...



The reduction in battery storage costs, running at 15-20% each year could be as significant as the impact of renewables, if not more so.

I think we'd be unwise to assume the next technological disruptors won't have a similar or even greater impact than wind and solar.

Another aspect of renewables and storage is the location of these generation assets. We were used to an industry in which electricity was produced at big, centrally-located generation plants and transported to consumers through a sophisticated national transmission system then relatively "dumb" local distribution networks.

This model is becoming much less relevant as more generation connects to the distribution network.

These three - changing consumption patterns, growing numbers of suppliers and the extraordinary growth of renewables - are just a small part of the changes we have seen.

We are living in a very different world to ten years ago.

It would be nice to say we, and indeed I, saw all this coming - but we didn't. We should be modest about our own ability to predict the future.

Indeed I believe our sector is now past the point where we can accurately predict and understand everything that is going to happen.

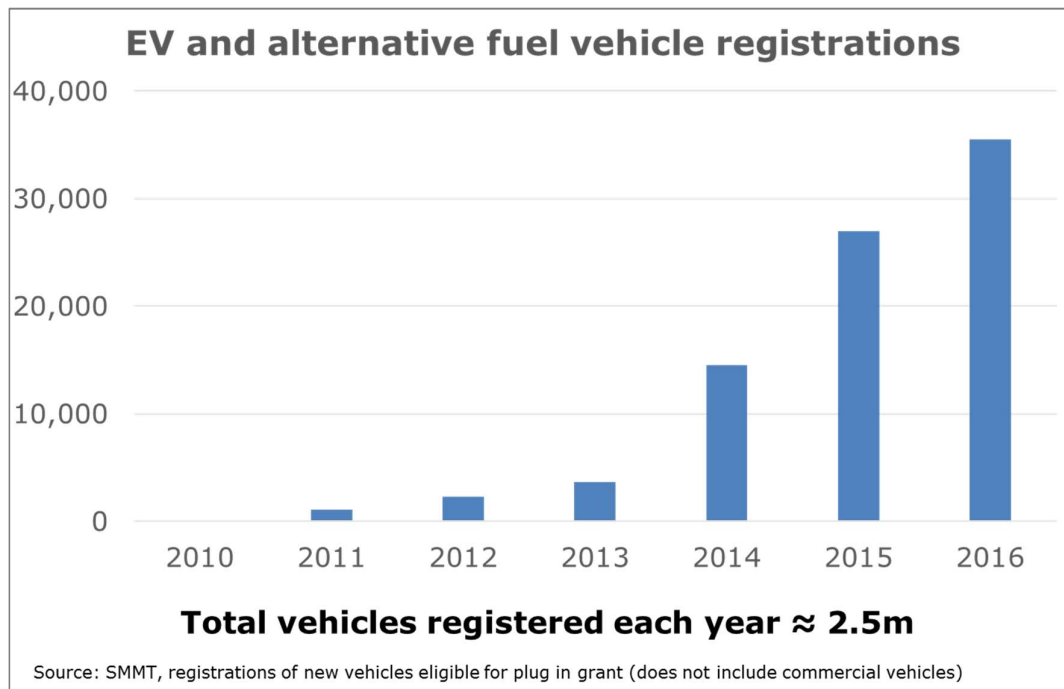
Therefore, while we shouldn't stop trying to forecast the future, we should accept that our plans will need to be flexible to account for those unforeseen changes that will undoubtedly come along.

Part II - a bit of foresight

I would like to move on to the three areas I think could be sources of disruption in the relatively near term. Although these changes have already begun to happen, I must stress that I cannot

predict how these areas will develop. However I am confident these areas could be the source of unpredictable – but significant changes.

The first is electric vehicles.



There's been a marked increase in the number of electric vehicles registered since 2010 – with over 30,000 registered in 2016.

Although admittedly this still represents a small proportion of the total vehicles registered, which runs at about 2.5 million a year.

But the Government's announcements in July banning new petrol and diesel cars from 2040 were a turning point, alongside the existing target for zero emissions from vehicles by 2050.

There may be challenges along the way, for example the price of lithium for batteries has risen in response to increased demand. However, I think we can still be confident the number of electric vehicles will grow sharply.

However, the way in which the market for electric vehicles will develop is still uncertain, and we could end up in a number of different scenarios.

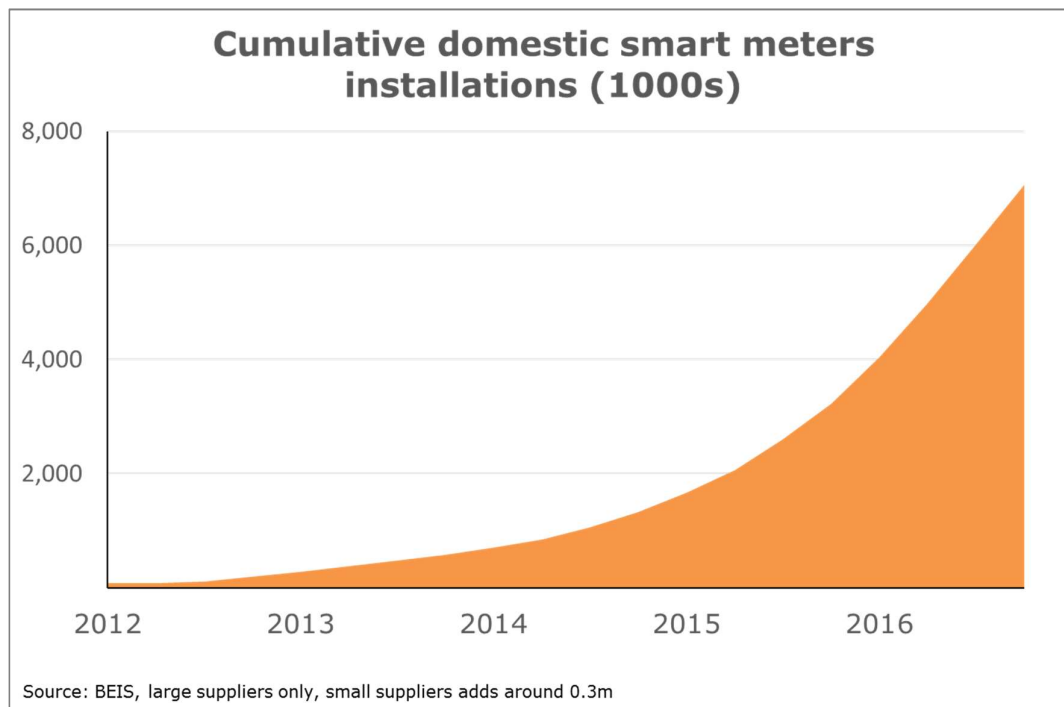
Will each of us still have our own car, which sit at home or at work for most of the day plugged into the grid?

Perhaps instead there will be more of a sharing economy for cars?

There are also implications for electricity retail. Will I be able to plug my car in outside your house? If so, who should pay for the electricity? Or will I 'super-charge' at charging stations, similar to existing petrol stations?

I couldn't tell you which of these scenarios will actually occur, or whether there are others none of us have thought of yet. We'll keep watching developments keenly.

The second area of unpredictability relates to innovations in tariffs and market offers, enabled by Smart Meters.



As you can see – there's a similar accelerating trend for the installation of smart meters to the one we saw for electric vehicles.

This is driven both by demand and by the rollout mandate.

Smart metering unlocks the door to significant innovations. It's 'big data' in the energy market.

The way companies in the market, and consumers themselves, will react to the new opportunities is again difficult to predict.

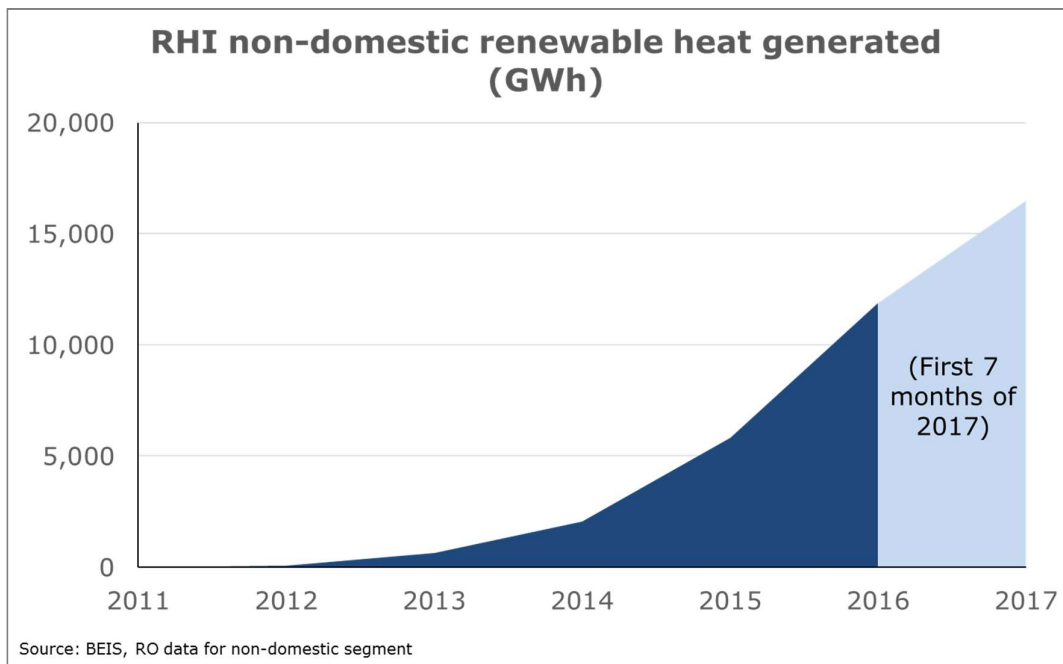
We are expecting to see innovative tariffs based on the granular data available from smart meters.

For example, charges may more closely reflect real-time prices of energy and providing incentives to shift energy demand away from peak times.

But perhaps we will also see more disruptive change. Companies may move away from selling gas and electricity as a commodity, and start to offer energy as a service, offering levels of comfort in the home and actively managing people's gas and electricity consumption.

The third area of uncertainty is heat.

There is a relatively clear pathway to decarbonising electricity and transport, but heat is a harder nut to crack.



Around half of final energy consumed in the UK is to provide heat. The majority of this is from gas condensing boilers, but as you can see from the example of non-domestic renewable heat, renewable sources are starting to play a part.

Government are looking at this very closely, and Ofgem are staying engaged with their work. However, I think it's fair to say we don't yet know which of the options for decarbonising heat will turn out to be the most attractive.

Will heat networks continue to grow and replace individual boilers? If so, what fuel will they use? Currently it's mostly gas, but they could start to use biogas or waste.

Alternatively, will a greater proportion of heat become electrified? Currently, the price of an air-source heat pump is around twice that of a more traditional boiler so uptake is low. Could falling prices overcome this?

Another possibility is that lower-carbon fuels will be mixed with natural gas in the existing infrastructure, or even replaced with hydrogen.

Each of these different options would play out very differently across the industry.

Lastly, and particularly importantly from the regulator's perspective, we need to protect consumers. The cost of decarbonising heat may push more consumers into fuel poverty, and our approach needs to bear this in mind.

Part III – what do we do about it?

It's easy enough for me to tell you about the changes that have occurred already, and those that may or may not occur in the future. It's also relatively easy for me to admit which areas are the most unpredictable.

However, the crucial question is what are we going to do about it?

I'd like to tell you about three areas Ofgem are working on, and then briefly talk more generally about consumer protection in unpredictable conditions.

The first area relates to network price controls.

In July we started the preparatory work for the next round of network price controls for energy transmission and gas distribution networks from 2021.

The first stage is to review the RIIO framework which we used for the first time when setting the current controls. But before talking about this I want to focus briefly on what network regulation has already achieved.

Without doubt, regulation has delivered substantial benefits for consumers. Since privatisation, nearly 30 years ago, the cost of networks as seen on consumer bills has fallen by 17% in real terms.

At the same time investment in networks has increased and the quality of service has improved dramatically.

For example, the number and length of power cuts on the distribution networks have both halved since we introduced incentives in 2002.

RIIO built on these successes and has transformed the way the network companies approach their customers. With our incentives in support, companies that were in the past very inward focussed are now looking much more at what their customers need.

This is reflected in record levels of customer satisfaction with local distribution networks – a position which is in marked contrast to that of the major supply companies.

We have also seen real progress by the companies towards adopting more innovative approaches to the challenges they face.

But it is also true that the financial performance of the companies has been much stronger than expected. Many of the companies are making double digit real returns on regulatory equity, or very close to that level.

So, network companies have found themselves in the news, with accusations that they are making billions in unjustified profits.

There is a question of legitimacy here and I would encourage network companies to be mindful of the way they are perceived.

We all need to ensure public confidence in the regulatory regime and this means consumers believing that the companies are running efficient and effective networks and are earning a fair return.

So, what about RIIO-2?

Well, returning to my theme of unpredictability, we need to make sure that the price controls can cope with a world which could develop in potentially quite different ways.

This will mean thinking hard about how we define the outcomes the companies have to deliver and how we set the right level of allowances and incentives so that companies can manage uncertainty.

It will also mean thinking about how to adjust the price control in the light of unexpected, unpredictable developments.

In this context we need to consider whether we retain the 8-year price control period. I think the longer period has had some positive effects - but are they sufficient to compensate for the risk of locking in allowances for a long period in an unpredictable world?

Finally, returning to rates of return, I want to be clear that we see strong evidence pointing to the cost of capital being lower than we have seen in the past. So network companies should prepare for lower returns as well as delivering better outcomes for customers.

We also want to examine whether we can put a structure in place that would automatically respond if the returns actually achieved by the companies are systematically high.

We will develop these themes as we publish more of our thinking in the run up to the price control.

RIIO concerns the amount of revenue network companies are allowed to raise. The second area of work concerns the way revenue is raised from suppliers and generators, and ultimately consumers.

We recognised through the Embedded Benefits review that increasing levels of generation connecting at distribution level meant that the network charging arrangements, which worked well in the past, started to distort the market.

Embedded benefits will be a major change, but there may be bigger changes as new technologies emerge, for example storage, which provide increased flexibility.

We must make sure that regulation does not hold back progress towards a smarter, more flexible market. Changes we are making will ensure new technologies and innovations can compete fairly with existing technologies.

In August, we launched our Significant Code Review to consider reform of residual charging for electricity transmission and distribution networks. We have also announced that we will review the access and forward-looking charging arrangements at the same time.

We need to move quickly to capture savings for consumers from a more flexible system, and that is what our work in this area aims to do.

We also need to accept that this isn't going to be a 'once and done' process. While I don't expect fundamental reviews of charging on an ongoing basis, we will continue to fine-tune charging arrangements over time to account for future distortions that may arise.

The Third area is our Innovation Link and Regulatory Sandbox.

The link lets us respond to the fast-paced advances in technology, which are driving the potential for new business models and disruption in the energy market.

It provides a one-stop shop for innovators seeking to enter the market and needing support on the regulatory arrangements. It allows us to open a dialogue with new players and understand the potential regulatory barriers to innovation.

Since launching Innovation Link in December 2016 we have provided around 100 innovators support in developing their business propositions with advice on energy regulations.

Businesses receiving support often come from outside the energy sector such as engineering, digi-tech, finance, telecoms, Community and municipal organisations.

The Link also trialled the world's first energy regulation sandbox. The purpose of the sandbox is to enable proof-of-concept trials without incurring all of the usual regulatory requirements.

One of the main innovations we've seen are new ways to engage with energy consumers. Many innovators are considering ways to facilitate peer-to-peer trading of energy. Like 'paypal, uber or airbnb' some are exploring business models where consumers buy and sell directly via local platforms.

The same consumers may also produce electricity from solar panels, or storage owners via battery storage, including in electric vehicles.

However, the biggest value of the sandbox and link, so far, is the insight it has given us into innovation and the regulatory barriers innovators face.

The main challenge for most innovators is the interface with the existing systems in the industry, which were established for a national, centralised market, and assumes that there is a licensed supplier selling energy to consumers.

If we want new business models to emerge, we need to find ways for them to interface with market systems, For example, helping them to deal with the licence and industry codes, particularly the balancing and settlement code.

We are considering how we can make this happen and what we might need to change.

Given Ofgem's purpose I must also cover consumers a little further.

Our number one priority is to protect consumers.

We share the Government's concern that the market is not working for all consumers, especially the vulnerable.

To begin, we'll extend our prepayment safeguard tariff to 1m more vulnerable consumers this winter, saving these customers an average of £120 per year.

Last week, the Prime Minister announced that the Government will publish a bill to provide for Ofgem to put a price cap on Standard Variable Tariffs.

Ofgem will work with Government to implement this as soon as possible, once legislation is in place.

In the meantime, suppliers must step up efforts to get more of their standard variable tariff customers onto better value deals.

However, the proposed price cap is only part of the solution, and we mustn't lose sight of the bigger picture. As Government recognises, we still need to promote engagement and competition.

Over the last 12 months, we've seen major increases in the number of engaged customers, and we'll continue to work with suppliers to keep up momentum.

To support this, today Ofgem is introducing new rules to allow suppliers to roll customers coming to the end of their contracts onto another fixed deal instead of a poor value standard variable tariff.

Under a separate initiative to give peace of mind to people who switch, Ofgem is proposing that consumers would receive automatic compensation if their switch goes wrong.

We also need to think more broadly about the way we protect consumers.

The way consumers interact with the market is changing, and so the way we protect them needs to change as well. What we think of as the consumer is becoming less clear as consumer interaction with the market changes.

Generally, we have looked at consumer switching in the market as a marker of how active or engaged consumers are. Our retail market surveys identify four categories of engagement mostly based on switching rates and changing tariffs.

By way of example, some consumers are becoming so-called 'prosumers' – selling their excess solar energy onto the grid, and perhaps eventually to other consumers. With domestic storage, these prosumers will also be able to manage their energy use more flexibly.

Longer term, the current 'supplier hub' model, where consumers engage with the market through a licensed supplier may well begin to change and introduce new ways for engaged consumers to secure better deals.

We've already started to see some technologies and business ideas disrupting the relationship between consumers and suppliers. The possible business models here are almost endless.

These changes will potentially widen the gap between different groups of consumers. Those who remain disengaged will be left further behind the more active consumers. Vulnerable customers are likely to be included in this group.

As active consumers find new ways to pay less, the sunk costs, such as past network investments, begin to fall on a smaller and smaller proportion of bill payers.

Also, the same is true for the recovery of other charges, such as those for environmental schemes.

Combined with broader trends such as expected slower economic growth, the number of consumers in vulnerable circumstances is likely to increase.

Principles-based regulation, to replace prescriptive rules in the retail market is one way we're already working with industry to remove regulatory barriers to reacting to this sort of change.

We've just introduced a new vulnerability principle the supply licence, and we encourage suppliers to treat this as an opportunity do more to put consumers at the heart of their decisions.

The onus is on suppliers to move more quickly to know who their vulnerable consumers are, and respond to their needs.

However, companies shouldn't expect their arrangements for vulnerable consumers to stand still.

Given the unpredictable change I've described, they need to bear in mind changing sources of vulnerability, and new detriments that vulnerable consumers might face, and ensure all consumers are treated fairly.

Although we see principles based regulation as the right way forward here, we won't hesitate to use prescription where there is a need. For example, we have the prepayment price cap in place until the rollout of smart meters is complete.

Conclusion

I'd like to finish, like I started, with quotes...

"Fooling around with alternating current is just a waste of time. Nobody will use it, ever"
(Thomas Edison, 1889)

"The cinema is little more than a fad"
(Charlie Chaplin, 1916)

"Stock prices have reached 'what looks like a permanently high plateau."
(Irving Fisher, 1929)

As I hope I've demonstrated, unpredictability isn't new. In our sector, we've seen radical changes over the last decade, which didn't play out exactly as we'd have expected.

We now face a large number of transformative - even revolutionary - changes, which have already started to happen, and their implications are difficult to predict.

Overall, as a regulator, we're taking this unpredictability into account as we seek to both remove regulatory barriers to innovation and protect consumers in a changing world.

The scale of the change could be considered daunting. However, more than that, I want to stress that the innovation and change offer real opportunities that can benefit consumers.

As a regulator, our priority and commitment is to make sure these consumer benefits are realised.

Thank you