



Energy and Climate Change Committee

Oral evidence: [Electricity demand-side measures](#), HC 379,
Tuesday 2 September 2014

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Written evidence from witnesses:

- [National Grid](#)
- [Northern Powergrid](#)
- [UK Demand Response Association](#)
- [WWF](#)
- [DECC](#)

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Members present: Mr Tim Yeo (Chair); Dan Byles; Ian Lavery; Mr Peter Lilley; Albert Owen; John Robertson; Sir Robert Smith; Graham Stringer; Dr Alan Whitehead

Questions 1-143

Witnesses: **Duncan Burt**, Head of Commercial Operations, System Operation, National Grid, **Phil Jones**, Chief Executive, Northern Powergrid, **Sara Bell**, Executive Director, UK Demand Response Association, **Yoav Zingher**, Co-founder, KiWi Power, and **Zoe Leader**, Climate and Energy Specialist, WWF, **Rt Hon Matthew Hancock MP**, Minister of State for Energy, DECC, **Jonathan Mills**, Director, Electricity Market Reform, DECC, and **Ian Ellerington**, Engineer to Energy Innovation delivery Team, DECC, gave evidence.

Examination of Witnesses

Witnesses: **Duncan Burt**, Head of Commercial Operations, System Operation, National Grid, **Phil Jones**, Chief Executive, Northern Powergrid, **Sara Bell**, Executive Director, UK Demand Response Association, **Yoav Zingher**, Co-founder, KiWi Power, and **Zoe Leader**, Climate and Energy Specialist, WWF, gave evidence.

Q1 Chair: Good morning and welcome to this session. It is a big panel and we have a strict time limit. We need to get on to the Minister at 11.15 am. Clearly, we are not expecting each of you to answer every single question. If you pick the ones that you believe are relevant and have something you think it is important to say then please say it. This is an extremely interesting and topical subject from our point of view. We would like to get the maximum value out of the hour and a half and in order to do that I will skip any lengthy introduction. You know who we are. We know who you are and so we will crack on with the questions at once.

Just to begin with, could I ask a general question? What benefits does demand-side response deliver? Don't be shy?

Sara Bell: Shall I answer that?

Chair: Yes, by all means.

Sara Bell: Sara Bell, UK Demand Response Association. By moving the electricity demand of industrial and commercial customers into a different price period demand response can provide cost-effective balancing services and cost-effective security of supply, which reduces the total cost of energy for electricity customers in this country. That is the primary benefit of demand response.

Duncan Burt: If I come in, I just echo that, Chairman. Duncan Burt from National Grid. We have been using demand response in a number of guises for over decade to help balance the system. As Sara said, it provides a very economic and very flexible means of providing the services we need to balance the last 2% or 3% of energy in the one hour before real time that National Grid is responsible for operating the system, be it via automatic management for frequency control or for services that we can select to reduce demand to provide reserve and, effectively, capacity. It is an incredibly flexible service and one that we would be happy to use to balance the whole system for all our balancing services and we are completely neutral in our choice between generation and demand for that matter.

Yoav Zingher: Yoav Zingher. I will jump in. I am co-founder and director of KiWi Power. We make and sell this stuff and, as well as the fact that it is a way of reducing overall costs of energy for every consumer, it is also a way to get industrial, commercial and residential customers engaged with energy, which leads them to become more efficient overall. Something that is important is turning down demand is cleaner than any form of generation, so it is by far the cleanest form of reserve that you can possibly have.

Q2 Chair: How do you think it is going to grow in the future and possibly change?

Yoav Zingher: With the right policy framework and the right markets in place, there is every reason to expect that demand response can play a big part in the UK's grid. We just need to look at America where I think PJM in the last year has saved something like \$12 billion in a single year in terms of cost to all consumers. There is every reason to expect we can have the same thing today if we have the right policies in place. If we do not, it is going to remain marginal like it is today.

Q3 Chair: The right policies are going to involve what?

Yoav Zingher: I have a list.

Chair: Go ahead.

Yoav Zinger: In a nutshell, we think the capacity mechanism is an excellent place for this to work. We think the capacity mechanism has some good features in place and encourage DR but there are couple of things that need changing and modifying. The first one is the way that the auctions work at the moment every kind of power station can get long-term contracts. Demand response is the only kind of asset that can only get a one-year contract and there is no way to get any more. That is quite a big disincentive for businesses to invest and it is quite a big disincentive for end customers to participate, not knowing what is going to happen year after year. That is one. I only have three, so it is not too long.

The second one is that demand response is a new kind of resource. DECC has realised this and so they have created something called a transitional arrangement, which kicks off from next year. That is going to get more demand response into the system and encourage innovation, which is fantastic. The only problem is that, as a provider of demand response or a customer of demand response, you have a choice to either do this or to tender in the real auction. The problem is if you cannot do both you are limiting the ability for this resource to reduce prices for everyone. We think they should not be exclusive and we have some good reasons for that.

The third one is that right now a small amount of capacity is being set aside for the auction to be run in 2017, compared to the auction to be run this year, but the Secretary of State has the ability to cancel that auction. Again, even if it might not happen, this kind of uncertainty is a big disincentive to invest, like it is in any industry.

Sara Bell: May I just jump in there, too? I think it is little understood what is required on behalf of an industrial and commercial customer to become flexible. Effectively, what we are asking of these corporations is to become flexible with how they use electricity demand for the benefit of our economy as a whole so that we can have a lower energy cost and be more competitive. When you go to the CEO of, let us say, a car manufacturer and try to convince them they need to change when they run their processes, perhaps start their production line a little bit earlier so they can finish before the system peak, that CEO wants to know that those programmes are in place for long enough to justify the organisational change required. It is not simply an issue of the investment cost of the technology. It is also about how those corporations need to change and that is a large reason why these demand response contracts need to be a longer space of time, so these companies can get involved.

Phil Jones: Chairman, if I might. Phil Jones from Northern Powergrid. We are not the oddball but slightly different from my colleagues. Our interests are in networks only and, therefore, I would answer both of your questions in one go. Your first question: what are the benefits? I agree with everything that was said. There is also a second tier of benefits that can eventually show themselves, although they are much less immediate and inevitably smaller. Eventually it could delay network reinforcement as well as offset the cost of the generation of the unit in the first place that was avoided. Those benefits are also there and I do not think were mentioned.

To your question how might that change, I think also worth having in our minds is at the moment almost all of the dialogue will be around large loads, industrial and commercial loads, and, over time, smart meters will basically move everyone on to a half-hourly settled arrangement and we may then see—and we think this is quite likely, by the way—from a network point of view, some of the more useful demand response may come from the domestic customers at least at much, if not more than, the industrial load.

Duncan Burt: I would second that as well. As I say, we have procured demand-side for balancing services for that last 2% or 3% for a number of years. We see that market growing and we are taking action on a number of fronts to make sure we grow the provision of those services as companies, such as Yoav's who provide aggregation and flexible service to us, grow. That is a very positive step. Alongside that growing penetration in the commercial sector, we see the advent of smart metering providing a very significant boost to the use of flexible demand, both commercially and domestically, to provide flexible services not just to us at National Grid balancing the last 3%, but to the whole wholesale market managing the other 97% of demand. That will be the point at which demand-side services achieve penetration at a UK level.

Zoe Leader: Zoe Leader, WWF. It is also important that the carbon content of any DSR does matter. We do not want it to undermine what we are trying to do in terms of the carbon budgets and the Climate Change Act. We want to make sure we are not incentivising people to just simply switch to diesel generators instead of reducing their demand or shifting their demand appropriately.

Q4 Chair: Does anyone not agree with the three concerns expressed by Mr Zingher just now? Does anyone not agree with them?

Duncan Burt: Chairman, I will come in as National Grid is the EMR delivery body. I will give you some structure, if it pleases the Committee, around how some of those choices have been made. Obviously the direction of policy and much of the detail here has been weighed up and decided by Government, but National Grid has had a key role to play in that process and we will then deliver the mechanisms and outcome. At all points there has been very careful consultation, as I am sure many of your witnesses explain in their business, around how these measures should be affected and the specific design of those products. We, as a business, are very conscious that the intimate details of the design of those products can have very significant effects on their attractiveness and on the business.

You will also understand that overall there are many different businesses in this area and in designing the final products we have had to take into account a number of different inputs to try to design what looks overall to be the best balance of simplicity and low barriers to entry but, at the same time, assures us that on behalf of UK consumers we are achieving the best value for the product and maximising the amount of reserve that we can get in at the best cost. Now, those are difficult trade-offs to make. We clearly need to see how the market in these services evolves, but we know one thing for sure and that is that, in order to achieve success, we need to build confidence in the products that we have, that are now designated. We need to use that confidence to give investors, participants and innovative companies like Yoav's clear signals to then grow their provision and grow the service over time.

Q5 Chair: For example, how is a one-year limit on the contracts justified?

Duncan Burt: When we look at a trade-off like that, the balance that you are taking is one of is the market able to deliver regularly against a one-year contract, which has a number of benefits in terms of increasing competition and bringing additional volume in that can compete because it can regularly tender on a one-year basis and, over time, you can get a clear market signal, which again should build confidence and bring more participants in, versus the choice of going for a

much longer term where you are locking in with specific providers very early on—please bear in mind, as the Committee is aware, this is still an emerging industry and an emerging sector—and locking in for a significant period of time, which may reduce innovation, although it can in some ways, as Sara said, help it, and also does not allow the market to evolve and compete year-on-year to achieve the best price and the best cost for consumers as a whole. Those are the trade-offs. I appreciate that there will be different points of view.

Q6 Chair: We seem to take a different view in the solar industry. No one is suggesting by giving a solar developer a 15-year guarantee that inhibits future competition. The cost of solar continues to fall very rapidly. Why do we apply a 15-year limit to solar and a one-year limit to this?

Duncan Burt: The final decisions on these are for Government, not for National Grid, but in the way that we procure balancing services we use regular annual tenders in a variety of situations: to drive prices down, to drive costs down and to encourage new participants to enter the market. In areas such as store, that has been very successful where we see high levels of competition and prices coming down in those tenders year after year. That means that we are paying a lower price for the whole volume year after year, so that does reduce the cost to consumers.

Q7 Chair: If I was a shareholder in National Grid, would I not have an interest in seeing more generator capacity being built, which would give rise to demand for more transmission capacity, and National Grid is remunerated by a guaranteed return on new investment in transmission capacity, so the interests of National Grid shareholders is not to encourage demand-side response but to say the only answer to capacity shortage in the future is to build more generation?

Duncan Burt: If I can pick that off in a number of steps. Our interests in operating the system are absolutely to achieve the best prices that we can to operate the system securely. We can do that by growing deep liquid markets for the services that we need to buy because that increases competition in those services, which reduces cost, and also gives us greater capability to provide those services, which assists with security of supply. We have a regulatory structure around how we operate the system agreed with Ofgem, which absolutely incentivises us in the interests of consumers to operate a secure network and to do that at minimum cost.

In terms of your question around the incentives on us in relation to new capacity mechanisms and are we incentivised to give lots of capacity contracts because then we could build more network and increase return, final decision on procurement under the capacity mechanism would be made by Government and our role as the deliver body is to manage the process and to provide advice and data on the tenders within the auction. For that portion of our responsibility there are very clear and very strict business separation arrangements within the company that are similar to business separation arrangements that we run between the different divisions that we have at the moment in distribution and transmission and similar to the separation arrangements that you see in law firms and in many other areas of industry.

In that regard, we are absolutely confident that there is a clear separation between the advice we do give to Government under the capacity mechanism, and the final decision being taken by them, and our broader role in investing in the network and building the network in England and Wales.

Q8 Graham Stringer: Can I just follow up Mr Jones' previous answer? He said he thought there would be the equivalent reduction from the use of smart meters in the domestic sector when smart meters rolled out. Can you give us the evidence of that, because it is at odds with the evidence we have had from the Energy Policy Group at Exeter University who say that they do not see very much evidence for a change in behaviour when smart meters are introduced into the domestic situation?

Phil Jones: I am happy to comment. I am not familiar with the material you have received from that group at Exeter. I would be happy to take a look at it. Our evidence, as submitted, goes directly to one of your questions; question 4, if I remember correctly. We have channelled our submission entirely at that. That is what we think we are qualified to speak about and it is in this area. It is not that we do not have an opinion on the other things that have been talked about, but we are not as intimately involved in it as our colleagues elsewhere in the industry.

The reason we want to make sure that we contributed to this particular inquiry is we are running what I believe confidently is still the largest of the smart grid projects that our regulator Ofgem has funded through what is called its Low Carbon Networks Fund. We call it the customer-led network revolution. When we put that project together our interests and our objective was to put together less of a trial and more of a pilot, if you will; more of a demonstration. As a consequence, we built a project with British Gas as the supplier and a series of real customers with real smart meters on our network largely in the north-east but also some of our network in Yorkshire.

We conducted a series of trials. About 11,000 customers involved altogether, 1,000 involved in DSR time review trials that have been running. Effectively we are publishing the data right now as we speak. Among those trials are exactly the things that I described, in other words what we call test cells of customers that have been picked with academic input to make sure that we picked sociological representative samples, not just people who were interested in that kind of thing, in some cases to take what is called a static time of use tariff, which is basically just that the tariff is pre-set and they know during the course of the day how that will move and in other cases what will be called dynamic where from our control centre we can turn off some of their demand, with their consent obviously. They have allowed us to do that.

Those trials have finished and the results have been published, in August. It is the first I am aware of on this basis, but we have seen clear evidence of around a 10% peak shift, 3% reduction in consumption, in those test cells. Let me caveat that by saying it is a relatively small population, so it was only 1,000 people in all of those tests, and there was no downside to the customers that were involved. When we recruited them it is their real energy. It was not a one-day trial. It was their real tariff. They shifted on to it with their real supplier in British Gas and the commitment to them as part of this project was there would be no downside. They could only win by being involved in it; otherwise we figured that we would struggle to get participation because it is early days, as our colleagues have already said, But the reality is that data is out there now. My company has not produced that result on its own. We have had academic partners from universities at Durham and Newcastle working on it with us, so that has all been vetted. As far as we are concerned it is statistically robust, to say the least, and it makes sense to us, frankly. If I just be practical about it, it makes sense that if we can say to customers and it is straightforward to them, "You have capacity in your house".

The best example that we have found are people with heat pumps. I do not know if you are familiar with those devices: basically the electrification of what would otherwise be central

heating. If those heat pumps have a thermal store, in other words if you can switch it off and the house does not immediately lose its source of heat, those have been an excellent form of demand response. We have seen about 3 kilowatts per dwelling, on average. Now, when we designed the network we assume that a property's maximum demand is going to be two kilowatts after you have diversified it across the entire group. In other words, we can see effectively, for design purposes, that entire peak disappear in that particular extreme case. Now, in other cases it has not been as dramatic.

I hope I have given you enough of a sense to say there is real evidence out there now that says, "We can see this if it is simple enough". The take-up rate was 8%. I have had people say to me, "That is pathetically low. You only got 8%". I am told by people who do this for a living that if you cold-call customers and say, "Would you like to be involved in this thing"—I am sure you all have the same experience, so do I—the phone goes down straight away. 1% would be regarded as a successful take-up on a cold-call campaign like that. This was 8% uptake. Granted, as I say, there was no downside and so on, but the reality is the evidence is there and that is what we submitted for your consideration.

Q9 Sir Robert Smith: Has this not been around for quite a long time with dynamic teleswitching?

Phil Jones: Economy 7, effectively. Yes, it has, although it was—

Sir Robert Smith: Dynamic teleswitching was an advance on Economy 7 and the network operator could tell the house when to charge, depending on the forecast and so on.

Phil Jones: Yes, it could but back in the day it was not just the network operator, was it? It was somebody who was bundling their entire energy cost. I am talking specifically about this from a network perspective. You are quite right in essence, the technology is more sophisticated and more diverse and there will be more of it.

Q10 Sir Robert Smith: But one of the downsides is that a lot of my constituents are locked in. With your experiment, was there any judgment of how the actual market would work in terms of people being able to swap suppliers in such a situation?

Phil Jones: Inevitably, that is not a bridge we had to cross in this particular situation. We have concentrated much more on it being representative networks and network users. Please do not take me to another subject here, one that we are all very energised on at the moment. Clearly we have to rely on the supply market passing through those benefits. That is not something I can dictate to. We have to assume that if we lower our tariff that charge is not going directly as a network operator, in the scenario you described, where we do not have one supplier working with us on it. We are just offering this to all suppliers to offer to all their customers. You are quite right; that would rely on all of those suppliers or enough of them showing that signal through to customers in a way that customers engaged in and believed in and acted upon.

Q11 Sir Robert Smith: Would a different model be that you buy from the consumer with the savings you make in your network, if you do not need to put a new substation in, you make a direct payment—

Phil Jones: Well, the straight answer is yes. That would, of course, be a different model. Our house position, if you will, is that that is the kind of thing committees like this will need to consider and should consider for the coming years. I would say I would exercise caution; not to be defensive but we all should bear in mind this is a huge rollout proposition, much bigger than the North Sea gas conversion into every home in the country and half-hourly settlement of energy. The fact that we are not going to it immediately is not something that scares me or worries me, but I think eventually one of the issues with demand-side response—I guess I am jumping to one of our questions that we anticipated from you today—is the same piece of response could be useful to lots of different parts of the industry.

We generally would accept that we were behind Duncan in the queue, if I could put it that way, because they are basically saying, “Well, the big benefits are always going to be that somebody can shift their peak and someone does not need to build a power station”. If somebody has saved billions of dollars that almost certainly is what has happened. There has been a marginal shift that has averted the need to build a very large power station somewhere. Now, we, inevitably, are behind that queue. As a distribution network operator, our benefits are heavily diluted.

To give you a sense of scale, as I said earlier, we assume when we connect a new property to our network that it is going to two kilowatts maximum demand, but the cable and the fuse is good for 10 times that amount. People go above that. A kettle is virtually that two kilowatts but we should spread it out over everybody, so effectively two kilowatts, and that is what a distribution network does. It socialises the benefit of people’s diversity and willingness to do different things. That is a good thing but when the benefits start to accrue and we can defer the replacement of a substation, for example, we have avoided a cost. Let us say we avoid it for 10 years or 20 years. It might be spread between 1,000 customers. By the time you have spread 1,000 customers over 10 years, it is probably not enough to incentivise your average home owner to say, “That is a good idea. I will do this”.

I did say to colleagues I might mention this this morning. Consider the wheelie-bins outside our homes where people are segmenting their waste, because it is simple and because they think it is the right thing to do. Nobody is paying them to do it. In the same way we would assume that if the smart meter rollout means it is easy for domestic customers to participate in an arrangement like this—they are not going to trade on a daily basis with the kind of sophistication that would be needed to deal with National Grid—I would say that we think that is a real proposition, but in order to do that they may need to sell their response to different people rather than one supplier. It would be the only way that they can take their product to market. That is a question but I do not think it is a question for today, not this year if I can put it that way.

Q12 Dan Byles: I just want to explore the demand-side balancing reserve a little bit. Mr Burt, could you just explain exactly how the demand-side balancing reserve differs to existing schemes designed to encourage companies to balance their positions?

Duncan Burt: Yes, of course. We have a range of products that we buy through the market and also flexible demand actively participates in a range of areas, both in terms of things such as triad avoidance, where they avoid the peaks of the year, and also other services locally and within the wholesale market where they move demand away from periods of peak prices. The key difference between some of those services and some of the ones we buy already in DSBP is that it is, to a certain extent, designed for a different segment of the market.

We anticipate DSBR is going to be used as a measure of last resort, as in outside of the market, and only very rarely during the year. It is scoped in a way that is likely to suit providers that are prepared to move and are interested in moving, and are interested in the financial rewards they will get from us for doing that, but for whom the costs of moving are very high either in setting it up and arranging it, as Sara set out in terms of realigning their working processes or shutting down a factory, or who have a very high sudden cost for doing that. You should have in mind something like a car plant where the car production might get two hours' notice to stop in the afternoon and the line stands down and either comes back the next day or the teams work overtime into the evening to catch up.

Q13 Dan Byles: Is it fair to say that the marginal costs of DSBR then will be higher because you are going for harder-to-reach opportunities?

Duncan Burt: It is structured in a slightly different way. Because most of our products we use very regularly, we like to have a relatively low cost of utilisation; otherwise we spend a lot of money on it. For DSBR, when you are only going to use something rarely you want to pay a lower availability cost, so a lower cost to have the service available, and then you are prepared to pay a higher fee on the one or two occasions you use it per year. It is a very good question. If you look at the cost per unit of capacity it can be very similar or even lower than some of our products in the market, but that is only because we expect to use it so rarely.

Q14 Dan Byles: Do you anticipate it will generate savings compared with existing schemes? Why are you doing it?

Duncan Burt: It depends how you look at it. The primary reason we are doing DSBR and all the capacity mechanism products is to ensure that we have adequate capacity, from demand or generation, to meet our existing levels of security of supply and we provide the analysis and information on that to Government.

Q15 Dan Byles: This should leverage in the organisations or people who otherwise would not be taking part in existing schemes?

Duncan Burt: Exactly.

Q16 Dan Byles: Is it exclusively for demand-side?

Duncan Burt: DSBR is exclusively for demand-side, yes.

Q17 Dan Byles: Generators cannot bid into it?

Duncan Burt: No.

Q18 Dan Byles: What about the point made by Zoe about people looking like they are doing demand-side but they are actually switching a bank of emergency generators in the basement? Are they excluded?

Duncan Burt: Those parties can participate in DSBR and, just to set out the reasons for that, when you get down to a site level—as some of the other witnesses will point out, we are working across hundreds of potential sites here that are aggregated up and so, at an individual site level, on one day that might be delivered by reducing a process. On another day it might be delivered by running backup generation. Many sites have backup generation around the country to preserve their core processes should they have a local power cut. Yes, a big chunk of the existing demand-side market includes use, either wholly or occasionally, of diesel generation offsetting the local demand.

Q19 Dan Byles: Do you have any figures or any means of capturing the average CO₂ per megawatt hour of what this is likely to throw up when this is in use?

Duncan Burt: I would be happy to look at what data we have and write to the Committee on that.

Q20 Dan Byles: I have asked the Government in the past about CO₂ per megawatt hour for store and the like and they seem remarkably uninterested in gathering that sort of data.

Duncan Burt: Certainly I can look at what data we have, for example, from the last two years and write to the Committee setting that out.

Q21 Dan Byles: That would be interesting, thank you. Sara and Yoav, demand-side response providers such as yourselves have criticised DSBR. What do you think are the most important issues that would potentially jeopardise its success?

Yoav Zinger: I have some strong opinions on it. Big picture, DSBR was a great thing because National Grid identified being able to do something about demand response and what was good was we saw that we had a shortage this winter. Demand response was pretty much the only way to get something up and running in time, because you cannot build a new power station in six months. That we liked. What we did not like basically fell into two camps, technical and commercial.

On the technical side there are a couple of things. One of them Duncan already alluded to, which was this utilisation versus availability payment that is a horribly boring subject but, effectively, what it means is that all the risk is shifted on to the provider of demand response and it is not too difficult to understand the problem over here. National Grid only wants to pay when it is used, which makes a lot of sense unless what it is that you are buying is insurance, which is effectively what this is. By telling the end customer, “If we use it you will get paid a high payment, but if we do not use it you will get paid nothing”, businesses do not invest that way and for a business to take all of the risk in doing so does not work. On the plus side we did manage to get sort of an availability fee built into it, but you needed to have a big portfolio to do it.

Another thing Duncan also mentioned briefly is triads. If people do not know about triads, it is a way of saving energy during peak times and a lot of sophisticated energy users already do it. Now, what you do not want to do is pay twice. If somebody is already generating a benefit you do not want to pay them again for it, which we understand completely, but there is still an additional benefit to be had and that was effectively removed completely. Rather than valuing it at less than what it would have been it was cut to zero, which also is not such a good thing.

There was another thing that we were quite worried about as KiWi, which was under store and under other places where demand response works today there is some fairly stringent requirements, testing and metering that is difficult and has meant that we need to innovate a lot of creative technology to do it, but it has proved itself that you do need it because if you do not put in testing and you do not put in metering it is kind of like building a power station and never running it. It will not work. In DSBR there is no requirement for metering. There is no requirement for testing before it goes live. We are pretty worried that once this stuff starts showing up it is not going to work. That is on the technical side.

On the commercial side, again this stuff is subtle but it comes down to the fact that DSBR was talked about for a very long time without any commitment that was going to be procured. A responsible service provider is not going to sell something where the market is unknown. When it was finally announced and the volumes that were going to be accepted were finally announced we had exactly five weeks to sell it. Between the day that it was said, "This is available now, go ahead", to, "Sorry, the auction has closed", five weeks, which is not enough. You cannot do anything in five weeks. You can do some and so we got in some, but it is not enough and the feedback we gave is you need six months to a year. In a pinch three months, but five weeks is not enough. The assessment of the tenders has taken more time from National Grid's side to look at this stuff than we got to sell it, which is a shame. One of the things we found out this morning is National Grid is now going to procure SBR. They are going to pay power stations to unmothball themselves for this winter, which is a real shame because we had an opportunity to do something over here.

Just two other things. On the diesel side, we are very aware of this and I much prefer clean demand response. I prefer to turn down an air conditioner than to switch on a generator because it is cheaper and because the carbon footprint is lower. You can calculate carbon whichever way you like, but at the end of the day switching down an air conditioner is better than switching on a generator. Diesel farms can, as far as I know, participate in DSBR. If you have a diesel generator that is not connected to anything, it just produces power, it can go into DSBR. Correct me if I am wrong, Duncan.

The other thing is there is some elements of the programme that encourage this stuff. I will give you guys one simple example. The average length of time that National Grid is expecting to use DSBR for, so when there is a peak, is two hours, but if I can tender in an asset that has the ability to hold the reduction for four hours it will get preferential treatment in terms of being accepted in the first place. It does not seem like much until you try to sell this to a hotel or a shopping centre to reduce their air conditioning or their heating. They would be quite happy to do it for an hour, two hours at a push and four hours no way; whereas if they are using a generator, four hours no problem because they just keep the thing running. That kind of stuff, even though there is no explicit bias towards a generator, does make an implicit bias.

Sara Bell: This comes to programme design and how important good programme design is ensuring that demand response can play a role in reducing the total energy cost. Many of the programmes are designed in such a way that there is not an explicit banning of turn down but the

reality of running a business means that you cannot participate, whereas two entities could sell in for two lots of two hours and then we get a zero carbon reduction for demand response. This is what this industry wants to develop, but we are repeatedly coming across programmes that are designed not with the realities of electricity consumers in mind and if we want the sector to become flexible we need to make it possible for them to participate.

Q22 Dan Byles: Duncan, you have designed it in such a way, possibly unintentionally, to exclude the very people who should be taking part in this.

Duncan Burt: I think everything we have done has been done carefully, with consideration and listening very carefully to the feedback we were getting from our stakeholders, including Sara and Yoav. We absolutely understand the importance, first, of being both open-minded and listening very carefully when we develop these new products so that they are as even as possible. For me, that is completely even because, as I say, we have no preference between demand and generation. For example, yes, a hotel can only do half an hour, but the great advantage of having a business such as Yoav's where you aggregate demand is that you can take eight hotels that can do half an hour each and you can give a four-hour service across that product.

Now, we will always be improving these things. We have taken a number of measures within our existing balancing services over the last two years to introduce new measures that both redefine products but also address other concerns that the demand-side community has to do with liquidity and markets or the risk for us to buy generation early and then not leave adequate space in the market for demand, which tends to have a shorter cycle and come along maybe three months ahead.

Q23 Dan Byles: Why did they only have five weeks to pitch into this? We have been talking about this subject for months and months and months. Why was there such a short window in the end?

Duncan Burt: This is a new product and—

Dan Byles: All the more reason to give them more time.

Duncan Burt: We are marrying a number of tensions there between having adequate time to set up and build a market and absolutely we want to allow the maximum amount of time to build product that we can because we want the most product coming into the market that we can possibly achieve. On the other hand, these are nearly all new providers of services and there is quite a careful verification and validation process that we need to go through, first to check that the arrangements on site are as per the tender and then verify the commercial arrangements, which we need to see metering and to settle the service.

Q24 Dan Byles: All of that means they needed more time to get that in place. If it is going to take you that long to look to make sure that this has been done correctly, how can they have such a tiny amount of time to talk to their customers and ensure it is done correctly? They could not do their own due diligence because you are taking longer with your due diligence than a company like KiWi could with their customers.

Duncan Burt: Well, we have listened very carefully to the concerns that we had. We did manage to extend the tender window by a week to allow some additional time to tender. I absolutely understand that in an ideal world we would have longer to do both sides of this. We have crunched our processes internally as well so that we can deliver ahead of the winter. The trade-off we are always making in terms of timescales is, first, giving clear signals because, as Yoav says, clear signals early are important, to go out and put the effort and investment into building your customer base and building a market. However, moving too early means that we have to act with incomplete information, which can inevitably increase costs, particularly if we end up indicating that we need to buy more and—

Q25 Dan Byles: I am conscious we are short of time, but I am interested in this discussion about the diesel farm. I take your point that you do not necessarily know if the customer is turning its air conditioning or turning on its backup. Can a pure diesel farm bid into this that does not have anything to turn down; it only has diesels?

Duncan Burt: Into DSBR, in theory, yes. If you structured it right it is possible that that could happen, but—

Q26 Dan Byles: You cannot say this is exclusively demand-side balancing then because turning on a bank of diesels is not managing demand.

Duncan Burt: It will be generation at a demand site. When you look at it—

Dan Byles: Have you thought of running for politics?

Duncan Burt: It is a challenging one for us because there are a whole range of providers in there. To take both sides of that, on one side we are buying the cheapest product that we can, whether that is diesel or whether that is demand shifting. In the long term and in the medium term we see the flexibility of pure demand as being the underlying cheapest way of providing many of these services and, therefore, we are very keen to see that grow. We are certainly reluctant in the interim to enforce a particular quality, whether it is diesel or demand, on a product that—

Q27 Dan Byles: Even if it is called the demand-side balancing reserve? I understand you have other mechanisms that allow the diesel generators to take part. I do not understand why you can have something called the demand-side balancing reserve and you open by saying it is exclusively for demand-side and then admitting you can have a bank of diesel generators on airfield taking part.

Duncan Burt: Without picking up the airfield point, just to address the specifics. We originally set out with the intention of potentially having a pure demand service. We took a lot of feedback that said, “Look, you are going to get an awful lot more parties in here if you allow it to include netting of onsite generation”. That is the way we would describe it. Therefore, that is what we have done. Many of the providers we use, many of the providers that actively participate under the banner of the demand-side both within the organisations here represented today, actively use diesels as part or as a significant whole of that service, not to polish my words too much.

Chair: Without wanting to cast any doubt on your good faith, the fact remains that if demand-side response grows in the way that its supporters believe it could, with enormously beneficial consequences for emissions, in 10 years' time National Grid's UK business will be smaller than it would be if we met concerns about tight margins of capacity by more generation. That is the brutal truth. Your shareholders will lose, in terms of the UK business, if demand-side response succeeds. It is inescapable, whatever the good faith and the Chinese walls and the decisions and so on, and National Grid does have a uniquely influential role in advising Government about policy in this area.

Q28 Dr Whitehead: We have heard a little bit about the transitional arrangements prior to the main capacity market auction. Could you perhaps, Mr Burt, set out how those differ? What are the main differential points between transitional arrangements into the mini auctions and the main capacity market auctions?

Duncan Burt: Yes. If I just set out the whole structure, Dr Whitehead, and then run through. As the Committee will be aware, there will be a four-year-ahead auction running this year for the capacity market and then, based on feedback and insight as to how we might best design the growth of demand-side or the maturing of demand-side into the long-term capacity mechanism, what we have, that Government introduced, is some transitional arrangements that allow for annual tenders for the two years running up to the capacity mechanism to encourage the demand-side into that service, to allow parties to grow customer base and to grow our provision base prior to the first one-year-ahead auction taking place.

We then envisage that those parties that have grown and tested their service and grown their businesses within those transitional arrangements would then be fully ready to participate at much greater volumes in the first full one-year-ahead tender for that capacity mechanism.

Q29 Dr Whitehead: But then they will not be able to participate in the main auction, will they, if they have secured a contract in the transitional arrangements?

Duncan Burt: In the medium term, yes, they will. Yes, absolutely. Once we are through the transitional arrangements they will be able to then compete in the year-ahead auctions for capacity.

Sara Bell: I think the answer was, no, they cannot compete in the first enduring regime auctions or the second one. You are absolutely right.

Q30 Dr Whitehead: There appears to be a slight conflict there.

Duncan Burt: You have an option here as to whether you design something just for the short term. Those measures are very much designed to bring companies on and to bring participation on to allow it to grow.

Q31 Dr Whitehead: If they cannot participate in the first two main auctions, how does that bring the benefit out that you have suggested?

Duncan Burt: Because, through having an annual auction, we will be advising each year on the amount that needs to be bought and people will be able to see what is going on in that market, how it develops and what the prices are clearing at. They will then be able to move from the transitional arrangements, which offer some—I do not want to use the word “insulation” because that is incorrect, but they offer some separation from the full market and then enter into the full capacity market once those businesses have grown and matured.

Q32 Dr Whitehead: Would you not simply say, as a fairly rational calculation, “If I am going to be barred from the first two main auctions because I participated in transitional arrangements, it might be rather more prudent that I have not thing to do with the transitional arrangements in order to maximise the possibility that I might take part in the main auctions”?

Duncan Burt: That is a choice you could make as a business, but because those auctions—

Dr Whitehead: It is naturally destructive of the transitional arrangements themselves.

Duncan Burt: We have provided both as options. The service only runs for one year, so you can choose which one you enter into. If the transitional arrangements suit you better then you can do that.

Q33 Chair: Why are you forced to make that choice? I am not clear. Why do you think it is a good idea to force people to make that choice?

Duncan Burt: In general, we would say that—

Chair: No, specifically why; only to suit National Grid’s commercial interest by undermining the growth of the demand-side response industry.

Sara Bell: We would echo that comment.

Duncan Burt: If I can pick up the point on the demand-side, there is no specific advantage to National Grid at all in—

Q34 Chair: No, answer the question about why you are forcing people to make a choice between bidding in the first two auctions or waiting for the main one. Why is that a good idea?

Duncan Burt: I may be able to help the Committee by writing in more detail about some of the things—

Chair: No, give us the answer now. This is the policy of National Grid. You have been thinking about it for months. You have thought up a way of trying to block the growth of this industry.

Duncan Burt: No, not at all. The aim of the transitional arrangements is the very reverse. It is designed to allow a smooth run into the enduring capacity arrangements for the demand-side.

Q35 Chair: Let us ask the providers. Does being forced to make this choice smooth the path for the growth of your business?

Sara Bell: No. What in fact it does is reduce the opportunity for demand response in the first two auctions to reduce the price of those auctions and benefit customers and that is what this industry is here to do. NERA, an economic consultancy, has just produced a report that says the cost of that policy decision in the first year alone is going to be £360 million to UK electricity customers. We believe that the policy framework should allow demand response providers to bid into those first two enduring regime auctions, participate in the transitional arrangements and then automatically flow through into those auctions because that is what is going to reduce the cost to consumers. This policy needs to be about producing security of supply at the lowest possible cost to customers. That is how this country is going to benefit from that policy and at the moment we have some concerns about how the policy framework has been constructed.

Q36 Dr Whitehead: When was it decided that the first two main auctions would not be available to those people who were bidding into the transitional arrangement system?

Sara Bell: When the consultation was published in October last year, that exclusivity was part of the consultation.

Q37 Dr Whitehead: Did the industry understand before then that this prohibition would be put on?

Sara Bell: There were a number of areas where the policy decisions were unclear and I think, in fairness to the generation industry, they would say they were also unclear about many points. This policy framework was developed very rapidly through a consultative process where it was not very easy to understand what feedback had been taken on and what was not considered appropriate. I think all participants would say they had some lack of clarity there.

Q38 Dr Whitehead: Mr Burt, the arrangements also do not allow for trading, do they?

Duncan Burt: That is right, yes.

Q39 Dr Whitehead: Why on earth would you take part in a transitional arrangement where you cannot then compete in the first two auctions and, if you have succeeded in a transitional arrangement that then prohibits you from participating, you cannot trade the options that you have developed at that point and indeed the department is not producing regulations that even allow for trading before 2017? That seems a bit of a bullet to the head of the system, does it not?

Duncan Burt: The development of the capacity mechanism has been a very broad and complex topic, as indeed you know, and through that we have had to make a number of choices with Government or advising Government as to how best to structure these options in developing the transitional arrangements and putting in place the suite of options we have and the limitations that are on them. We have done that with the specific aim of ensuring we can grow product at

the fastest rate and a rate that best secures the lowest cost for the UK. The measures that have been put in place specifically are to assist the growth of the demand-side and the demand-side industry with that. Now, whether that occurs or not is something that we will see over the following three years.

Q40 Dr Whitehead: With respect, the question I am asking is: is it not the case that the way the system has been structured predicates the outcome? It is pretty likely that this will not work.

Duncan Burt: It absolutely limits flexibility in some ways but, where we have limited it, we have limited it because we think that that will provide certainty of product in terms of the service that we need to buy. Also, in implementing the transitional arrangements we hopefully allow that service to grow in a way that means that in the mid-term, so beyond the first two years, we end up with a higher level of participation than we would have had we not put those limitations in place.

Q41 Dr Whitehead: What is the rationale for making sure that people who do have transitional arrangement contracts cannot trade?

Duncan Burt: I would have to take that point away and write to the Committee on the detail of that but, in general, we have had to put a number of limitations on these factors to ensure that we have clarity of who is providing the service and how they are providing it so that we can then validate and test, meter and monitor the service provision in real time and during the contract period.

Yoav Zingher: I can probably add a little bit to it, two things. The first one is that when all this was happening the transitional arrangement was meant to be starting this year. One of the things that happened pretty much without warning and pretty much without explanation was, all of a sudden, the transitional arrangements were delayed by a year and so this whole mechanism to incentivise and to help grow the demand side, all of a sudden, disappeared for a year with no real explanation why and replaced with DSBR, which was not perfect. That is one of the things that led up to it.

I picked this out of the response that DECC wrote to this panel and effectively, and I am quoting over here, the reason you cannot do transitional arrangements and capacity mechanism, "So that the funds are being used to further develop the sector and not provide revenue streams for mature players." If I read that correctly, it sounds like they do not want to provide revenue for anyone who is doing demand response and I think this is misleading because there are no mature players. This is a new industry. We are all innovating. We are all heavily loss-making. The mature players are the fossil fuel generators and DECC's reasoning, I think from reading this, is that they are trying to protect the consumer from cheaper demand response and not protect the consumer from more expensive fossil fuel generation.

Q42 Dan Byles: What volume of capacity is being auctioned in the capacity mechanism at auctions and how much will be left for those who are excluded from the early bits, because they take part in TA, by the time they are then allowed to join the auction?

Duncan Burt: If I start with DSBR first and then move on to the full capacity mechanism. Within DSBR we are offering 300 megawatts this year and then for the combination of DSBR and SBR next year we are up to 1,800 megawatts within the auction. That corresponds roughly to the amount that we buy of service through our store balancing product at the moment and we see significant volumes of demand—the broader definition of “demand” that includes backup generation—within those services up to 30% of service provision.

Q43 Dan Byles: My point was that the capacity market auctions that you will be excluded from if you are taking part in the transitional arrangements, effectively these companies will be missing the opportunity to bid, if you see what I mean, for some of that capacity. You have said that by the medium term they would no longer be excluded and they will be able to bid. I am asking if you know what volume of capacity will still be available to bid for by that point.

Duncan Burt: If I use broad figures—

Dan Byles: Are they going to be missing the boat? Are they going to have found that the majority of the potentially available volume would have already been sown up by the people who did not take part in the transitional arrangements? That is the thrust of my question.

Duncan Burt: No, we do not expect so. If I use broad figures, because in the medium term that is easier to navigate, typically, the capacity mechanism, if it needs it, will be auctioning over 50 gigawatts of capacity. Of that 50 gigawatts, through the auction the process will run on a descending price to see when we have enough capacity to meet that requirement and the price that we have achieved within the auction at that point will be the price that everyone receives. If that price requires the construction of new-build generation then everyone in the auction will receive that marginal price of new build, which is expected to be much higher than, for example, the price of construction of new smaller diesel farms or the retention of existing capacity through maintenance and refurbishment. Those parties will receive that price for the year in question and then the capacity auction will run on an annual basis for demand and for short-term contracts.

We expect, under typical circumstances, that a significant volume of the capacity will go through that annual auction and that will be available for the demand-side. I would estimate it is in the gigawatts that would be available within that process and that corresponds quite closely to the level of participation for demand in other services at the moment. We see up to around two gigawatts of demand and diesel backup generation onside running within our store market and up to two to three gigawatts of demand and onsite generation running over triads.

Q44 Dan Byles: I saw some frowning.

Sara Bell: The numbers you were looking for are that about 50 gigawatts are going to be bid in the first auction and about two and a half in the T-1 auction. I think that was the information you were looking for.

Q45 Dan Byles: That was what I was drilling into. So these guys would potentially miss the boat. If they took part in the transitional arrangements, they will have crumbs left at the end by the time they are allowed to participate in the main capacity mechanism.

Duncan Burt: First of all, I was trying to illustrate the mid-term trend as to how these bodies might evolve. The two and a half gigawatts is a figure set at the beginning. As I have said, everything around this is orientated to achieve the cheapest possible cost and we hope and expect that demand-side providers will be on the lower end of the cost bracket.

Q46 Dan Byles: If they take part in transitional arrangements, by the time they are allowed to demonstrate that you will have already auctioned off the majority of the capacity.

Duncan Burt: There remains a significant volume. Two and a half gigawatts is a significant volume in the annual auction and if the costs that we see in those auctions are good then you can expect that volume to grow over time, and indeed I hope it does.

Yoav Zingher: Our view is two and a half gigawatts is a significant amount. But, to answer your question, yes, 95% is going to be procured this year. The remaining 5%, half of that is guaranteed. So we are talking about 2.5%, and then it can be cancelled by the Secretary of State. He has the right to do it. Of the 100%, only 2.5% is there and that can be cancelled as well. Yes, it is a very small part of the market.

Q47 Dan Byles: Just this point about the Secretary of State can cancel it, the point is there is no guarantee that that auction will even take place?

Yoav Zingher: Right, absolutely. There is no guarantee the auction will take place and it is very short of DECC's and everyone's ambitions for demand response, which is a sizeable percentage more than nothing.

Q48 Dan Byles: I feel like we are picking on you, Mr Burt, but you have sat there and said that everything you are doing is about helping the demand-side industry. Does it not worry you that you are sitting next to them and they are telling you that you got it completely wrong and that you are not helping them, you are hindering them? Does it not worry you?

Duncan Burt: It does worry me, but we have listened very carefully to Yoav, Sara and others during the development of these services and we have had to make some difficult choices along the way, which do not suit every single business in the sector, absolutely no doubt about it, and it is an emerging sector where businesses have very different business models around how they are developing their services. We have taken some hard choices on the design side but we have done that trying to grow delivery in this sector, because we think it will provide lower costs and, as a number of people have highlighted, lower carbon intensity and delivery, but on the other side we are trying to do this at the lowest cost to UK consumers. In advising Government on the structure of that and for Government working out policy—obviously the ultimate decision is for them—those are the trade-offs we have been making along the way.

Chair: It is, nevertheless, unfortunate that the consequence of the hard choice is that consumers will pay more, that emissions will be higher, that the demand-side response industry will grow more slowly and that National Grid's shareholders will benefit. That is an unfortunate combination as a direct result of your hard choices.

Q49 Dr Whitehead: Additionally you have 1.6 gigawatts of long-term store contracts, 15 years, still in there?

Duncan Burt: A bit less than that, a few hundred megawatts of long-term store, but we have—

Dr Whitehead: A few hundred, not 1.6 gigawatts?

Duncan Burt: No, not 1.6 gigawatts, but we have—

Q50 Dr Whitehead: Does that have to be added to the total? Presumably those cannot be cancelled, can they?

Duncan Burt: The long-term store contracts cannot, no. That is right.

Q51 Dr Whitehead: How do they work into the calculation of residual discussions as far as capacity auctions are concerned after the second round?

Duncan Burt: The store market is separate from this assessment to a certain extent because that is used by us to balance the system. Although, to be clear to the Committee, in our assessment of security of supply we take into account those services that we have available. Now, without going into detail for the original reasons for long-term store procurement, at the time there were long-term commitments made in the best interests of growing capacity and indeed they have both done that and bought significant volumes of new entrants into the store market.

Q52 Dr Whitehead: I take that point but if we add all these calculations together, which is at, as you say, 95% of—I mean we do not quite know. Depending on what proportion goes for 15-year contracts and what proportion goes for one-year contracts, but assuming the initial auction is reasonably successful in procuring long-term additional capacity then there will indeed be very little left in the second and subsequent auctions. That is then further mediated by the fact that those long-term store contracts exist, which presumably take precedence. In terms of the Secretary of State's decision, for example, whether to hold an auction, the items on the table would include the fact that those long-term contracts exist, would they not?

Duncan Burt: We buy a significant volume of balancing services to balance that last 3% of the system day to day, between three and four and half gigawatts of services on a daily basis we have to have available. Long-term store makes up 10% to 15% of that volume. A modest amount I would say, not a majority and not even significant.

Q53 Dr Whitehead: But when you have a very small marginal amount to be auctioned, that is not a modest amount any more, is it? It is a dominant amount.

Duncan Burt: We buy within those markets that we have already. I do not have the precise breakdown in front of me, bearing in mind the data, but, from memory, my best estimate would

be we buy more volume from the providers in the types of services covered by the Demand Response Association and by the types of services Yoav provides than we do from long-term store at present and, as Yoav knows, we are very keen to grow that market. We are already buying additional services for dynamic frequency response and for reserve from the demand side and we have had some new products for that come online recently, which will reduce the amount of reserve we need in addition within our capacity assessment, and so will go to assist security of supply in the longer term.

We are already buying more services from the demand-side than we do from long-term store. We are trying to grow that volume and where we do it will add to security of supply and it will reduce our need to secure capacity through the capacity mechanism in the long term. As you point out, in a very small way, in a very solid way, it feeds into that overall assessment. Now, on top of that, as I said, the overarching aim is to grow the lowest cost deliver of the product that we can in the long term. We will have to see what is available in the market, but we will do through advising Government and Government will make the final decision on this procurement. There may be a need for additional new capacity but, as I have said, the price for that is likely to be significantly above that that we can secure from demand-side participation where we can grow it.

I just want to add that we see no financial benefit to National Grid or National Grid's shareholders in a choice between the connection of generation and demand for this. The way that we invest in the network is a calculation both based on the location of generation and indeed on the location of demand because the two things together are what influence the power flows on the system. In making this assessment and in the way that this works in reality, we see no advantage to National Grid or National Grid's shareholders in a specific choice between generation and demand. Where there is the potential for it to impact on the amount of network investment we make, which the Chairman quite rightly highlights, we do have that separation in place to avoid that occurring. I just wanted to make sure that I was clear to the Committee.

Q54 John Robertson: Can I assume then from what you have just said that if you do end up making some kind of profit for your company and the shareholders that you will not pass it on to them and you will give it back to the customers?

Duncan Burt: For DSBR we are making no profit from that at all. The only thing we can do is lose money. Ofgem will assess the costs we have incurred and if we buy sufficient to meet the requirements as Ofgem assess it then we retain that income. If Ofgem assess that we have been too conservative and over-procured or procured incorrectly in some way then they can choose to disallow the costs.

Q55 John Robertson: Time will tell. There are concerns around DECC's electricity demand reduction pilot. What is EDR and why is it needed on top of existing energy efficiency policies already in place?

Zoe Leader: Electricity demand reduction is about overall waste and reducing the wastage in electricity use in our system. It also encompasses a lot of what we were talking about with DSR but as well can incorporate distributed localised energy suppliers as well and the whole idea is to bring down demand so we are not using more than we need and also bringing down the costs of the overall system by employing EDR.

Q56 John Robertson: Do you think what we have is fit for purpose?

Zoe Leader: I think, unfortunately, the EDR pilot, as it stands, is not fit for purpose. It is not going to road test the things that we need it to. For example, it will not be rewarding permanent demand reduction and we need to see permanent demand reduction. Because it will be based on peak savings and those organisations that will be looking to invest in demand reduction will only get such a small amount of funding, it is very unlikely that it will either tip the balance to make them want to procure demand reduction or undertake demand reduction and it also will act as a cap on the amount of demand reduction that we can achieve and we need to be maximising that.

Q57 John Robertson: While EDR might not be fit for purpose as you say, is it a case that it could be tweaked to make it fit for purpose?

Zoe Leader: Yes, I believe so. I believe the pilot specifically as it stands, is not, but there are various things we can do to tweak it. For example, if you want to try and ensure that measures are getting the full value of their investment to encourage people to invest in them, you can make sure that not only are they getting funding from peak savings but also that they are able to acquire funding from elsewhere, so that they are fully rewarded for all that they do for the system in terms of security of supply, reduced bills, reduced emissions and so on.

Q58 John Robertson: Why do you think that DECC chose to implement the pilot scheme based upon the capacity market instead of feed-in tariffs?

Zoe Leader: It was surprising to us, given the overwhelming response from the respondents to their consultation in support of energy efficiency feed-in tariffs, but I think they buckled under probably quite intense pressure from Treasury and other departments. There seems to be an institutional bias towards supply-side measures and investing in that and a reluctance to look at the evidence on the table with regard to what demand-side can deliver and is delivering. Therefore, there just seems to be this bias towards, if there is funding for something, we should be funding in building more stuff rather than reducing electricity.

Q59 John Robertson: Do you accept that, including our Committee, there was a majority that would have said to go for feed-in tariff rather than a CM?

Zoe Leader: There was a majority, yes, that wanted to go for feed-in tariffs.

Q60 John Robertson: Do you think the reason is money?

Zoe Leader: I think it comes down to money at the end of the day.

Q61 Dr Whitehead: Within in the levy control framework as well, of course.

Zoe Leader: Yes, within the levy control framework. In one sense it is understandable trying to manager those costs, but then you are also then constraining something that is incredibly cost-effective and a cost-effective way of bringing down bills, reducing emissions and obtaining security of supply.

Q62 John Robertson: What do you think the impact of EDR will have ultimately?

Zoe Leader: I think ultimately, unfortunately, it will reduce the amount of measures that we see being implemented and it also will reduce the amount that we see of deep retrofits, which arguably is where we need to get to, especially within the built environment and industrial-type buildings. Also, it just acts as an overall cap, so we are not going to be maximising the amount of energy demand reduction. Also, at present it is not giving the long-term signals to help develop a market and we need to see a robust innovative market develop. We want new entrants and we want those entrants to be able to bring forward innovative ideas that, in the long run, could save us even greater money on avoided costs for building new plants as well as transmission and distribution costs.

Q63 John Robertson: You basically answered my next question. There is a quote that we have here, “According to WWF, narrowing the pilots focus to winter peak savings may mean that the Government ends up ‘paying more for security of supply than is necessary and pushing up carbon emissions in the process’.” Why did WWF say that?

Zoe Leader: Because you are narrowing the scope of the pilot and you are just focusing on the winter peaks, first, you are not going to get enough measures coming forward to bring down those costs overall and, secondly, you might have to make sure that those payments are perhaps artificially higher than they may ordinarily be; therefore, making it look less cost effective. For example, if someone bidding in could access other financing, whether it was through the Green Deal or ECO or CRC, they would then be getting the whole value of their energy efficiency investment and, therefore, would then bid in for the winter peak at a lower amount. Therefore, you would be getting more bang for your buck within that capacity framework.

Q64 John Robertson: My problem with all these things, talking about winter peaks, it depends on the winter, of course. If it was last winter, then it was a very nice winter. If it was a couple of years ago, it was diabolical. While I understand what you are saying and I would agree in a certain way, it still has to be taken into consideration what kind of winter they are comparing it to. How do they do that?

Zoe Leader: Unfortunately, I am not fully versed in how they compare—

John Robertson: Do you think they even care? Do they go for the last winter and see what happens?

Zoe Leader: I do not know how they compare between the two and especially that far ahead in the capacity markets as well.

Q65 John Robertson: It is maybe one for the Minister later. Mr Jones, the NEA have stated that there is no incentive for DNOs to consider how to implement EDR to avoid network reinforcement. Do you agree with that?

Phil Jones: I understand why they say it. Personally, I do not think the problem that they suspect is there is there at all, but I do not think it is very large. Let me explain why. It is true to say that there is not a specific mechanism where we can go and have new revenue coming into our business because we went and persuaded somebody to put some form of demand reduction, whatever it might be, but—and this is the subject of your network cost inquiry as well—what drives our network cost? If our overall costs go down we take a share of that reduction and the customers take another share and in the long term that remains indefinitely, if that is the case. I think the reality is, because of the scale of benefits as I talked about earlier, because they are very heavily diluted, even if you just immediately waved a wand and said, “Here is an arrangement where, under the regulatory framework, we could go and effectively buy this kind of service and receive an incentive payment for it”, the money that would change hands would be insufficient to encourage people to take these kind of measures because they are so heavily diluted. So, in short, we are only incentivised to reduce our costs and we do keep a share of that through the regulatory mechanism. That is how it works. I would say that is the right incentive, because it is sharing out the value that really is there, not subsidising from the network point of view, because bear in mind we are not creating any benefits if people just do not buy a megawatt or kilowatt hour. The benefit only exists on the network if there is a piece of network that does not have to be built. The kilowatt hour could still come and go. We do not change our costs because somebody does or does not turn on the light. We change our costs if the peak demand on the network shifts.

Overall, the task that NEA would kind of envisage—which I fully support and understand—is that we need to co-ordinate energy efficiency in a town, for example, so that whole locality, which is not just in time, it is in space, we have to be able to do it in the same location at the same time so that the network in that part of the country does not need to be as big in the future. That incentive is there, it is just not very strong.

Q66 John Robertson: That would suggest to me, from what you have said—and correct me if I am wrong—that you can understand why they are saying what they say and that there is an element of truth here but the facts somewhere lie in-between what you have said and what they say. Is that fair?

Phil Jones: I would say that it is worth exploring. I certainly would not say—I am not going to sit here and tell you—“Mr Robertson, there is nothing in that at all. We should not think about it at all, any further”. I am saying that I think the reality, funding energy schemes from NEA’s point of view in vulnerable customers’ homes out of network benefits, the numbers just would not stack up. I am not saying we are unwilling, in fact, we are actively engaged with NEA and other similar bodies to find how we can give those vulnerable customers more access.

I would just say this very briefly, if I may: one of the general points that we would make to the Committee's question 4, "What should Government be thinking about?", bear in mind that what we are doing here, what we are contemplating doing in the long term is putting a value in time on a very important commodity to people in their homes, which currently they do not have to think what it costs. I do not mean that they do not care what it costs, but it is what it is all day, every day. We are about to contemplate, for good reasons, moving that cost during the course of the day. Now, that obviously for certain people creates an incentive and an opportunity to gain and that is all good, but at the more vulnerable end of society, there are people who are going to find it very difficult to trade in this. I would say that one of the things that Government needs to do—as well as not pick winners on technology and so on—is make sure that the unintended consequences of the mechanisms do not hurt people who either do not want to participate, cannot or should, but cannot afford the risk.

Q67 John Robertson: What would Ofgem and DECC have to do to incentivise you and other distribution network operators to implement EDR?

Phil Jones: They already have incentivised to do it and they have strengthened that incentive starting in 2015. In our 2015 business plan, which we will probably talk about next week in your session, we are on the hook for reductions that as yet are unproven in connecting things like low-carbon technology. We have to find benefits to make that possible, so those incentives are already there, but if I replace the word "incentive" with "subsidise" I think you would immediately take a different view of it, which is if the value really is not sufficient in the reduction in the network costs to pay for the energy efficiency mechanism, we should not do it. People should not have to pay for it if the value is not sufficient.

Q68 John Robertson: My last question, how could the EDR pilot be improved?

Zoe Leader: I think maybe going back to what we said earlier, align providers that are bidding, that if they are just going to get rewarded for the peak times, that they are allowed to use incentives from elsewhere to get the full value of investments, also to make sure that they don't have to necessarily prove that it is additional, that it is to encourage new market entrants to come in to try to really keep any administrative burden to a minimum. Finally, there needs to be some kind of indication that once the pilot is completed that there will be an enduring regime, and some clear signals are on the way as to what that will look like so that people who might be setting up a business in this area and looking at getting returns on their investment will be prepared to jump in and to invest in their business.

Q69 John Robertson: That made me think of another question, unfortunately. How do you incentivise new people to come in?

Zoe Leader: You need to be able to—

John Robertson: Given the system, the way it is and what we have heard.

Zoe Leader: Yes, it is very difficult, because like I mentioned before, there seems to much more onus and much more thought given to supply side and building of new kit, so it is very difficult, but there needs to be adequate revenue streams, which is one of the reasons why energy efficiency feed-in tariffs seem so attractive. There would be a revenue stream, it would be able to be flexible, so if you wanted to do deeper retrofits, you would be adequately rewarded for doing so and you would know for the long term that that was going to be there. I think with the pilot being set in a capacity market style, if you are only bidding in every year or every few years, you do not have that long-term certainty beyond that. I think new entrants need to know that they are going to have a good run at this.

Q70 John Robertson: Do you think—and this is an open question to anybody—there should be some kind of system for where new entrants get help and assistance to come into these markets or is there enough there at the moment to satisfy everybody who wants to get involved?

Sara Bell: May I come in there? It is not necessarily about giving assistance, it is about ensuring that there are no hindrances and ensuring that we have a level playing field so that innovators can come in and offer their services, not being prescriptive about the how so that creative businesses can come and deliver value.

Q71 Sir Robert Smith: Taking that forward, Tempus Energy have told us that it is a very dynamic evolving market, technology, and thinking that one of the challenges is to avoid the Government trying to pick winners at that stage. I see nodding of heads. Is there any role for Government in driving innovation and deployment or is it more that they have to be careful not to hold it back?

Sara Bell: I personally think it is more about ensuring that they do not hold it back, ensure that we have that level playing field and that we do not allow fears over security or technology risk to inhibit innovation. It is very easy to bamboozle officials around fear over technology risk or security when in fact there is a commercial reason for that conversation, so the more we enable new entrants, innovative players to come in and compete fairly, the more we will have innovation in this sector.

Duncan Burt: I absolutely agree. I would echo that. We have done a lot to grow our service provision from new and innovative providers and we have done that by changing the design of our products so it better meets their business models and what works for them, and we have done that by simplifying, as Sara says, and reducing the barriers to entry to those services, because removing those hindrances is key. If you can do that alongside being very transparent and creating a clear and investable business case within those markets for the participants, then you are going a long way to growing businesses and growing an industry as best you can.

Q72 Sir Robert Smith: UK Power Reserve, on the other hand, have proposed establishing a central standard for technology for dispatching and measuring demand-side response. Is that something that needs to be done?

Duncan Burt: Within our contract structures, one of the things that requires a lot of thought is how you measure exactly how much response has been provided by demand. Do you measure it versus the previous hour or do you measure it versus the previous week or do you measure it

versus the previous year? That is relevant to make sure you are buying a service that is valuable, because why would you pay someone to do something that they would already be doing, but it is also important that it is very transparent to competing parties—and UK Power Reserve are obviously a competing party—so that everyone understands that it is a fair and level playing field. The challenges of doing that with demand side are not really challenges, it is just a different way of having to do it. You need to make sure that you have signalling and you understand the local context for that site, so it is important and it needs to be thought about carefully, but if it is done properly, it does not create any perversity of decision or bias of competition in any way.

Sir Robert Smith: Mr Zingher, did you want to come in?

Yoav Zingher: No, I think Duncan's answer is probably about right. The key is two things. One is it should be consistent, so it should be the same for everyone, but it should also be done in a way that understands that a hotel is not a power station, and for it to provide the same service to the grid, you cannot treat it in the same way. There are some subtle things that make that work, and if you get them right, then it works really well; if you get them wrong, then it is a real barrier. What I would say is that we have some really good examples where this stuff does work, both in the UK to an extent, but mostly in the US, and if we take the best practices, we will probably find we can emulate that. To me, the important thing is that we should not come in prescribed with the technology or a particular solution. One person might think the right way to do this is to convince a car company to shut down its production. I think that is crazy. I think if we can make money making cars, for God's sake, we should do it. Look outside of all the buildings that are consuming power, there are gigawatts of them, and if we make small adjustments in each one, we will have a cleaner and a better result because we do not have to sacrifice output.

But it does not matter what I think or anyone else thinks, we should create a market that works for everyone and let the price come out. One of the challenges we have today is we do not really have a unified position on any of that. DECC put out a report—I think it was DECC, anyway—in July that basically said they have a whole bunch of different policies, none of which are coming together because the whole thing just is not gelling. Having a big picture view and setting a target of what it is that we want without necessarily saying how to get it would help a lot. I am really passionate about this, because the UK is currently seen as the leader in Europe for this stuff. We set up as a company because we wanted to develop this. All our hardware is made in the UK, all of our software is made in the UK and we are starting to export it as well, and the benefit is not just what we can do over here, it is creating this new industry that we are not going to get from making more power stations in the way that we have done before, so there is multiple benefits to be had from this.

Q73 Sir Robert Smith: Mr Jones mentioned earlier about vulnerable customers and the tariff structures, and just when to try to reassure consumers and to stabilise the market, we have gone for simplified tariffs, it is at the same time as the whole thing is about to turn on its head with time of use. Citizen's Advice have urged caution in the speed of doing this, but how are people going to shop around in the domestic market for the right deal to keep the market working?

Sara Bell: I think there are levels of understanding that are required. For example, every time I make a phone call, I do not know exactly the technology that is underpinning my ability to make that phone call, so there are levels that customers do not need to get involved in, but they need

to have trusted entities that provide services to them. The more we provide innovation opportunities, the more new entrants come in, the more that trust will grow with customers.

Q74 Sir Robert Smith: But with that phone market, people were bamboozled as to how to get the right deal to get a good price on their phone contract.

Sara Bell: But competition has enabled multiple providers, so if you are not happy with the provider you have, there is an opportunity to change.

Phil Jones: I think you raise an important question, and our position, we are not directly involved in that because we are a distributor, not a supplier, but inevitably those two worthy ambitions of rebuilding trust in the market and giving people simplicity so that they can trust and introducing a more complex world inevitably have to be traded off. I guess we would expect to see, hopefully, first the lack of trust give way eventually to a world in which people are willing to engage—and that is the key—in the market. It inevitably will be a bit more complex for them. In other words, eventually we will have to allow people some more choice and to have access to more tariffs. It stands to reason if we are going to use tariffs—and you can only have four or five or whatever the law says you can have—that is going to have to change eventually if we want people to have more choice.

Zoe Leader: But it is my understanding as well for the most vulnerable customers, there are protections that you can put in place for those people that might not be able to engage so much with their energy use and might be limited in how much they can change their energy use.

Q75 Sir Robert Smith: Do you want to maybe write to us with how those protections would work?

Zoe Leader: Yes, certainly.

Yoav Zingher: Just to add to the pot, I think this is where the technology really plays into this, smart devices, smart factories, smart homes that can make these kind of decisions for us, backed up by the right markets, should be able to reduce the costs, but it is very heavily technology-driven. We need to make sure we have this stuff in place to incentivise that development.

Q76 Mr Lilley: On some extraordinary chance, I am on the smart reader rollout and they have put one in my house. It does not work, of course, because it is in the basement and the kitchen is there. It is a small house and so it does not travel and I am not prepared to have this machine in the middle of my drawing room, small as it is. My question is does the smart reader rollout envisage linking up with people's mobile phones? Everything we do, we do with an app on our phone. If it does not, it is madness.

Duncan Burt: If I can just come in on that, there are a range of potential home energy management solutions that are beginning to appear in the market now, many of which are integrated with your mobile phone in some way. As we see it, the key thing your smart meter does is allow you to be billed half-hourly at the price in that half hour for your energy. Once you know that, your smart meter does not have to control the rest of your house, all it has to do is to settle your bill. You can then separately control different elements in your house how you want,

and just to set out very quickly for the Committee on how we see that track evolving, very often commentators talk about deciding when to charge your phone or deciding when to run the washing machine. Two things have to happen for this to grow. First, there has to be a motivation to do it, either in terms of carbon or social responsibility or financial, and secondly, it has to be easy to do, coming back to the point earlier.

When we have grown our balancing services markets through demand, that tends to have been easiest to do, tends to come through having a good customer management interface, either through ourselves or an aggregator, by having automation that sits behind that, as Yoav said earlier, where effectively they agree it once a year and then it rolls through. On the motivation to do it, the monetary value of this will become much more significant as we go through this decade, as electrification of heat and transport potentially comes in in the next decade, which are large sources, and as renewables increase on the system.

Q77 Mr Lilley: But my recollection is we have legislated, requiring the supplier to spend £16 billion on installing smart meters in people's homes. Will these smart meters link up to their mobile phones?

Sir Robert Smith: You do not get signals in some areas.

Mr Lilley: We do not get signals in my house on the existing system.

Sir Robert Smith: No, the phones, I mean.

Mr Lilley: But anyway, whether or not it is a good thing, the question is does it? If it does not, it is madness.

Phil Jones: Sir, I will check for you for sure. I am not going to install them, but the bulk of the answer does rest in I suspect that what you would want to do would not require you to connect to your smart meter, it would require you to be able to control the things in your home, like an electrical vehicle or a heat pump or whatever else. They are already talking about doing exactly that now with central heating.

Sir Robert Smith: That is with my mobile phone.

Mr Lilley: You have come up with a product enabling them to do that?

Phil Jones: Yes.

Sara Bell: I would be very happy to write to you about this, if you would like me to.

Q78 Mr Lilley: Please, yes. The other thing is just basic things on practical experience, because I had a holiday house in France. There I was offered a tariff that if I agree to pay the double the price on the 22 coldest days of the year, I can pay less on all the other rates. I looked at that tariff, because I try not to go there on the coldest days, and if I am there, I turn the heating off the day before for my hot water. That seems to work, it is very simple. I do not need a smart meter or anything, it is just sort of there. Are similar tariffs available in this country?

Sara Bell: Not at the moment, but new entrants are coming in that will offer more innovative tariffs.

Q79 Mr Lilley: Thirdly, there are countless industries where capacity in the short term cannot be increased, but demand fluctuates, and systems evolve through variable tariffs and variable contracts, interruptible contracts and non-interruptible contracts to evolve with it. Why hasn't this happened? Why are we just about doing this? Electricity was invented a century or more ago. Why is it in the electricity industry we assume a uniform price and maximum capacity will be provided?

Duncan Burt: If I could just set out a couple of the key elements around that. Ourselves, and indeed Ofgem, have led a number of different activities looking at incentives for participants in the market to avoid taking power or to generate power at periods of high demand, so we have half-hourly market prices, the half-hourly markets and we also have balance prices, which place penalties and incentives on participants to generate when we need it and to avoid taking demand when it is expensive. That works very well. The other measures under EMR and under the capacity mechanism effectively sit on top of that and act as an additional reserve during what is going to be a period of uncertainty as existing power stations close and new ones are built. Now, that does not mean that we have stopped working on ensuring that the market is functioning properly and that there are strong incentives there, and indeed, Ofgem at the moment have been running a review of the arrangements for balancing prices and balancing incentives that is just in the process of landing and being implemented. I am sure we would be happy to provide you with more detail on that.

Q80 Sir Robert Smith: Does the rush to buy high-powered vacuum cleaners before the deadline suggest that there is still a way to go in terms of developing that market or are people being rational in the sense that a high-powered vacuum you need to use for less time?

Duncan Burt: The one point I would make on that—and I make it carefully—is that a number of the changes and shifts we see in the market over the next 10 years are very much going to be led by consumer, whether it is the pick-up of electric vehicles or changes in the way that the home is used. That has always been the case. It has always been the case that consumers can change the way the networks are used and change the way that demand is used. In having that active role, it is important that we have the underpinnings that make sure the market works to recognise that and engage them in that.

Things such as smart metering provide a fundamental underpinning for a network or for a market that can work in a different way and that makes sure that overall the right incentives are placed on consumers and consumers can see the costs that they are incurring and that they place on the industry through driving additional capacity to make sure that we have the right efficient answer for the UK overall. That is what all of this is aimed at doing.

Phil Jones: I suspect that people do not like being told what to do and that is why they have gone and bought high-powered vacuum cleaners.

Q81 Albert Owen: In a couple of minutes we will have the Minister in and we will be able to ask him questions about DECC proposals for an enduring capacity market regime, and I know there has been consultation and a number of concerns have been raised by yourselves in that. What concerns do you think we should be raising with him? What would you like us to raise with him?

Sara Bell: First, the inability to participate in the enduring regime and the transitional arrangements and, secondly, the contract length, the discrimination against DSR on one-year contracts against 15-year contracts. Those are the two areas that this industry is most concerned about. Yoav, do you want to add—

Yoav Zingher: To add a number three is the uncertainty around the year-ahead auction, so the uncertainty around the crumbs left over for the industry.

Zoe Leader: Under EDR, will there be an enduring regime beyond the two-year pilot and will they commit to that?

Q82 Albert Owen: That brings me to my next question. Doubtless it has been pretty clear, and I picked it up from earlier answers, but what is your understanding of what will happen or might happen following the pilot scheme for EDR?

Zoe Leader: From my discussions with DECC, it is really unclear. They do not seem to know themselves what will happen beyond the two-year pilot. They are going in with the attitude of they are testing whether this will work, but by their own admission, if the capacity market-type model is not seen as the right model, they might come out on the side that energy efficiency feed-in tariffs are right and therefore they will have to do a whole set of thinking around how they are going to deliver that, so will that then incur an even longer delay on demand reduction? There just is no clarity at all and I do not think, if they are honest, they know themselves.

Q83 Albert Owen: Okay. Anybody else like to comment on that?

On the issue of contract lengths, we have had submissions from Honeywell Building Solutions, for instance, that argue that the contract lengths offered to providers are currently too short to justify the significant investment needed. How great a concern is this—it is obviously a concern, you raised it—and what length of contract would be needed for suitable investment?

Sara Bell: If you look at other capacity markets in the US, they have five-year contracts, which they offer to all resources.

Q84 Albert Owen: Do you accept the 15-year period is too long?

Sara Bell: I think 15 years is too long for all resources.

Q85 Albert Owen: Okay. So five years is a period that you think would attract the investment?

Sara Bell: Yes. Yoav, do you want to add anything?

Yoav Zingher: Yes, I agree. I think it should be the same between the resources. I do not own power stations, but 15 years seems like a long time.

Q86 Albert Owen: Mr Jones, the UK Demand Response Association, who are sitting next but one to you, has argued that the capacity market does not recognise additional benefits of DSR provided to reducing the capital and operational costs. Do you agree with that?

Phil Jones: I will say right out of the gate I am not as well-qualified as that individual is to comment on it. I certainly suspect it does not pay a great deal of attention to it. I also have said several times this morning I think those benefits are at the margin. Now, if they were there, if they were certain, then I suppose someone who is able to access them via us, there is a lot of links in the chain to get one of, for example, Sara's customers to say, "Yes, that is right. We can now bank the benefits with the network company and therefore we can bid more aggressively in that market". So I will accept to the extent those benefits are there, they are probably decisive, but it is not geared to recognise that. It is chasing security to keep the lights on for the nation as a whole, not to optimise the costs of distribution networks further down.

Q87 Albert Owen: Okay. Responding from your association there, it is your statement: how do you think we could rectify this? How can it be rectified?

Sara Bell: Are you referring the transitional distribution network losses that are not taken into account, just to clarify?

Albert Owen: You are quoted that you have argued that the capacity market does not recognise the additional benefit DSR provides to reducing the capital for operational costs of networks.

Sara Bell: Right. Yes, we believe that by using demand response instead of generation to create security of supply, there will be a positive impact for both transmission and distribution and the capacity market currently has no way of passing that revenue to the industry that has caused that benefit. That is correct, and that is as a result of how the regulatory framework functions, so when Northern Powergrid puts in their business plan—like all DNOs, I was previously at UKPN, so I am familiar with the regulatory framework—if customers on those networks end up taking actions that reduce the need for network reinforcements, the incentives that are in place pass that amount back to the network operator and the balance to be smeared over all customers, so they do not pass specifically to the customers taking the actions and that is simply how the regulatory framework works.

Q88 Albert Owen: Any other comments? Just a final question I have. The Institute of Engineering and Technology have suggested, and I am quoting, "The timeframes which the Government expects to implement full integration of demand-side participation in the main auction may prove to be optimistic". Would you agree with that and, given the Government's current proposals, when do you think the DSR will be able to participate fully in the enduring CM market regime?

Sara Bell: The ability of customers to participate is all driven by the opportunity offered, so when opportunities are offered for participation, the demand side will come forward. It is not about saying the timeframe for development is in some sort of linear fashion. It is about are there commercial opportunities that incentivise customers to be flexible? If there are, they will come forward, and that has been demonstrated quite clearly in the US markets.

Duncan Burt: I would back that up. Yes, there is no central designer here who is deciding how this market evolves. The idea is to put in the best facilitator in the market that we can with the minimum barriers to entry that is best going to achieve the cost to UK consumers and then let that market grow.

Phil Jones: I would reinforce that by saying in your question before that technology will follow. This is not complicated technology, just from an engineering point of view that is needed underneath it. If the customers want to engage, if the commercials are there, our experience on the trial that we have come and talked about earlier is the technology will follow once the opportunity is there for it to be deployed.

Q89 Albert Owen: You think the American model is a successful model and DECC should be looking closely at it?

Sara Bell: The American model definitely has facilitated demand response to come forward. I am not suggesting that it is a perfect market or that—

Albert Owen: Sure, and it is different in different parts of America as well, yes.

Sara Bell: Yes, exactly right. But I think some of the principles around competition, ensuring a level playing field to ensure that the most competitive resources come forward, I think those principles we could definitely learn from, because that is what is going to reduce the auction price, and customers, whether domestic, commercial or industrial, will benefit from a lower auction price and that is what the demand response industry is trying to achieve here.

Q90 Chair: Just on the point about the five years, you mentioned five years as being a better time for a contract. The generators I guess would argue that generation is a very capital-intensive activity indeed and therefore they need long-term guaranteed returns. The impression is that demand-side response, although it is evolving very quickly, is not such a capital intensive activity. Is that not a reason why the Government might argue that one year is long enough?

Sara Bell: I guess that comes to what the policy framework's objectives are. Are we trying to achieve security of supply at the lowest possible cost to customers that this industry believes should be the policy objective or are we trying to fund fossil fuel generation? What is the policy objective? As an electricity customer myself, I hope it is about providing the lowest possible cost for security of supply.

Chair: Okay. Thank you all very much, it has been a very useful and interesting session from our point of view and we are grateful to you for coming in.

Examination of Witnesses

Witnesses: **Matthew Hancock**, MP, Minister of State for Energy, Department of Energy and Climate Change, **Jonathan Mills**, Director, Electricity Market Reform, Department of Energy and Climate Change, and **Ian Ellerington**, Head of Innovation Delivery, Department of Energy and Climate Change, gave evidence.

Q91 Chair: Good morning. Sorry we have kept you waiting. We had interesting answers from a rather large panel that took a bit longer to deal with. Welcome to the Committee. You are the fourth Minister of State we have had a relationship with since the election. We hope perhaps this will maybe at least see us through to a solution and there will not be more changes.

Matthew Hancock: I hope so.

Chair: You are most welcome here. You know who we are, so I will not bother with any other introductions and I think we know your colleagues too.

There has been, I think, a strong feeling from our evidence session this morning, which reflects things that have been said publicly, that the way in that DECC has designed and is implementing the transitional arrangements is skewing the playing field towards generation and against demand-side response. What do you say to that?

Matthew Hancock: The first thing I would say is what a pleasure it is to be here and very good to see you. I certainly hope to see out the Parliament, unless there is some great catastrophe.

On this whole area of demand-side reduction, I think that it is an area of great importance. It has great long-term significance. The technology to unlock its real potential is only just coming to the fore but we have to be careful with the language around it, because the false dichotomy between demand side and the supply side is breaking down. We should do more to encourage it to break down so that large suppliers and dissipated demand is replaced gradually over time with dissipated supply and dissipated demand that would reduce pressure on the grid. So I think there is great potential in this area. The full potential is by a large margin not yet explored, but there are understandable reasons for that because the nature of the technology, and in particular the IT needed to make it work effectively is only just starting to happen. I would say that is the big picture answer to the question.

On the specifics, in the medium term the capacity market is a good answer to this, because it will allow supply-side measures to compete with demand-side measures in order to tackle the need to mitigate spikes in demand. We put in place transitional arrangements in order to support and encourage demand-side response in the run-up to the capacity market and we have also put in place measures for this year and next that are more transactional in order to try to get this moving before the capacity market comes in in full. So it is a bit harsh that those measures are not supportive enough, because they have been put in place precisely to ensure that some demand-side reduction expansion can happen in the short term, while the long-term structure is put in place in which I hope that it can flourish.

Q92 Chair: Okay. Clearly this is a new market and therefore we are all feeling our way a bit, and I think we understand how we have come to the current situation. I think there is a residual context problem that historically concerns about capacity margin have always been met by, "Oh, let us build some more capacity so we have some surplus on the system". That was the assumption when the industry was in the public sector, it has remained largely in the private sector the same assumptions,

and in particular not only the generating companies but National Grid are financially incentivised as far as their UK business is concerned by building more transmission capacity, that is how they expand their business. There is a mindset and a history that has now to be overturned. As you acknowledge, there is an opportunity. Instead of thinking, "Oh gosh, we will build another power station" we will find a better way of managing demand and incentivising demand reduction. That is good.

The concerns we have heard, and to be specific now about the transitional arrangements, first there is ban on people who participate in the auctions for the first two years from being allowed to take part in the main auction. Now, we pressed National Grid on the reasons. They were unable to give any kind of coherent justification for that decision at all.

Matthew Hancock: The reason is that we brought these transitional arrangements in for those who are not in a position yet to participate in the main auction. If you can participate in the main auction, then that is terrific, but our fear is precisely the opposite concern, which is that if those who can participate in the main auction were able to participate in the transitional arrangements in full, then that might squeeze out those who are not yet in a position to participate in the main auction and who we are trying to encourage to get up to scale through the transitional arrangements. Now, there is a judgment between which of those analytical assumptions is right, but there is a pretty strong argument that given that there is necessarily a budget in the early years as demand-side reduction, I hope, grows, we want to encourage a wide spread of participation in that and not have that completely taken up by those who might be able to come in and do the whole lot. In a sense we are trying to get this long-term culture change.

Certainly one of the things I want to do is encourage that further, and connected with the increased possibilities around smart grid and smart meters and all of that technological innovation piece, to try to open this up. There is a concern that if we were to open up the transitional arrangements to everybody, we might not get as much of that culture change and grow the market from an early stage.

Q93 Chair: Nevertheless, there is a danger that because of this, no one who is serious in this business is going to bother with the first couple of years at all, are they? Why would they, if that eliminates them from taking part in the main auction?

Matthew Hancock: The trick to pull off here is to encourage participation in demand-side reduction as a whole, whichever mechanism that is through. We have a series of different mechanisms that cover both different scales, but also over a different time period, and having a mix at this stage, I think it is probably a good thing until we get the full market off the ground.

Q94 Chair: Isn't there a danger though that if the perhaps more significant players on the demand side feel excluded from the first couple of years that in the meantime the generators are going to be getting all their act together and be dominating the whole capacity mechanism market, that only a tiny fraction has been reserved in 2017 for demand-side, and even that tiny fraction could be cancelled at the discretion of the Secretary of State? That is a further element that creates an uncertainty for people who might be wanting to bid on demand-side. In the meantime, the generators are sort of mopping the whole thing up.

Matthew Hancock: It is the nature of the beast that the supply side is bigger than demand reduction. It probably will always be the case, because if demand-side reduction gets bigger than supply, you end up with nothing at all, but it is very much in the nature of things that that is where we are. We may not like to start from here, but that is where we are starting from and we are starting from a position where supply response has been the dominant approach as a matter of fact, but also been the dominant policy attitude, not least because demand-side reduction was much harder before some of the new technologies that have come in. So if you are saying do we want it to grow, absolutely, and does that mean that some of the players in the demand side are less mature than on the supply side? Of course, but that is just a matter of reality and we have to shape policy starting from reality and leading to a vision of a glorious shining light on the hill rather than assuming a glorious shining light on the hill right from the start.

Q95 Chair: On the question of the contract lengths, again, I am sure you will be aware that concern has been expressed by the demand-side response providers that the contracts that are on offer are limited to one year and that they argue that a longer period would be beneficial, and of course there is a contrast—for reasons that are understandable, but it is a very big contrast—with the period that is guaranteed for generators.

Matthew Hancock: Yes. I think that this again comes down to the structure of the investment needed on each side. Demand-side reduction typically does not involve large capital expenditure. That is one of its advantages. In order to encourage and give some certainty of return for capital expenditure, that is why we have the 15-year contracts, but it is only for new CAPEX, because where this is not CAPEX applied, we have an annual cycle. Now, of course we have to drive value for bill payers and taxpayers through all this as well and an annual cycle, especially in a market that is maturing, has big attractions from that point of view. So in a sense we are being tough with the one-year auctions on the grounds that we want to make sure we get the best value year by year, and if you do not need the certainty of the investment for the CAPEX, then there is not a strong argument to have the 15 years.

So, again, you have to get the balance. We cannot get away from the fact that more investment is needed on the supply side. As strong a supporter of demand-side reduction as I am, it cannot do the whole trick on its own so we have to make sure that we keep that investment flowing. The last four years we have seen a big investment on the supply side. This is good. These two things are not alternatives. It is a matter of getting a market that gets the best value for money, given carbon considerations, out of all of the different options for bringing the grid into balance. That is how the capacity market is structured, to be able to get that level playing field, so we have to see this as a technology that is maturing rather than as the finished article.

Q96 Chair: Okay. Given that there are clearly very substantial advantages in terms of emissions reductions on the demand-side response and given that experience in the US shows that the consumer costs are cut as well, what I am arguing for is that it is important to be aware that historically the situation has always been, “Okay, let us get some generation”. To reverse that may need a slightly interventionist approach from DECC to make sure that the alternative, which goes against all the culture in National Grid and the whole way the policy has ever been devised, you may need to give it a bit of a push, and therefore I would urge you to listen carefully to the actual participants in the demand-side response industry. If they have concerns, I hope they will be listened to carefully.

Matthew Hancock: I can absolutely give you that commitment. We also have to remember that this has to be signed off by the Commission on the state aid grounds, and they are not keen on long-term contracts where there isn't CAPEX. Far be it for me to pray in aid the European Commission, but it is a necessary step to get the capacity market through the Commission, which was successfully achieved in July, but we are operating in a constrained environment supranationally as well.

Chair: I am sure the Polish coal industry is very nervous about the potential for demand-side response and reduced demand for their products. Dan, briefly.

Q97 Dan Byles: Thank you very much. Minister, I apologise, I have to leave in a few moments, but I just wanted to ask, have you had the opportunity yet—I know you have not been in post long—to visit or meet with any demand-side response companies to hear directly from them their concerns? We have heard some very strong concerns from the companies who are trying to do this, saying that they think Government policy is currently hindering them.

Matthew Hancock: I have had representations and I have had a lot of reading.

Q98 Dan Byles: Do you plan to meet directly with them?

Matthew Hancock: Does it count that I met the engineer who installed by Google Nest system in my own house over the summer? That probably was not what you had in mind.

Dan Byles: No. Do you plan to meet them?

Matthew Hancock: But I am a personal advocate of this. I can see the consumer behavioural response on my own iPhone, but of course I plan to meet them. In getting this off the ground, we have to get the balance right, but we have to take into account how it is operating on the ground and how it is working, and especially over the next period in the run-up to the first CM auctions, but then there will be further capacity market auctions each year as well of course, so it is not just about the—

Q99 Dan Byles: But nevertheless, it has to be available to be bid for, of course.

Matthew Hancock: You have to get it off the ground first and then it is a rolling series of contracts. I am an enthusiast, yes.

Q100 Dan Byles: Right, but the industry themselves are telling us that there is a problem and that Government policy is hindering their ability to roll this out in the way that we all want them to do so, so I just—

Matthew Hancock: It is entirely understandable. However, we also have to get the best value for money as well, so I will absolutely listen and we will do what we can, but if the argument is, "We would like to be paid more" then we have to be cognisant of where that comes from.

Dan Byles: That is not the argument that has been presented to us.

Matthew Hancock: I have no doubt.

Q101 Sir Robert Smith: One of the arguments, whether you would count it as capital, is the inertia of the upheaval of moving to a different way of operating to achieve the demand reduction and that a year is not maybe long enough to say to a car manufacturer, “If you switch production from 9.00 am until 5.00 pm to 8.00 am to 4.00 pm, you will reduce the demand at the peak” and to only have one year’s incentive is maybe not enough. Would that count as an understanding of the capital commitment?

Matthew Hancock: The thing is that there are auctions each year, so it is not like we are offering a one-year payment for somebody to reduce demand and an auction for those contracts and then we expect the demand to be reduced forevermore. There are annual contracts here, so the question is whether you get price certainty over a contract period rather than whether you can get a contract. That is where it interacts with value for money, because if the value that bill payers have to pay to make sure that we get especially capacity market peak time demand reduction, which of course reduces pressures in all sorts of other ways as well, the point is not that the contract will only be available for one year, it is that we will give contracts for one year. A bit like if you are renting a house and you have a six-month short-hold tenancy, you can still be there for years, you are not turfed out after six months. It is exactly the same principle.

Q102 Sir Robert Smith: The power of the Secretary of State to cancel future auctions, is there any criteria by which he must make that judgment?

Matthew Hancock: I will ask Jonathan Mills to answer that.

Jonathan Mills: He has discretion about how to do that, but the circumstances under which we would expect that that power might be exercised would be ones where we thought that the capacity that would be procured would not be needed. So circumstances where we judge that the capacity that was available from the capacity that had already been procured would be sufficient. I think—although we should check back on the detail of this—that the expectation is that the T-1 auction would not be cancelled altogether, but rather, that it can be reduced to 50% of the planned amount that we have set out now. That is the range that is there in the first instance. Cancelling the auction altogether is a rather more nuclear power.

Q103 Dr Whitehead: The electricity demand reduction pilots that are now underway are, I assume, designed to find out ways in which potential projects could contribute to demand-side reduction.

Matthew Hancock: Yes.

Q104 Dr Whitehead: Why are they working through the capacity mechanism?

Matthew Hancock: Because you can get demand-side reduction from EDR at any point in time where you regard reduction at any point of demand as equal, or we took the judgment that

because at peak demand times, the pressures on the system are so much higher that it is an advantage to seek reduction in those times as well as of course at other times. Because it is in the capacity market structure, that does not mean that it will not reduce demand at other times as well, but one of the goals in demand-side reduction, whether through EDR or the other mechanisms, is to try to reduce the pressure at peak capacity, because peak demand is when you get the biggest pressures on the system. So what this manages to do is bring those two policy objectives of reducing demand overall, which is a good thing and a good thing for consumers and all the evidence is they do not do as much of it even as on average as benefits their own pocket, but also to reduce demand on the system, and so by putting it through the capacity market, you attempt to get the best of both worlds. But this is a £20 million pilot. I will be studying it very closely.

Q105 Dr Whitehead: The fact that the decision has been made to place effectively the mechanisms of the pilot within the capacity market system, does that not rather predict the outcome before the pilot has been undertaken? That is, alternative ways of undertaking demand-side reduction arrangements, such as feed-in tariffs, which were suggested by the vast majority of the respondents to the consultation, have effectively been not only placed out of examination but permanently placed out of contention because the results of the pilots will go into the capacity market.

Matthew Hancock: No, I do not think that is true, because electricity demand reduction takes place in a whole host of ways. This is a pilot with that title that tests a specific way of doing it. The international evidence is very strong that it can be effective, not least from the States—which my predecessor had visited just before he was promoted and he has talked to me about eloquently—but demand reduction for electricity usage is a much broader topic than just this pilot. If you think about ECO and the Green Deal and all of that, a lot of that is about heating, some of it is about electricity reduction, and this is about testing one specific way of incentivising support for further electricity demand reduction measures. So the pilot is about testing a way of doing it and trying to make that happen, that work on the ground.

Q106 Dr Whitehead: Was there any discussion with Treasury when the original consultation on the demand-side reduction arrangements took place?

Matthew Hancock: I would be amazed if there was not. Yes, there was.

Q107 Dr Whitehead: Did Treasury at any stage give any guidance to the department, saying, “If you put feed-in tariffs in as the major method of organising demand-side reduction, that puts it inside the levy control framework and therefore it will be limited, but if you go down through the capacity market, that puts it outside the levy control framework and therefore in principle it will not count towards the levy control framework total”?

Matthew Hancock: The size of the pilot is pretty small compared to the size of LCF. Obviously I was not there at the time, but I cannot see that being a big consideration. The thing is you have to pilot doing it one way or another and I think it is better to get out there and get a pilot moving than not, so you have to make a decision about how you think it is best run. Looking around the

world, this is obviously a way that has worked in other places, and also you get the dual benefit of having demand reduction, but demand reduction including at the key times.

Q108 Dr Whitehead: Just looking around the world, no one anywhere else around the world has run demand-side reduction arrangements in the context of capacity market auctions.

Matthew Hancock: Demand-side reduction—

Dr Whitehead: It is a first, I would agree, for the UK, but it is not true, is it, that looking around the world, guidance can be obtained as far as capacity market relationship with demand-side reduction arrangements are concerned?

Matthew Hancock: It depends on the exact interaction, because some US states run things in this way, but I would rather there was a pilot testing whether this approach works, crucially testing whether you get additionality and whether the money that is put into it leads to further falls in demand than would happen otherwise than not. You can make an argument for doing it through FITs, you can make arguments for doing it different ways, but there are dual benefits of doing it through the capacity market and you have to test it one way or another.

Q109 Dr Whitehead: There were a series of concerns expressed by a number of organisations, some of whom have given evidence to this Committee, that the various constraints, for example, demand-side reduction we will not be able to bid into the first auction, so the—

Matthew Hancock: That depends on whether it accesses transitional arrangements, and there are many other auctions, there is auctions next year, there is the T-1 auction.

Q110 Dr Whitehead: By which time most of the capacity will have been auctioned.

Matthew Hancock: Not necessarily.

Dr Whitehead: No, if the first one is a crashing failure, presumably no, but if it is not, then presumably yes.

Matthew Hancock: No, because as I said in the answer to the other question, this is a rolling series of auctions. The answer to Robert earlier is that one of the flip sides of having annual contracts is that they come up every year, so I think that for people worried that there will not be capacity to be auctioned, I am sure that there will be capacity available in every year as a direct consequence of the fact that there is one-year auctions.

Q111 Dr Whitehead: If the pilots turn out to be, as some people suggest, either not very successful or not very attractive—and also in the context of capacity auctions, probably not very workable—is it the department's intention to have another go at a pilot based on feed-in tariffs or other mechanisms? If the arrangements are to find out how the system works best, should there be a variety of approaches?

Matthew Hancock: So that decision has not been made, because we are piloting one thing at the moment and we will see what the results are, but it does not seem an unreasonable suggestion, but I cannot make a commitment now because we hope that the pilots will be successful and that is what we are working towards, but it is a perfectly reasonable policy response should they not be.

Q112 Graham Stringer: You said previously that you look forward to a future where there would be more decentralised power generation together with more decentralised consumers. Isn't the implication of having a high percentage of renewables that provide an intermittent supply, wind and solar power that you will need a significant number of large generating clients?

Matthew Hancock: We are a major industrial country, we are always going to need a significant amount of major generating capacity. That is the reality of life, but in terms of direction, I certainly expect and hope that we move in the direction of more decentralisation.

Q113 Graham Stringer: The point I was making about the direction is that if you move to 25% of wind and solar, on top of the supply that you need for car manufacturing or whatever, you are going to need just as many, if not more, large power generations in anti-cyclonic weather at 5.00 pm on 23 December, when there is no sunshine and there is no wind.

Matthew Hancock: Yes. Depending on the amount of that, you get demand-side responses, but of course one of the consequences of moving to renewables is that the electricity supply system as a whole is subject to more factors that are outside the direct control of the grid, because there are more dimensions to the weather impact on demand. That is a natural function of moving towards renewables and of course renewables increase security of supply in other ways, not least because they are a heavy, early capital investment that tends to then have low running costs and of course they are domestic as well, which is a big advantage, another big part of the push is to try to get more domestic supplies. I am sure I will be here talking about shale gas at some point.

But making sure that you have the structural response to those extra dimensions of weather, that is to say, when the sun is shining and whether it is windy, are necessary. There are a couple of other things that are changing. The first is there are more interconnectors with other countries and that gives you extra ability to respond at the margin and the issue of how much electricity storage or energy storage you need is an important consideration. You can move to a more decentralised pattern that has less grid stress with more balance at the peaks because of the capacity market type interventions both on the supply and on the demand side, but of course that has knock-on consequences. One of the things I have discovered in the six weeks I have been in this job is that almost every part of the energy mix has a knock-on impact on every other part and the whole thing is a dynamic system and there are unintended and intended consequences elsewhere. That will always be the case and what you have to do is try to spot as many of them and turn as many unintended ones into intended ones.

Q114 Graham Stringer: What role do you think the Government has in incentivising innovation and deployment of demand-side response technology?

Matthew Hancock: Sorry?

Graham Stringer: Do you think the Government has any role—or what role does it have—in incentivising innovation in the technologies involved in demand-side response technology?

Matthew Hancock: Yes, I think we have a big role. We have a role stemming from the need for security of supply, which is absolutely top priority, and there is also a role in getting the incentives right in the markets to make sure that incentivises development of lower-cost ways of delivering, whether the supply of energy or demand-side reduction is cost effective, and of course in what is essentially a time transfer of capital investment, because a huge amount of this is made more complex by the fact that the benefits accrue over time and costs are fixed. At the same time we have an innovation spend both by companies who are incentivised to do so because of the structure of the market and directly, especially in early research, for instance, by the research councils to try to bring innovative solutions to the fore. I absolutely think there is a very important role in that, and it spans the two departments that I am in, because BIS has a crucial role to play, especially in the early research before it is brought to market.

Q115 Graham Stringer: UK Power Reserve has suggested that there should be a central standard for technology for dispatching and measuring demand-side response. Do you agree with that?

Matthew Hancock: There are upsides and there are downsides and I am not the best person to judge. I think it is best if that is a regulated decision rather than a ministerial decision. The upsides obviously are consistency and interoperability is immediate. The downside is that you will not be able to innovate new codes that can improve and you can have different structures that can talk to each other, but that is something that is better handled by the regulator probably.

Q116 Graham Stringer: That is an interesting answer. One of your predecessors was on the floor of the House when I asked him whether he was confident about the smart meter rollout—because I think there is another IT disaster waiting with that—he was very confident, in spite of the delays, that it would be rolled out. Are you confident that the rollout will be satisfactory and it will support demand-side response?

Matthew Hancock: Yes. It is happening, and by the end of March 394,000 smart meters were in operation. I think there is demand for smart meters, there is a growing interest in them and in their use. The smart meters that are being rolled out by the energy companies themselves, there is more and more interest in using technologies through other smart mechanisms like thermostats. This is an area that will increase in interest and popularity and that is a great thing. Of course you are not going to interest everybody in the country in knowing what their energy use in their home is and many people will continue to allow other things to take up their time in their lives, but I think that there is a market for this. So both the combination of a Government rollout, which is going ahead and proceeding, and also a private interest, not least because of people wanting to reduce their own energy bills and the technology catching up with where people want to be.

Q117 Graham Stringer: We have had a number of written pieces of evidence that say some people are worried and critical of the speed that it is happening, but do you find—

Matthew Hancock: Yes, but the programme is to replace 53 million meters.

Graham Stringer: I understand that, yes.

Matthew Hancock: This is a significant programme, so these things always—

Q118 Graham Stringer: I understand how big it is. What I was going to suggest, even though it is has been delayed and put back, in the short time you have been in the job, have you had time to ask your officials what their estimate is of the time “to drawer” these meters? What I mean is when people stop using them and put them in the kitchen drawer and whether, if they have been put in, they are being used. That is almost as important a statistic as putting them in, isn’t it?

Matthew Hancock: Smart meters do more than what is actively done by the user, because if data—

Graham Stringer: Not if it is thrown in the drawer.

Matthew Hancock: Yes, but they do. You do not have to physically use a smart meter personally in order to get some of the benefits from it. It is true that if you actively manage a smart meter in a home that has a smart meter then you can bring extra benefits, not least in terms of demand reduction and extra comfort, in fact, because they can work out how quickly your home can heat up to make sure that the temperature is right before you arrive home and all these other things. However, they also have benefits even if you do not actively manage them because of the ability to talk to the grid, and therefore on two levels, first, that if you do go for the option of allowing the automatic switch-off at points of high demand of some of your utilities, which is a safe and assured way of using a smart meter, then you can get advantages, especially if you combine that with a peak-time tariff. But also because of the information that then goes into the grid that can help the grid to manage itself in a smart way more actively, which when combined with decentralised supply can mean that the system as a whole can operate more efficiently.

But we are at the foothills of getting the benefits of this extra information technology and there is a huge amount more that can be gained. I am also as confident as you can be that there are benefits in terms of as yet unknown benefits that people will find out about and think about in years to come, but we do not rely in our estimates of improvements on those unknown unknowns, because that would be inappropriate. But technology has a huge amount to offer in terms of demand-side reduction, in terms of improving capability on the supply side. Just look at the very sharp reduction in the cost of solar panels, which are now reaching the point where they are value for money, hopefully without subsidy in the short to medium term. There is a technology that 20 years ago people thought was never going to be able to compete, and now there are more than half a million homes with solar panels on their roofs. This technology, because of technological innovation and the costs therefore falling, has a huge potential over the long term. Smart meters is the same. Once you turn something effectively from piece of hardware into a piece of software, then the amount of improvement that can be gained by harnessing its potential increases dramatically. Some people call me an optimist. I do not know why.

Q119 Graham Stringer: I do not know about optimism or not knowing what we do not know. But the energy policy group at University of Exeter have said that they have looked at the evidence and that you should not rely on smart meters to produce demand reduction. Have you looked at their evidence and have you looked at evidence from around the world?

Matthew Hancock: I have looked at evidence around the world. I have not looked at that specific piece of evidence, but I will seek it out. What I would say is you cannot rely on any one particular

aspect of this to solve any of the problems, you have to have a broad-brush approach that looks at all of the different areas and maximises the benefit of those with a clear goal, which is about having security of supply at the lowest reasonable possible cost while considering our international climate change obligations. The big picture goal is pretty straightforward and there is a whole swathe of different ways in which you can march towards it. These undoubtedly have the potential in one area, but they are also not the only answer.

Q120 Sir Robert Smith: On the here and now, could you maybe dig out from your predecessor the briefings on dynamic teleswitching and the challenges for consumers here and now to not be able to shop around in the market, because that is the sort of early generation of this whole technology, but it is not one that is interoperable between different suppliers?

Matthew Hancock: Right.

Sir Robert Smith: Do you take on board the warning of Citizen's Advice that we have only just tried to stabilise confidence in the supply market by reducing the complexity of the tariffs and that the reality of the smart meter is we are going to have to have a market that operates very differently, because of the time of use and the different products that are going to be added there?

Matthew Hancock: I am not sure I fully accept the premise of that question, because even on a very simple, straightforward tariff, a smart meter can have advantages. Of course on a tariff that also tries to reduce peak demand, they can have more advantages, but my attitude here is absolutely about clarity of explanation and it is natural that there are going to be different tariffs available because they will suit different people, and this is a market, after all, and long may it be so. So long as there is clear explanation and not an unreasonable over-proliferation, then you can get the advantages while also making sure people understand what benefits are available to them.

Q121 Sir Robert Smith: But the Government's short-term strategy to restore confidence has been to simplify the market. They are going to have to be careful in this transition that we do not lose the consumer again.

Matthew Hancock: Yes, I do agree with the premise of that question.

Q122 Mr Lilley: As a new Minister, you deserve not just our congratulations but our sympathy that you have to defend a situation that is not of your making, Kafkaesque, where we not only pay people not to use our product, we also pay them not to supply it if the wind is blowing too much. We do not seem to operate the sort of system that operates in almost every other industry that has inelastic capacity but volatile demand, whereby you ask people who want uninterruptable supply to pay more rather than pay the others for not using the stuff. I will not embarrass you by asking you whether you agree with all this, because you will have to say you do, but have you received from your officials or asked your officials for any comparison between the methods you adopted in the electricity industry and the methods that are adopted in any other industry for dealing with this problem of inelastic supply and variable demand?

Matthew Hancock: I have received briefing on different ways of doing it, not least in getting up to speed with the full details of EMR. I would make two comments. The first is that what matters for incentives is the net payment, and so if you are paying somebody, if you are taking a higher

baseline and paying somebody if they are willing not to have uninterrupted supply, that is logically, if not contractually, equivalent to asking somebody to pay more to have uninterrupted supply. So one way of doing it is just the flip of the other way of doing it, saying you get a discount if you are prepared to be interrupted is the same as saying, “You have to pay a margin if you want to guarantee that there is no interruption”. In a sense, of course, that has an impact on how the thing is set up contractually, but it does not change the underlying payment structure. Of course there is a difficulty of baseline measurement, but there is also a difficulty of baseline management if you set it up the other way.

Q123 Mr Lilley: Going back to smart phones, we have talked about the unknown unknowns that can develop from technology. Clearly the greatest potential is if smart meters can link up with your smart phone.

Matthew Hancock: Yes. Over the summer, I installed Google Nest in my constituency home and it is totally brilliant.

Q124 Mr Lilley: Are on the official pilot? I am, you see, on the official pilot.

Matthew Hancock: No, I am not on the official pilot.

Mr Lilley: I am, you see.

Matthew Hancock: But I can turn my thermostat on, if you like.

Q125 Mr Lilley: Through my smart meter, which has been installed—which incidentally does not work because it does not get in the kitchen the signal from the meter in the basement—could I not somehow link up my smart phone with it? We asked all the five previous witnesses and they did not know.

Matthew Hancock: Yes, of course that technology could potentially be delivered. Now, whether it is in the market at the moment for your smart meter and the structure of your home, I do not know, and I apologise for not having ever been invited. But this technology of course is available; it may not be available now, but it is potentially available and the reason is this switch from hardware to software, and once you change a lot of these functions from hardware, as in hardwired machinery, into software, you suddenly explode the opportunities for how they ought to be run and optimised. I totally agree with you that tying in a smart meter to a smart thermostat or having it all in one, having that both for heating and for hot water and potentially for electricity as well, then allowing the algorithms to optimise the use of that and allowing people to intervene, should they choose to do, I can see huge potential in this area.

It is a bit like when you change over from a map to a satnav. At first, what tends to happen is people do the old thing using the new technology and use the old processes with new technology, and then over time, some market leaders who are really interested in this stuff change the way they operate and eventually that moves through to the mass market. This inevitably takes time because of the realities of human behaviour and that we are all too busy. Some excitable people like me get ahead of the curve and then the mass market comes through. So absolutely I can see the advantages.

Albert Owen: A natural leader.

Matthew Hancock: That is very kind of you to say. That was not quite what I meant.

Q126 Mr Lilley: Like you, I am a technological optimist, but I am sort of puzzled that this question has to be asked about the link of our smart phones to this. The operators that we had before did not know the answer, but at present it is not available, but I understand the system of electronic communication between the meters and the gizmo that ought to connect it—but does not in my house—is a novel, untried and previously unused form of communication. I presume any form of communication can ultimately be made compatible with any other, but presumably it makes it more difficult, and that is why there is no immediate link-up with your smart phone. Why do you even have to have a gizmo? Why doesn't it automatically go straight through?

Matthew Hancock: It is a function of Government that the Government tends to do things more slowly than the most whizzy technological companies in the world, and of course smart phones themselves—or certainly the mass rollout of smart phones—is less than a decade old, so it is a bit harsh to say that it is outrageous that this has not been in place already, but I think it just shows what opportunities there are.

Q127 Sir Robert Smith: But it also shows the danger, as with broadband, of social exclusion for rural areas and those in granite houses where signals have a similar problem to Mr Lilley's.

Matthew Hancock: There are technological solutions to that. Without going into the absurd detail of this, not only for my constituency—I am in a rural area, and I can talk to it through this—but also the broadband rollout will cover 95% of properties, so it is tied in with the broadband rollout. You can now transmit Wi-Fi signals throughout the house through the electricity supply network within a house, so that hopefully will be able to take into account the issues surrounding granite houses. There is lots and lots of details that can be worked through. My point that I was trying to get over was the big picture one, which is that there is a big opportunity. We are currently looking at the technological standards to make smart phones talk to meters and I can report back to you on that.

Q128 Mr Lilley: What progress has DECC made on finalising proposals for demand-side response and electricity demand reduction in the capacity market?

Matthew Hancock: I am sorry?

Mr Lilley: I did not understand it either. What progress has DECC made on finalising proposals for demand-side response and electricity demand reduction in the capacity market?

Matthew Hancock: We are very close to launching the final arrangements. I do not know if Jonathan wants to come in.

Jonathan Mills: On electricity demand reductions pilots, we opened for applications yesterday, so all the details of that are all available on the DECC website, following a period of expressions of interest earlier. In terms of the capacity market, we set out our full policy on that. The Government regulations came into force just before the summer recess and received state aid

clearance that is scheduled for the first T-4 auction at the end of the year, so we are at a pretty advanced stage with both of those policies.

Q129 Mr Lilley: The UK Demand Response Association argues that the capacity market does not recognise the additional benefits demand-side reduction provides for reducing the capital and the operational costs of networks. Has DECC considered how these benefits could be recognised in the capacity market?

Matthew Hancock: The benefits of demand-side reduction in terms of the reduction have been cost to the system and stress on the system and are one of the reasons why doing that through the capacity market helps and one of the reasons that we are driving DSR. It is hard to do that to ensure the costs are precisely taken into account, but the direction that we are trying to move things in and the direction that we are travelling with increased demand-side response will undoubtedly have a positive impact there if we are successful.

Q130 Mr Lilley: The Institute of Engineering and Technology have suggested that the timeframes over which the Government expects to implement full integration of demand-side participation in the main auction may prove to be optimistic. How much effort is DECC putting into ensuring that demand-side reduction plays a significant role in the future capacity market?

Matthew Hancock: We are on track and we are putting a lot of effort into making this work. We are very clear when the capacity market auctions start and we hope that demand-side as well as supply-side will be able to participate, but this is a long-term programme, so undoubtedly participation early, but then hopefully growing.

Q131 Albert Owen: Welcome, Minister, to your new job. Some of the answers you have given have been very interesting. If you do not have the answer to this, can you get back to us, because I am concerned, as the UK Demand Response Association are, that small combined heat and power has been exempt from the capacity market. This is what is used in many hospitals, hotels, universities, leisure centres, who will find it very difficult to operate because of high energy costs. Is there a possibility that that can be reconsidered?

Matthew Hancock: Yes. Do you mean small CHPs?

Albert Owen: I do.

Matthew Hancock: Yes, absolutely. Jonathan.

Jonathan Mills: Yes. We know there is a technical fix that we need to put in place into the capacity market regulations to enable small CHP generators to aggregate together and to participate fully, so we will be addressing that. They can, however, participate, in—

Q132 Albert Owen: In other words, they are excluded at the moment?

Jonathan Mills: They can participate as demand-side response, that is possible, but we think they also should be able to participate as generation, they should have that choice. We need to

do a technical fix to the regulations to enable them to do that for small CHP generation, which we will be doing.

Q133 Albert Owen: Good. There is another question for you, Minister, I did ask the Chair. It is not to do with the subject matter before us, but in the six weeks that you have been a Minister, one big cancellation of a wind project is a serious concern in my area, and it is the first opportunity that I have had to raise it. I hope to speak to that on Thursday, but the Celtic Array has been cancelled and it has huge implications for my area and indeed the whole region of the North Sea. This follows the Atlantic Array that has been cancelled. Are you concerned that many of these round 3 projects are not going ahead and will that have an impact on the Government policy in the future?

Matthew Hancock: There is a whole series of potential projects in round 3. I am confident that—

Q134 Albert Owen: But these are some of the biggest and best, and big names, and if they are going to pull out of it, isn't it a danger?

Matthew Hancock: It is true that lots of different projects come forward and we are confident that round 3 will be successful in terms of what we want to procure. It is inevitable that there is more projects that come forward at the start than end up completing. In a competitive market, that puts downward pressure on the price. This is what the CfD design was intended to allow, and so what matters is making sure we get the right procurement at the end of this for the right price in terms of subsidies.

Q135 Albert Owen: But isn't that part of the problem, that a switch-over to contract for difference may be putting them off?

Matthew Hancock: No, I think that it is a matter of making sure that we get the best value for money out of the subsidy from consumer bills that is applied, and in some cases, given that there is a fixed framework and a fixed amount of total transfer from consumers in terms of subsidy, what the CfD will do is get the best value for that. If some of the propositions turn out not to be able to be competitive in that, then that would imply that we had the better value propositions, but I hope that as many come forward as possible and that through the auction we can go through that process.

Q136 Albert Owen: But the difficulty is obviously these are cancelled and their investment will not be going ahead. Have you examined the reasons why, because many of them are saying it is the technology, and if the technology has not developed sufficiently for these deepwater projects then they are not going to go ahead with whatever mechanism we have in place, so—

Matthew Hancock: The technology is still not a mature technology, so you would expect some technologies to come off and some not. There are other technologies like solar that are going better than expected and so we are going to respond to the—

Q137 Albert Owen: We are not going to cover the whole land base to produce the same amount of electricity as we are from some of the larger offshore wind.

Matthew Hancock: Yes, that has to be taken into account, but also scale and size, but—

Q138 Albert Owen: You are not advocating that this be replaced by onshore wind?

Matthew Hancock: I am advocating that we—

Q139 Albert Owen: I am genuinely concerned. If you could look into it, I would appreciate it.

Matthew Hancock: I will happily look into it, and what I am really focused on is making sure that the third round is a successful—

Albert Owen: But this is a worry.

Q140 Dr Whitehead: I just wondered whether you also wanted to look into the fact that the department has given out a number of investment instruments to round 3 wind, which takes up most of the new entry availability money under the levy control framework 2015/16 onwards. The lucky guys who are inside presumably are toasting the department, but the people who are not presumably face rather a bleak prospect in terms of getting their round 3 projects away now, don't they?

Matthew Hancock: I am not sure that is a fair summary. Getting round 3 off is obviously vital, and it is true that we have a tight LCF. This is a budget and budgets are always used. When you come towards—

Q141 Dr Whitehead: Would you accept non-existent rather than tight?

Matthew Hancock: No, it is not non-existent. There is budget available, but it is tight. Inevitably people come and say, "We would rather that the budget was higher" and of course I understand that argument, but the thing is I have to be the guardian of not only getting this system up and running, but crucially, looking after consumers' bills and that is a difficult balance to strike.

Q142 Sir Robert Smith: On the demand reduction, the European Commission have said that larger hoovers need to be taken off the market.

Matthew Hancock: I thought this might come up.

Sir Robert Smith: I just wondered, in terms of taking consumers with us in terms of energy efficiency, are the lay views right that if you use a lower-powered Hoover, you use it for longer and therefore use the same amount of energy or is there a benefit?

Matthew Hancock: This was a decision by the European Commission. I agree with some of the things the European Commission says. My advice is that some of the hoovers that have the strongest ability to pick up dirt are not necessarily always the ones that use the most power and that the correlation between effectiveness and power usage is not necessarily and in every case strong. Therefore, vacuum cleaners that are effective in doing their job but do not have as high a power usage as others will still be available. Nevertheless, I do think that in all of this area of

electricity demand reduction, it is very important that we do this from the point of view of consumers as much as possible. One of the big advantages in this area is that ultimately domestic electricity demand reduction reduces people's bills, and that is without doubt the best way to sell it. The principle behind my approach to this is about giving people information to make informed decisions and less about banning things.

Q143 Chair: Just on that note, to finish, I think that you will appreciate that most of us are very excited about the potential for demand-side response, and as you say, it is a way of helping people pay less and it is a way of cutting emissions at the same time, both very desirable goals. Against the progress is stacked up sort of a century and a half of industry assumptions that we must build more generating capacity, the economy is growing more and blah, blah, blah. Very few people have yet appreciated the substantial potential. We will still need generation, of course, but there is much more potential in demand-side response than people assume, because most people do not understand it at all. It is essentially a sort of disruptive technology, and so I would urge you to become a champion of it. This is where the future is. This is the 21st century, we are locked into 20th century assumptions and I think there is a great opportunity. We are just at the point now where the decisions that your department are taking, even in the next few weeks, will have an effect on how quickly the potential can be unlocked. It is a great chance for you as the new Minister to come in and sweep aside the old assumptions and emerge as the champion of the new thinking for the benefit of both consumers and the environment. I do not know if you have time to go and see one of these places, it quite interesting watching the way they work. It only takes half an hour and some of them are quite close to here, so I do not hold any brief from them, but I just think it is fun to do that. But thank you very much for your time, it has been a very interesting session. We look forward to seeing again next week.

Matthew Hancock: Thank you very much. I share your optimism.