



Energy and Climate Change Committee

Oral evidence: [Network costs](#), HC 386 Tuesday 9 September 2014

Ordered by the House of Commons to be published on 9 September 2014.

Written evidence from witnesses:

- [Northern Powergrid](#)
- [Energy Networks Association](#)
- [Energy Intensive Users Group](#)
- [Wales and West Utilities](#)
- [National Grid](#)
- [SP Energy Works](#)

[Watch the meeting](#)

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

Questions 124-211

Witnesses: **Phil Jones**, Chief Executive Officer, Northern Powergrid, **Tony Glover**, Director of Policy, Energy Networks Association, **Jeremy Nicholson**, Director, Energy Intensive Users Group, **Graham Edwards**, Chief Executive Officer, Wales and West Utilities, **John Pettigrew**, Executive Director, National Grid, **Frank Mitchell**, Chief Executive Officer, SP Energy Works, gave evidence.

Examination of Witnesses

Witnesses: **Phil Jones**, Chief Executive Officer, Northern Power Grid, **Tony Glover**, Director of Policy, Energy Networks Association, **Jeremy Nicholson**, Director, Energy Intensive Users Group, **Graham Edwards**, Chief Executive Officer, Wales and West Utilities, **John Pettigrew**, Executive Director, National Grid, **Frank Mitchell**, Chief Executive Officer, SP Energy Works, gave evidence.

Q124 Chair: Good morning. Thank you for coming in. We have just one panel today so we have no particular time constraint. But do not feel you all have to answer every single question that members put to you, because that might take all day. If I could start by saying that there is a general perception now among many consumers that Ofgem has been pretty feeble in the arrangements

they have made in relation to your charges. You are able to inflate your profits by getting much higher returns than Ofgem have assumed. Do you have any comment about that general view? Is that a fair reflection on the situation?

John Pettigrew: I think it was very important to the National Grid that we earned the returns that we did in the first year of RIIO. Back in 2010, we did a rights issue for £3.2 billion and our investors made crystal clear to us the returns that they were expecting, so that was an expectation our investors had and that was facilitating the investment cycle that we are in. I was particularly pleased to report as well that we were able, based on improved reliability and customer service, to return £70 million to customers in 2013-14.

Q125 Chair: Does anybody else have a comment?

Phil Jones: I understand that that is a perception. I do not know how widely held it is, but I understand it is out there. Personally, and you will not be surprised to hear me say this, I don't think it is a fair reflection. That is not to say I am here to defend Ofgem, but just let me set the table. I think you may have had some of these observations already, but for what they are worth they are our opinion as well. I am speaking now about the electricity DNOs—distribution network operators. That is my expertise, but it is broadly typical of the entire network sector. We are talking about a sector whose prices are a third of what they were at privatisation. All the industry stats would say that power cuts are 20% shorter or less likely, those kinds of things. So, service is 20% better, prices are a third what they were, operational costs are half of what they were around about the 2000 mark.

I can personally tell you I have been involved in all the price controls since 1995. I am sure colleagues will have their own views, but I do not remember a single occasion when we settled one of those price controls as a management team and we did not have to swallow very hard and say, "We are not really sure yet how we get our way through this. This is a tough settlement but we are going to give it a go".

The incentives in that arrangement have driven companies to improve, and I am struggling to see a deal out there—speaking as a consumer myself—where I pay less than £100 a year for a service that gives me 24/7 cover. If tonight when I get home at 6 pm I find that the power has gone off to my home, and it is not fixed by tomorrow morning, I virtually get my entire year's supply free. I think that deal is fantastic, quite frankly. I am understandably going to be proud of it and defensive of it. It is what I do for a living. But I struggle to see why there would be a widespread perception that the regulator whose arrangements have driven that level of innovation. I think the credit is largely to the company, and I would say that, wouldn't I? But, no, I do not think that is a fair perception.

Frank Mitchell: SP Energy Networks operate in Central and Southern Scotland and in Merseyside and North Wales. We operate in Scotland, England and Wales in our distribution business and our transmission business in Central and South Scotland. To echo something that has been said, I think you have to strike a fair return for the relevant risk that you face as a business. We heard some evidence in a previous session about how that competitive market returns. I am sure that will come up later on. We dispute that. We think we earn a reasonable return, but we do think incentive and efficiency-based regulation has had a good outcome for UK customers. I won't echo

what Phil said, but I think the facts are there that there have been real cost reductions and real efficiency delivered through that mechanism, and improved customer service through that process. I think that is an outcome that stands well in any international comparison and I guess also why other countries look to the UK model as one they want to mirror to get similar outcomes.

That said, it does not mean that I agree with everything Ofgem do. There are areas where I disagree with Ofgem in policy and in detail, and that is a constant debate we have with them. So, it is a very tense relationship that we have but, ultimately, at a higher level I think the mechanisms have delivered value for the UK customer.

Graham Edwards: If I can comment from a gas distribution standpoint, I would probably echo some of the things that have already been said. Sometimes perhaps there is a lack of understanding of what is happening in the distribution sector. Since we have been running this company—I run Wales and West, which is all of Wales and the West of England—in 2005 we have seen customer service improve dramatically. We have seen reliability further improve. When you consider that an average gas consumer can expect to see an outage once in 40 years, we clearly provide a very reliable supply.

As for returns, if I look at the returns to my parent, I do not think they are unreasonable; they are 7%. I know there will be comments about this being a low risk industry. I am not so sure that it is as low risk as many people suggest it is. We take all the operating risk. We take the financing risk and you get some issues along the way. Any incidents that occur on the gas network tend to be fairly extensive and expensive. If bad weather hits us—2010 is a classic example; it cost our business about £2.5 million to respond to the bad weather—we pick up the tab for that. So there clearly are risks, and I do not think the level of returns our companies are getting are unrealistic, bearing in mind that sort of risk and return mechanism.

Tony Glover: The relationship with Ofgem has changed because, as other members of the panel have said, if you look back to the point of privatisation, massive efficiencies were driven through the companies; 60% reduction in costs. There clearly was a lot of fat and a lot of room for that kind of reduction in costs, and we saw that go right the way through into the early part of this millennium. We have seen since then that there is a need to renew the network and now, because of Government policies generated in this place, we need to meet our low carbon energy security challenges and in order to do that we will need to innovate. That means we will need to invest in that innovation. I know that is something this Committee is very focused on and something that we need to deliver, so the relationship and the nature of the way that companies work with Ofgem is going to have to change, not because they are going easy on them but because they are going to have to deliver.

Q126 Chair: You have historically a soft touch regulator and monopolies or quasi-monopoly business conditions. It is a pretty comfortable model for most of you. Are there any aspects of the current regulatory framework you would want to change?

Frank Mitchell: If I can respond, obviously right now we are negotiating the outcome of our current price review. That is something that ultimately we have to complete a process on. I would be happy to come back to the Committee when that is completed and take you through my

thoughts on that. I think it is too early to prejudge the outcome of that process. However, there are areas of policy and decisions made in the past by Ofgem where we have had quite clear disagreements as a company.

An area of that is the implementation of smart meters across the UK. Every other country worldwide has done that through their distribution businesses to get a geographical mass—an economy of scale that reduces the cost of implementation. The decision was made by Ofgem to put that in the hands of retailers. I think that is the wrong decision. I think it will end up costing consumers more, and it is something that we have been very vocal in the past with. It makes the UK unique in how it is going about this. Ultimately, we have not learned the lessons from other countries that have deployed this technology ahead of us.

Q127 Sir Robert Smith: Mr Glover was talking about the early efficiencies and then about the need to renew the network. Were any of those efficiencies putting off renewal beyond the point at which it might have been sensible so that we would have a smoother capital flow?

Phil Jones: I was one of the people who had to work their way through that. I think the straight answer is no. I don't think there is any evidence of that. I certainly do not believe there is in my own company, which I know the best, but on this particular subject all of our information is broadly public domain. Different companies have arrived at their "peak" at slightly different times, separated by, say, five or 10 years. That is not to be unexpected and there is certainly no evidence, given what I have said about performance where resilience is improving.

Underlying investment in our company in the last 10 years is 41% higher than it was in the previous decade and I think the timing was about right. That was one of the issues. There was a very tense debate between companies and Ofgem: at what point would.. Everybody knew that had to come at some point. Largely the asset base in our case was installed in 1950s and 1960s with a design life of 40, 50, 60 years, so at some point around the turn of the century there was going to be an increase. Indeed that is what we saw, and our investors stepped up in our case and it is true in all the other companies' case that there has been a significant increase in investment.

Without a relatively stable regime, by the way, that level of investment is not forthcoming. It is not compulsory that those investments are made. We rely on equity investors taking a very significant portion of that bill, which has increased by 40% in our case in the last decade. It is set to stay at that sort of level for the next eight years, give or take a relatively small percentage.

Q128 Sir Robert Smith: Do certain generations pay for it, or is it the costs spread over the lifetime?

Phil Jones: That is a very good question. If I may separate it completely from the question you just asked, which is: have the companies been spending money when they needed to do? My view is, yes. As to at what point should that be paid for, it is all paid for over a significant period of time. If I take my own company, we will begin the next price control in a situation where the customers will owe us a little over £2 billion. In other words, that is all the things that we have paid for in the past that have yet to be paid for. It is being paid for over a 20 year life, so broadly you could say, from an economic point of view, the generation that sanctioned the investment is broadly going to pay for it. In the next period, over the eight year period, we move towards a situation where new investments by the time we get to 2023 will be recovered over a 45-year

period. That has effectively changed that balance. It means that effectively we are sharing it with our children, in terms of who is paying. It is the same cash outflow. There is just a longer mortgage period on the asset.

Graham Edwards: Can I add to that? Clearly, we have seen some changes in this last price control. We have just been through the process that electricity is going through now, and we are one year into the new price control period. Clearly, we have had discussions around who pays, and I guess there are a couple of points I would make. One is that the way our mains replacement programme was funded was fairly unique. What I mean by that is it was a deal that was done when this 30-year mains replacement programme was established in 2002 that said 50% of it would be expensed, that is paid for in the year by current customers, and 50% of it would be treated as capital investment spread out over the 45 years of our asset life. That treatment is now being changed to extend it so it is all treated as CAPEX, so clearly the cost now is being spread out over a longer period of time.

Some other things are worth noting in all of that. When we submitted our business plan, as part of this price control, we said that our plan was based on maintaining service ability. It was not improving. I have already said that we have on average one outage in every 40 years. The extensive stakeholder engagement that we did as part of our business planning said, “We are very happy with our current service levels. They don’t need to be improved so we don’t want to pay any more money for better service, for gold plating”. So, that was a key element in terms of what investment we should look at going forward and our plan was very much about maintaining current service ability. It is not improving it. There is not a lot of expenditure on growth because clearly we see that there is not a huge amount of growth in the marketplace.

The last point I would make is that something has been introduced in this price control period that has been a big plus, and that is the regulator now measuring output. It is fair to say in the past that distribution companies—electricity or gas—could spend a bit less money than they were allowed and pocket the difference. That has been eliminated now. Very clearly, we have to demonstrate that we have achieved output—the work that we said we were going to do we have to do, and if we do not do it the regulator either disallows money or in the next period takes it back off us. So there is much more transparency now about what we deliver and how we give value for money to consumers.

Jeremy Nicholson: If I can add a quick comment on behalf of consumers, I work for the Energy Intensive Users group, which represents large industrial gas and electricity consumers. You used the phrase “soft touch” to describe Ofgem’s regulation of the network industries. That might be a little harsh. I would not wish to let Ofgem off the hook here, because there are some issues they need to answer, but I think the traditional view from large consumers is that the regulatory system—at least until recently—has done us rather well compared with the means of regulation elsewhere in Europe at least. It is not ideal, but it seems to be functional and it seems to deliver investment.

Perhaps that view is changing a little in recent years. It is not just the absolute level of network charges but the volatility, and the changes in the distribution of where those charges fall, and that has affected our members in what one would imagine ought to be a relatively stable part of the bill. This is after all a set of regulated industries. There are a number of reasons for that that other members of the panel will be better qualified to talk about than me, from an industry perspective. We have already had one reference to the cost of the green agenda and that is not the only reason why costs are going up in networks, but it is considerable. Transparency about

that, the extent to which network costs are being driven by policy measures, is perhaps more difficult to understand on networks than it is with, let's say, carbon taxation or renewable subsidies and so on where the figures are perhaps a little easier to understand and, indeed, larger in terms of their impact on the bills.

I think this has made it very difficult for large industrial consumers—and I am sure domestic consumers too—to understand what is driving up the bill. Is it lax regulation and excess profit-making? Is it investment to secure additional capacity, which is good for security of supply and reliability of the network, which as consumers we all want to see? It is a false economy to under-invest in networks, clearly. Or is it for other environmental reasons that may be perfectly justifiable but perhaps have not been communicated transparently, either by the Department of Energy and Climate Change or in certain instances by the companies themselves?

Q129 Sir Robert Smith: As a user, do you think the move from 20 years to 45 years is a necessary move?

Jeremy Nicholson: We did not have strong opinions when this subject was discussed in our group. I am not sure it is necessary but, equally, I am not sure that it is a problem per se. Some of the methodological changes we have seen in the allocation of costs—one thinks of extra high voltage costs for electricity distribution and so on—have been very significant. There have been winners and losers from that. Although the net effect of that might be relatively neutral, as you can imagine if you are an industrial electricity user and in the space of a year or two you have seen your network costs double in certain cases, this is something of a shock for what has traditionally been a relatively stable part of the bill. One hopes that some of these changes are one-off and will not become a feature of going forward, but I think there are other issues to do with locational charging and so on, which have perhaps been more significant than the change in accounting and its duration that you have just mentioned.

John Pettigrew: Mr Chairman, can I talk a little bit about charges from a transmission perspective? If you take the context over the period since privatisation, then the cost to end consumers has gone down between 40% and 50%. It is true that over the last five years we have seen an increase in the costs of networks, which is directly as a result of the investment that has been made in the networks to facilitate the new low carbon generation that is looking to connect.

As we look forward over the next eight years, the costs for National Grid stay flat in real terms so, despite the fact that our users are telling us that the need for investment across the networks is round about £22.5 billion over the next eight years, the cost to end-users will stay flat in real terms. So, for an electricity transmission user, a domestic user, they pay £20 out of their £650 a year for electricity transmission. For gas transmission, that is £17 and for gas distribution it is about £139, and they all stay flat in real terms.

That is the cost. If you look at the tariff, then for transmission we consult with the industry about what is the appropriate tariff and what is the right message we want to give to users around using the transmission network. We have principles around transparency and predictability but also around cost reflectivity, so for a transmission network users in the north who are generators will pay more than users in the south. That reflects the fact that a generator in the north imposes more costs on the transmission system than a generator in the south, because flows are typically north to south and therefore there needs to be reinforcement. Demand is the reverse of that. As

flows in the network change then those tariffs change, which is what Jeremy is referring to, but the fundamental is that the cost to users over the next eight years will stay flat in real terms.

Phil Jones: Mr Chairman, I think it is extremely important—I apologise if this is already obvious to the panel, but I think it is vital to make this distinction—that what drives our economics as regulated companies is our allowed revenue, that which we are allowed to recover. As Jeremy says, there have been some significant changes to the way that allowed number is recovered from which group of customers but, let me clarify, it is not broadly neutral; it is completely neutral towards the network companies. We are not allowed to recover any more than our allowed settlement. If the result of the tariffs, once they are applied to the actual amount of electricity in our case, or gas in Graham's, that flows through the network, result in the fact that the tariffs over-recover or under-recover, then that exact amount, with interest, is corrected in the following year.

There is no sense in which that volatility is a loss or a profit to us. It changes the distribution of which customers give us the money that effectively we have had approved through our regulatory settlement. That volatility is driven not necessarily by something that the company has lobbied hard for. You asked earlier what I would change. This would be one of the areas that we as a company would be willing to see change, in the sense that, over the last several years, the charging mechanism has been much more organised to try to send a signal to the users of the network that those people whose use of the network is about to increase the peak demand, which was talked about in this Committee last week, would bear a disproportionate, you might say, or proportionate, others would say, amount of cost. Their bill would go up. Our allowed revenue stays the same. We just take more of it from them.

The theory behind that is that over the long term that drives down the cost of running the network, because it sends a signal to someone who is about to build a factory at a certain place that would make our costs go up. In practice, as to whether that actually happens, I think there is a significant debate about whether that does change the behaviour of inward investors, but that is where the volatility lies or comes from.

Q130 Graham Stringer: Can I just follow up Mr Nicholson's point about costs going up because of renewable at the moment? I have seen a figure of 9% as the costs of renewables in intensive energy industries. Is that an accurate figure and, if it is, is that due to the costs of the renewables or is it due to changes in the transmission system because of the fluctuating nature of the energy from renewables? Do you know those figures?

Jeremy Nicholson: I will touch on that, but obviously we are here to consider the network element rather than the other very considerable impacts.

Graham Stringer: Yes. But it is important to know the percentage.

Jeremy Nicholson: To put it in context, DECC's estimate suggests that about 19% of the costs to an energy-intensive industry are due to climate policies, including carbon taxation, energy taxes and renewable subsidies, of which around half are attributable to renewables. So that 9% sounds broadly right. Of that, the majority of the costs will be policies such as the renewables obligations, small scale feed-in tariffs and so on, rather than network costs per se.

That said, there are indirect costs to the network in various industries arising from the renewables programme, in particular. Obviously, we are talking here about extension and

reinforcement of the transmission system because distributed renewables in particular—wind and so on—do not tend to be located next to areas of high demand, and in the case of offshore wind nowhere near it at all. Obviously, these costs have to be recovered somehow and, unquestionably, they are costs that arise as a result of Government policy. I am not able to comment about whether the network industries are spending that money efficiently or whether it is perfectly regulated by Ofgem, but the prime responsibility for those costs remains with Government.

But to date that increase has been relatively small compared with the other policy impacts on both domestic and industrial consumers' bills, but that is going to rise and the cost of intermittency will rise, and it is non-linear. As you double or treble the amount of intermittent renewable on the system, the costs of managing that do not go up proportionately; they go up disproportionately. So, I think this is going to become a much bigger issue in the future. This is why we are keen that in data published by DECC and so on, about the cost of these programmes, there is transparency about the network cost element of this. How much is quite rightly being passed on by the network companies, and how much is this potentially being used as a smokescreen for other cost increases or inefficiencies or excess profit making? Consumers need confidence about that.

Phil Jones: Just to put a number on it very briefly. If I took our business plan for 2015 to 2023, even if I counted the entire reinforcement expenditure as being attributable to low carbon policy, which it is not, a total of 5% of the customer bill would be attached to that. It is 2% against the genuine smart grid stuff we talked about last week. Add another 3% for reinforcement, most of which is just regular load growth as opposed to low carbon anyway, but the maximum you could get to is 5%. Set that against the fact that in the next price control period 66%, two-thirds of our revenues in the next price control period will come from the repayment of the investment that has already been made, plus, if you add on to that the costs that we just do not control—tax, business rates, the National Grid charges, the licence fee for Ofgem—two-thirds of our revenue is attributable to things before we have even spent a penny on the network, and only 2% of what is left is down to low carbon. It is a very small percentage.

John Pettigrew: Mr Chairman, from a transmission perspective, if you look at our business plan in 2012-13 the expectation was that across our three networks we would spend £22.5 billion, of which £12.5 billion was what we call load-related, which was directly related to new generators wanting to connect to our electricity transmission system on new sources of gas. So that includes renewables, offshore, and those are only the costs for the connections to the National Grid system. They ignore renewables for Scottish, connecting to Scottish transmission, and also the costs of offshore transmission as well.

That was a forecast, but we are regulated to connect when a customer requires a connection, so in the event that that generator does not come forward, we do not receive any allowances or any revenues. Our revenues just reflect what is happening on the network. For example, if we see a deferral of generation—whether it is nuclear or wind—then we do not make the investment and our allowances adjust accordingly. So in that case, customers would not see those costs flowing through and would see a reduction in costs.

Graham Edwards: Can I add a comment about what is driving costs? I do think there is a lot of noise in the marketplace and lots of comments about what is influencing it. I would reinforce something that John said earlier on about what is happening with costs. Certainly on gas distribution costs, John has made the point that our charges are pretty flat up to the end of this

price period, 2021. But even more than that they may go down. In our own case, for example, next year we will be taking about £9 off the distribution charge. Why? Because we outperformed our regulatory deal last year. So I think the way that incentive regulation is working at the moment and the changes that have been made for this particular price control period, i.e. giving outperformance, or the share of outperformance, back to consumers earlier rather than waiting until the end of the period, is a real positive move. So next year, 2015, as a result of outperformance in 2013, distribution charges will be coming down. On the other hand, if it was costing us more we would take the pain of that. So I think there is a direct incentive on companies to achieve better performance, but I just wanted to dispel any myth that says what is driving up charges is certainly not distribution charges between now and the end of this control period.

Jeremy Nicholson: Briefly, I would agree with that. Very few concerns have been raised by industrial users about gas distribution compared with the issues on methodological changes in charging for distribution or the other issues we have talked about on National Grid, which tells you something about why policy is important here. Policy has had less of an effect on gas distribution.

One other point that I think the Committee ought to bear in mind is that a lot of the largely fixed costs for the networks obviously have to be recovered from a level of demand that has been affected by the most savage industrial recession in living memory, and a number of our members are no longer around to consume power and gas as a result of it. The recovery has been so modest that we are nowhere near pre-2008 levels of demand, certainly not for electricity and I expect for gas too. There has been pressure for consumption to be reined back in the domestic sector because of rising prices, in addition to anything that may have happened on energy efficiency. What this means is, regardless of anything Ofgem does or regardless of any policy costs or any other changes in the way those costs are allocated, that largely fixed cost per kilowatt hour of energy necessarily must go up. The absolute costs may be no higher to consumers, but the expression of that cost in tariff terms must go up, and in fairness to the network industries one has to bear that in mind. I am sure that if required, colleagues here could give you some figures on the extent to which demand is significantly down on where it was, and where it had been expected to be by this point in time.

Q131 Mr Lilley: Most of us assume that the bulk of your costs are capital costs, but I have no clear idea of what the breakdown is between operating costs and capital costs as reflected in the depreciation charge. Could you give us a back-of-the-envelope rough and ready ratio? Is it 10:1, 5:1 or 100:1? What is the ratio of the capital element as reflected by the depreciation charge and your operating costs? Behind that question lies: how did you achieve a 60% reduction in costs since privatisation? What came down?

Phil Jones: The headcount came down massively. Basically, this was a nationalised industry in those days where we employed—I joined three years after that—gardeners, joiners, decorators, all manner of trade groups that are not really core to what we do. That is the big story, and incentives. There is a world of difference between a feeble regulator and a light-touch one, and if a light-touch model puts incentives on the private sector to go and find savings, that is exactly what it is designed to do and that is what has happened.

Q132 Mr Lilley: The outcome is what ratio between capital and—

Phil Jones: I do have some numbers but, John, why don't you—

John Pettigrew: For electricity transmission, looking over the next eight years, about 85% of the costs are capital and about 15% are operating costs. When you look at the distribution businesses, gas distribution, which the National Grid also owns, then it is much more on the operating cost side. It is probably 50:50 in terms of operating costs, because it is a much bigger work force. We have an emergency service on gas distribution, whereas on the electricity transmission basis it is much more capital intensive.

Phil Jones: Our distribution numbers, just very briefly. I will talk about cash costs, rather than the accounting definition. So 25% of it you could take off straight away as costs that are passed through—pension deficit, tax, and those kinds of things. They are not spent on the network at all. About 18% to 20% in our case in the next period would be what we would call the operational costs of the asset, fixing power cuts, cutting trees, inspecting the network about 20%. The same amount again then, 20% would be spent on just renewing worn out assets, so I am up to 65% or 70% already. About 20% is the underlying staff costs, which gets spread across those categories. That 20% I have talked about are the direct costs of building the asset. There is the same amount again, then, for a staff base that runs the business behind the scenes, the engineers and so on and so forth. So broadly I would say it is easily 3:1, once you have allocated that in terms of capital to operational costs.

Q133 Chair: Given that the usual driver of cost reduction in most businesses is competition, why don't we work for a much greater element of competition in the distribution industry?

Phil Jones: The reason is that physically they are the natural monopoly. If you were to rebuild the asset in Yorkshire and the north-east that we have valued at £17 billion, to put a competitor on a like-for-like footing would be a huge and unnecessary investment. So that competition is simulated through the regulatory environment whereby all of our costs are compared to each other. So we are competing with each other so to speak, through all of the regulatory benchmarking that determines what costs will be allowed.

Contrast that with the US model—which I am very familiar with, given my parent company—where typically those regulatory arrangements are one-on-one deals between a company and its regulator. In effect, civil servants are taking a view on what the company should spend. In the UK system—which is what I would say has driven a lot of the improvements we have talked about this morning—we are up against each other in the benchmarking arrangements that say, “Well, if Frank can do it for this much, Phil, why can't you do it?” It is having the same effect on us as it would if all of our networks were competing for each other, but in practice, if that was true, customers would be spending a fortune for networks they did not need. They only need one.

Q134 Chair: So if I am the developer of 500 houses in Yorkshire, why do I have to come to you?

Phil Jones: You don't, to do that piece of it. So I have generalised. The backbone of the network is ours, and someone is free to build one if they wish. I am just signalling why I do not think they would, given the amount that it would cost them. But on those incremental developments you are absolutely right. Our market share has fallen significantly in the last five years because of exactly those terms.

Q135 Chair: Because other people do it cheaper?

Phil Jones: Other people are able to take advantage of offering tariff support mechanisms that we are not allowed to offer. They can sell it for less. It does not mean that it is costing less to put in the ground. The two propositions: if you are the developer I would have to charge you the cost as the regulated company of supplying that housing estate. Someone else, who was not a regulated entity on the same basis, could charge you some of the cost upfront and the rest through the life of the asset. Inevitably, that can lead to them offering you a payment, in the alternative deal. So the choice is: pay me money or be given money by somebody else. That is why largely our market share has fallen so much.

Q136 Chair: In the end, the customer is choosing not to use your service because they get a better deal somewhere else?

Phil Jones: They are choosing not to use us to construct some of those assets. By the way, in lots of other cases they choose to use us. It is not that they do not ever choose it, but they have that choice.

Frank Mitchell: I would add that there is no level playing field in the competition for connections from the point of view of exactly what Phil has said, where there is a compensation arrangement for the competition to minimise the upfront costs that can be attractive to some customers and not attractive to others. It was a similar process in our industry 20 years ago where we used to, for connections, reduce part of that upfront cost by spreading it over the lifetime and having charges through that. That is something that we do not have the ability to do at this time and that is something that is causing some problems for customers, because they do not understand some of the costs of connections and that can cause some debate with customers.

Typically, we also have to support and facilitate competition, so it is not about competing—we also have to facilitate and support our competitors to make them as competitive as they can, by giving free designs, by helping them go out and develop business, by giving them access to information on the network, to make sure they can compete with us. So we have a role not only to compete but also to facilitate competition and, to take up Phil's point, some customers prefer that compensation arrangement that competitors can provide by subsidising the upfront payment and spreading it over a longer period, rather than having to pay for that directly upfront. Most customers we find come back to us from a service point of view and a definite ability to deliver on time.

Q137 Dr Lee: Just building on the Chairman's point, do you think you are reaching a ceiling in terms of what competition has delivered in terms of savings to consumers? You have reached 60% of your efficiency savings. There is going to come a point where there is no difference between all of you, at which point it then begs the question why do we have you in private hands returning 7% on investment?

Phil Jones: I don't think we are reaching that point.

Q138 Dr Lee: When do you think that point will come because, judging by the record of 60% efficiency savings, you are doing very well compared to nationalisation, but there will come a point when your monopoly position becomes unassailable, at which point why are you getting 7%?

Frank Mitchell: If I can just add that I do not have a perspective on this competitive discussion we are having, which helps drive constant efficiencies into your business going forward. About 80% of our activities are tendered in the open market. We use competition to drive a lot of our activities by going into a tendering process that looks not only for low cost but innovation in what we do. So we constantly go to the market to support our activities going forward.

Q139 Dr Lee: Sure, but ultimately there is one network, of which you each have a share. This is one network, one wire to each customer. There must come a point you can see in the future where there is going to be little between you, which in fact just reinforces what I think the Chairman's position is, that there is little competition, and so therefore at that point what—

Phil Jones: I think it would be a very confident person who could say, "All change has finished". It has been said lots of times over history that things are done changing, there is nothing new. All of those people have been proved wrong. As we look into the future for example, let us say there is a significant take-up of electrification of vehicles—

Q140 Dr Lee: Forgive me. There would have to be an innovation whereby you could transmit your electricity in gas, not down a wire and not down a pipe.

Phil Jones: Not my point. Not my point.

Dr Lee: Yes, but for there to be a disruption in your market you need to be able to transmit electricity not down a wire.

Phil Jones: That is not my point. My point is, if there is a disruption in the use of our service then the demand for cash to be spent and invested in those networks is going to fall back again on investors. The operational costs may have fallen and they may have stabilised, but in a world where, for example—it is not my view, this is just the Government's view—we will not hit our carbon targets as a country if we do not see significant electrification of heat and/or transport. There is no prospect of anything happening if we do not do that.

In that world, our networks will have to change radically in order to allow people to have not a car fuelled by petrol but a car that they plug into their electricity network at home, radically different to what we currently have. Potentially that could cost billions of pounds, and there you are right back into the cycle probably for the next 20 years of competition between network operators to find the best and lowest cost way of doing that. That is my point about change. It is not that we are going to start beaming the electricity to people through the airwaves.

Q141 Dr Lee: My question that I wanted to come to a few minutes ago was on something that you said around the investment in infrastructure that was out of date. It was built in the 1950s and 1960s, and in 50 years it was going to need replacing, around about 2000, and there has been this shift towards how you pay for that. Forgive me, and I may have this wrong, but in effect you were

saying that between 1960 and 2000 the then consumers were being subsidised by the consumers from 2000 onwards, in terms of the infrastructure.

Phil Jones: Yes and no.

Dr Lee: So in effect you have made this change. I am not commenting on whether you were right to do it or not, I am just saying you made this change, so now going forward the same consumers since 2000 are not only having to pick up the tab from the past but are now having to pick up the tab from the future. In addition to that, we have just heard that the cost of all the renewables targets that we need to hit, because of the carbon targets and everything else, are being placed on the shoulders of a similar generation. Am I right in concluding that?

Phil Jones: Let me take the first piece and try to be really precise. The original asset was built by the state.

Dr Lee: The taxpayer?

Phil Jones: Agreed. I am not an expert in exactly how it was funded. I am assuming the taxpayer paid for all of it.

Dr Lee: Trust me—

Phil Jones: It was before my time, but it was built by the state. Then eventually it was sold by the state for a given amount, and a part of that amount is what was then allocated to the networks. You are quite right, over a 20 year period what started to happen in the mid-1990s, therefore, is that the amount for which the assets were sold—not spent, because that is gone—was then depreciated over 20 years and steadily paid back. So we are just now finishing recovering the costs of that.

Q142 Dr Lee: My point is that there is clearly an intergenerational inequity.

Phil Jones: Absolutely, yes.

Q143 Dr Lee: Okay, so it just goes on top of the inheritance of debt and of pension liabilities and everything else that this generation has to bear.

Phil Jones: I do not dispute that observation.

Q144 Dr Lee: This leads me on to the brief questions. We heard evidence that there may be a lengthy time lag between network investments and the consumer benefits. So consumers have to wait to receive these benefits but shareholders get a return on investment over the life of their assets, and also additional payments throughout if their companies outperform targets. Does this balance of risk and reward seem fairer to shareholders than to consumers?

Graham Edwards: I mentioned earlier on the change, for example, that is taking place in this price control period, which is that any outperformance is shared with consumers earlier than was

previously the case. In previous price regimes, companies enjoyed outperformance for the five-year control period and then the whole thing was rebased. That is when consumers would get the benefit of that. As part of this new regulatory model, RIIO, that has been changed. Consumers now get the benefit. They get 37% of any outperformance and they will get that in the second year following when that outperformance was achieved. So they are getting the payback, the benefit, much earlier than previously. I think there was a clear recognition when you were developing this RIIO process that you get benefits back to consumers as early as practically possible. That is a major change that clearly addresses how you get the benefit back to consumers at the earliest opportunity.

Frank Mitchell: Can I perhaps add to that? Not only that cycle, which has been quite rightly outlined by Graham, but we also predict efficiencies to give them early in our current price review that we are negotiating. So in our March submission to the regulator we looked at improving efficiency in the business by using innovation, by driving more efficiency through the supply chain and also by extending the payback period. All those things contributed and allowed us to be able to confidently predict that prices would reduce in real terms over the next eight years from where they are just now. We had to build it in upfront to give those benefits and signals early to the customers. That was quite clearly a cry from our stakeholders, because we consulted widely on a business plan and we were well aware that people were feeling the pressure from their energy bills, so we had to clearly demonstrate how we were putting our foot forward to help in that and build that upfront into our plan to make sure that in year one prices go down.

John Pettigrew: If I can just add, there are three elements to customer benefits, so at the price control the regulator sets the allowances based on frontier performance and, therefore, customers are seeing a reduction immediately. Under RIIO customers are sharing any outperformance with the utility and they receive those two years after the delivery. Then at the end of the price control the regulator resets the allowances, so all that shared benefit is then given back 100% to the customers. So the customers get three tranches of benefit upfront.

Q145 Dr Lee: Do you think that consumers have adequately been informed of this, of this lag between investment and return?

John Pettigrew: Certainly from our experience, we lived with RIIO for one year, but went through the initial consultation and debate about forming the policy of RIIO. It was a two-and-a-half year consultation and discussion with the industry and stakeholders right across the piece to understand the principles of RIIO, how it would work and aligning the utilities' objectives and outputs that were agreed by customers and stakeholders, the incentives that we have and what customers get in return. There was a strong effort to make sure that what we delivered over the RIIO period was what customers were asking of us. In our first year, we made it very clear to customers what the benefit was of our outperformance to them specifically.

Graham Edwards: I think implicit in your question is—and I would be the first to say—that people still do not understand this sector. We are still referred to as the gas board, the water board, the electricity board. Your average consumer out there still does not get it. We have made significant efforts to try to get our message across. We are in the process now of producing our year one stakeholder report that we will get out as widely as possible. You are right; there is not a clear understanding. For example, most consumers would not know that there is full

transparency—picking up Frank’s point—about what our estimated charges are going to be right up to the end of the control period. That is why we are able to sit here confidently and say that prices are going to be broadly flat over the period, because they are up there in lights, but most consumers will not see that. I think that is evidenced by the noise that is out there, about what is driving up energy bills and how much of the bill is distribution.

If I put it into context, our distribution charge is £144 a year on the average gas bill, which is something around £800. So it is about 18%. Again, if I put it into context, for that we provide the emergency service. We respond to 90,000 calls a year, we do a mains replacement programme that replaces over 400 kilometres a year. We clearly run and maintain the network. It costs less than covering your central heating boiler for a year. So I think it represents good value for money. I would say that, wouldn’t I? I know there is not a clear understanding out there of how distribution charges and transmission charges feature in the overall. I think some parties are being a bit disingenuous in how some of the messages have been communicated about what is driving up energy bills.

Tony Glover: From an Energy Network Association perspective, as the national trade body, we clearly see a challenge that I think we need to do something about. We are certainly on the back of an increased focus on this whole area and, dare I say it, some of the less good news stories, because most people get to know about the networks when there is a problem, as we saw with the recent storms. But we do have an opportunity—particularly as we bring out for electricity DNOs a national emergency number—to start to tell the whole story of the networks: what they do, all these issues. As Graham and others have said, there are a lot of myths going around. There are myths going around because there is a lack of understanding. That is not because there is any desire to cover it up, it is just because by the nature of the businesses they just get on and do what they do and are worried less about telling the story. I think there is a real role there for something that we need to do and we are doing.

Q146 Dr Lee: Since 2000 electricity distributors have received more than £1.25 billion in incentive payments to improve networks, including reductions in power cuts and so on. In your experience, how have these incentives directly benefited consumers, rather than shareholders?

Graham Edwards: I can only speak about gas here, but we have not received anything like those sorts of figures. I think the incentives that we have enjoyed—it is predominantly electricity, but I know in gas—

Chair: Let someone from electricity answer.

Phil Jones: The lion’s share of that number will be the incentive that has been paid to companies who have outperformed on their reliability and availability targets—power cuts, basically. So those incentives are calibrated in two ways. First, a view is taken of what today should look like—a target is set of performance levels—and then a view is taken by the regulator of how much value a customer would attach to that number. Instead of being 60, we will say customer minutes lost, being 59. How much is that extra worth? Then a certain amount of money is set aside. The companies can see the targets and if they deliver below that then they receive payments. That largely will be what has driven that large number. As was mentioned in the hearing you had earlier in the year, there has also been an incentive around network losses, which has trued chewed up quite significantly in the last few months a lot of money to be returned to customers,

i.e. bringing down that level of incentive payments, and I suspect that large number perhaps has not corrected for that, but I cannot tell you that, sitting here now.

Q147 Dr Lee: Do you think there is a fair allocation in view of some networks that are more vulnerable to weather than others? Do you think looking back over the last decade that some networks have benefited perhaps a bit too much?

Phil Jones: I cannot say that they benefit too much. I would say that, inevitably, no process like that is ever going to be perfect, and there are going to be winners and losers for sure. We would say that, wouldn't we? Then some of us may say that we have had it harder than others. The reality is some companies have done very well out of that. My own company has done quite modestly, but we are pleased with the outcome. It does vary across the industry and inevitably some of that almost certainly will come from the way the targets were set. Another piece of it will be that someone, we have to admit, may be performing better than we are and I can assure you that that triggers a conversation with a shareholder that goes, "Why can't you do the same thing?"

Q148 Dr Lee: This is a question directly to the National Grid. There is a greater emphasis in RIIO on investment than cost control, compared to RPI-X. Gosh, this is acronym central, isn't it? With National Grid spending £3.4 billion on essential infrastructure investment in the first year of RIIO, is the customer paying the price for this through higher bills?

John Pettigrew: I will start with the last part of it. As I said, as we look forward over the real period, our expectation is that customers' costs will be flat in real terms, so the investment that we are making is broadly in two categories. The first, as we have already mentioned at the beginning of the session, is that the vast majority of the transmission network was built in the 1960s. The assets have lasted very well and the reliability has been 99.69%, so the reliability has been delivered through those assets, but we are in an investment cycle now where we need to replace those assets. So a large part of that investment is about asset replacement.

The second part is that our customers are asking us to connect them at the periphery of the system, so what we are seeing is a large number of requests for new generation to connect to the network and that is driving the rest of the investment. We only respond to customer signals in terms of investment from generators and we do not get remunerated for building assets that are not necessary. If a customer seeks an application and a connection to the grid system and then defers it, we stand the projects down.

Q149 Chair: Unfortunately, that is not always true, is it? I speak from my own constituents' experience. National Grid produced a proposal to build new transmission lines at enormous cost to connect a nuclear power station that is unlikely to be operational before 2030—if ever—and a number of wind farms whose future construction is extremely doubtful. They were keen to bring forward this programme entirely for their own purposes, which had the effect of boosting the returns, raising the costs to their customers and improving the profit of the shareholder. I wish it was true, what you just said. It is not.

John Pettigrew: The project you talk about was with regard to Branford-Twinstead. We had 13 gigawatts of generation offshore and Sizewell had a contractual agreement to connect to the National Grid much sooner than the date you quote. We worked back from that date and determined that, in order to facilitate that legal connection, we would need to start the consultation in that particular region to build a 400 kilovolt line of 28 kilometres. That was because the customers were telling us they were going to connect before 2020.

What then happened is that those customers deferred their connection later into the 2020s and immediately, once they took that legal obligation off us, we assessed the situation and stood the project down. That is the situation we find ourselves in not just in your constituency but right across the country, which is the obligation that National Grid has is to make an offer to a generator and if the generator says they are going to connect in 2019 we will work back from an engineering perspective to work out when is the latest we can start the project.

Quite often, what will happen is that a generator will then defer the project and, therefore, we will have to stand down the project. That is part of the uncertainty we are facing at the moment, but in that specific example we started the project because we had a connection date that was much sooner. As soon as the customer told us that it was going to be deferred we stood the project down.

Q150 Dr Lee: Another question to you, Mr Pettigrew. Transmission companies also have regulatory framework, such as connect, and manage to invest in the network to bring more low carbon developers on to the system earlier. What is your view of the framework's effectiveness?

John Pettigrew: The framework was put together following consultation with DECC and Ofgem back in 2010, I think. It was because of the time to build the transmission. A queue was forming of renewable generation that wanted to connect sooner. The choice was whether we waited until the transmission was built before you allowed those renewables to connect or you allowed them to connect and managed it in operational time. The decision was taken back in 2010 to allow those generators to connect and to manage it in real time. That is what we have been doing, so I think about 1.2 gigawatts have connected under the connect and manage process over the last couple of years, so they have done the physical connection to the network, but the reinforcements have not yet been completed. They will be completed in time.

Q151 Dr Lee: Do you think there is anything more that can be done to increase the pace of connecting new developers on to the grid?

John Pettigrew: The challenge is the planning process. We are very supportive of the new Planning Act, but it is a long process. I will take a specific example, just to give you the sense of it—the Hinkley nuclear station down in the south-west. We have been consulting following the steps that the Planning Act has set out now for four years, and we have just made our application to the planning inspectorate. That is to ensure that all the environmental and engineering studies are done, but, most importantly, that we consult with all the stakeholders locally to ensure that they understand the rationale for what we are doing and we can take on board their interest. It is quite a long process. I think there is the opportunity to put some flexibility in that when it is perhaps a less major project that there could be a fast track way of getting through the Planning Act. That is the long lead time with regard to a lot of the development projects of connecting generators.

Q152 Dr Lee: Finally, a question to the entire panel. Are network companies doing enough to find innovative ways to use existing networks without investing in new assets?

Graham Edwards: If I can answer that, again it comes back to one of the changes that have been made as part of this new regulatory period. We now have something called an Exit Capacity Incentive. What does that mean? It means that as a network we are encouraged—and indeed incentivised—not to spend money unnecessarily, not to build assets that are not required. Now, that is not to say we were doing it before, but let me give you an example. You have large users in our area. Previously we would go to them and say, “What are your gas requirements going to be going forward?” Inevitably they would err on the side of caution, so you add all that up, multiply it across our network and what tended to happen is it gave you an answer that said, “We need to build new assets”. The change that has been made now is there is a direct incentive on large users to give more realistic estimates, because it reduces their charges. That gives us better information on which to decide whether we need to build assets or not, coupled with the fact that some people were on interruptible contracts previously and are now on fixed, so they have to be much more specific about what energy they require, because if they are fixed then clearly there is no scope for manoeuvre.

We are already seeing that that has delayed or in some cases cancelled investment that we would otherwise be making on the network. We are now directly incentivised as part of this regulatory regime not to build assets that are not required. I think that is a win-win all round. Large users pay less. We do not have to build assets. Consumer benefits from less expenditure. So there is a real incentive now on the industry not to build unless it is absolutely essential.

Frank Mitchell: Coming back to electricity, I guess part of the real framework is to demonstrate innovation in what you do—we have a fast track from transmission because we are a frontier company that had that innovation. We are in distribution negotiations just now. We have identified some £140 million of benefits from innovation that are going to be available to customers, largely by using our assets more and getting more out of them by putting smart grid technology in, using better information at a local level, and that is going to reduce the cost to connect but also reduce the cost to potentially increase the capacity of the network. Why is that important? Well, I think it gets people in quicker. But to answer John’s point earlier, putting copper in the ground and hanging overhead lines is fraught with planning issues, and you use a lot of money up in that process. The answer in the future cannot be putting more copper in the ground. We have to innovate and look at how we spread our assets more by embedding more technology lower and lower into our network to squeeze more out of that, to get as much as we can, if only to defer, if not to completely stop, any future investment.

Another aspect of that is within our communities we serve. We have rural communities that typically depend more on electricity, and so we are also looking at innovation, and those customers are often off the gas grid as well, so they have a huge dependence on the reliability of their electricity. We are looking at innovation to minimise the disruption of those customers through the normal course of what we do, but also through storms, and we can demonstrate in our investment programme how those benefits have come through to those customers, by innovating, not always by just a standard approach to putting more copper in the ground as an answer to every question. We have to clearly demonstrate that in the framework. We have clearly demonstrated the benefits to the customers and also consulted the stakeholders to make sure they understand the benefits they will see.

Q153 Albert Owen: Just before I go on to consumer engagement, Mr Jones and the rest of the panel did not really answer Dr Lee's point about the balance between your customer and the shareholder. The reality is that your priority is to your shareholder, first and foremost, to get a return on the business. You do not disagree with that, do you, Mr Jones?

Phil Jones: I will let you finish. I do not anticipate disagreeing with what you are about to say, but please continue.

Albert Owen: No, I have finished that point.

Phil Jones: Okay. My obligation to my shareholders is yes, for the long term, so let me qualify your remark only by saying that we ultimately are owned by Warren Buffett's organisation that is renowned for never selling things, so we do not think we would remain in business profitably and sustainably if we were ripping the customers off. You are quite right; of course I am obligated to the shareholder.

Q154 Albert Owen: The shareholder is the first priority. The customer then comes below the shareholder. That is my point.

Phil Jones: It is not how we see life, no.

Albert Owen: Well, if you did not make profits—

Phil Jones: You are entitled to ask me that question but my answer is that is not how we see life.

Q155 Albert Owen: My point is there is a third way, and it has not entered into the electricity or gas market, but it has in the water industry. In Wales we have a not-for-profit organisation that does all the distribution and runs the water company. That competes with tendering as well to meet European states, so there is a third way. If we cannot have direct competition we could have another model. You are saying you do not know how it would be in the future and my question particularly to consumer representatives on the panel is do they think that is a good way forward and could that help customers in the future? We rank in Wales halfway down the table, and all the profits are ploughed back into the company and the customers get bonuses and reductions in their bills at times when that investment is not made. So there is a direct advantage to the consumer. Could that work in the gas and electricity industries?

Jeremy Nicholson: I think that conceptually it could for the so-called natural monopoly networks. I think it would be more problematic in some other areas. I used to work in the water industry myself, before working for energy consumers, so I have some understanding about what it is like to work for a regulated natural monopoly and obviously the different models, including the non-profit situation you have in Wales. As I said earlier, the traditional view from large energy users is that the UK model broadly speaking, prior to RIIO it must be said, has served consumers relatively well on networks and it is only recently that there has been concern about volatility in charging and so on. I have to say I am not persuaded that there are necessarily significant supernormal profits being made in network industries. I am perhaps more concerned that there may be inefficiencies that take a while to be addressed, and this is where comparative competition

comes in. It is a never-ending process. Each time the regulator goes through you are chipping away. Every time the network industries respond and find a way of doing something better or one of their comparators do, more information becomes available and there is a chance that you will recruit those benefits for consumers in other areas in due course.

John Pettigrew: Chairman, if I can make a point. I do not think it would be in the public interest to move to a not-for-profit. If you look at the challenges faced by the gas and electricity sector, we are very much in an investment cycle. If you look at how profits are being used in the sector, and I will take National Grid as an example, just over a quarter of our operating profit is to fund the existing debt. That debt is effectively being recovered for the investments already being made over multiple generations to spread the cost. Just under a quarter of that is the dividend we pay for equity investors. Just under a quarter is tax and the rest is ploughed back into the business to fund future investment. When you have strong growth in investment, which is what we have in the sector, then it is really important that we minimise the cost of financing.

If you have all the academics look at the utility, they will tell you that you need debt and equity to minimise the cost of financing. So if you remove the equity investors then you would have to fund that investment through more debt. That is likely, in an investment cycle, to just increase the cost of debt or indeed remove access to certain debt markets, so it could increase the cost to consumers.

Q156 Albert Owen: The working model I have identified, which is similar, is a utility company that serves a region, can compare with other regions and does pay tax; it is not exempt from tax, and it does work for its customers. That was my point.

John Pettigrew: I think essentially with very low levels of investment that might work, but if you take away the access to those sources of finance ultimately you either have to raise it through debt or customers themselves have to pay it. That means this generation pays for all the investment for the next 40 or 50 years so I think—

Q157 Albert Owen: No, bills over 20-odd years.

Phil Jones: If a shock lands on any company—

Albert Owen: It does operate in profit for many years.

Phil Jones: I did not say it has not done that, but over the long-term you asked me our view and my view would be over the long-term, in the end, there are different models. Our view is that this model is better because of the increased investment that is required over the long-term and the uncertainty, and what equity provides is that buffer between the customers and the debt holders. In other words, the equity investor would be the person who would take it in the neck if there is a shock. Graham explained that earlier. That is how it happens. In a not-for-profit organisation, once the debt has been paid, the only people left to pay are the customers, and the bills would take the strain. We, by the way, have not paid a dividend to our shareholders—

Q158 Albert Owen: But that is your opinion. It is not a fact. The bills are averaged over the country, so they are not the most expensive and the customer does take it, so what I am suggesting is that there are some profits that either go out of this country and do not go back into investment—

Phil Jones: We have not paid a dividend to our shareholders since 2003. Everything has been ploughed back into the network.

Chair: I do want to move on.

Graham Edwards: I would like to comment on it and I have to say I am a little conflicted here because I am a non-executive director of Dwr Cymru Welsh Water. You are absolutely right. It is a model that can work and you can argue the pros and cons of it. I think the point I would have made is that clearly, in the way that these businesses are funded, if there are any shocks then the shareholder picks up the tab. If there are shocks in the mutual model then the consumer will always pay. That was a particular issue for Welsh Water in the early days before it built up reserves. It is less of an issue now, and I guess the debate now is how much of that do you keep back for potential shocks and investment and how much of it do you give back to consumers? There is no right or wrong answer.

Can I just add to this comment? Clearly, we are privately owned. The UK utilities have been very attractive, particularly to the overseas investors. Why overseas investors? Well, it is not because the UK is a soft touch. I can say very clearly that the attractiveness of the UK to investors and particularly overseas investors, and I quote my own parent here, is the stable environment in the UK. There are some economies that investors, institutional investors, will not go anywhere near because it is too risky.

Q159 Albert Owen: I do have a series of questions I want to ask separately about consumer engagement. Just a main question, and again the consumer bodies on the panel, if they could answer first. How effectively do you think Ofgem and the network companies engaged and consulted with the business and residential customers when they were drawing up RIIO?

Jeremy Nicholson: I can only talk from the perspective of an industrial consumer representative. I have to say that we have noticed greater engagement from distribution companies and grid in recent years than was the case previously so something seems to be moving in the right direction. If you were being cynical you might say it was starting from a low base in terms of consultation, but I think that would be perhaps a little unfair. Why should the natural monopolies—for which the direct customers are generators or suppliers and so on—rather than the individual energy user have had much direct relationship in the past? But that is starting to change. I was on one of the consumer challenge groups that Ofgem set up. Ofgem does consult with stakeholders during the price control process. Obviously, these things can be improved and I am sure it is not perfect, but the impression from our members is that consultation seems to be more open and transparent than previously, allowing for the fact that the RIIO process itself is somewhat more complicated than the straight RPI-X.

Q160 Albert Owen: Do you think it can be improved for the next round?

Jeremy Nicholson: I think the big difficulty is engaging the domestic sector and smaller businesses rather than the large industrial consumers that I work for, some of whom have a direct relationship with Grid or their local distribution companies as major consumers, as you

would expect. Their investment plans may be directly relevant to the investment that is required in maintaining and, in certain cases, expanding the distribution capacity. I think it is more problematic for the domestic consumer. As someone who has been on the receiving end of a price control, albeit in a different industry, I recognise that to become significantly engaged in the details of what is going into a price control is complicated even if it is the nature of your business. People here are more than usually enthusiastic about this subject than most domestic consumers will be. That said, I think there were things that have been trialled in recent price reviews that have revealed more successful engagement with consumers. This was evident from the gas distribution price control and I think also in others where the companies have managed to reach out and talk to more than the usual suspects on the demand side. I don't think there is a single one thing they should be doing because different classes of consumers, if I can put them like that, may need different approaches to engage and they will be starting from a very different base in terms of their knowledge and understanding of—

Q161 Albert Owen: So you think there has been an improvement in engagement?

Jeremy Nicholson: There has unquestionably been an improvement, but I would say it was from a low base and it is not job done yet.

Q162 Albert Owen: Thank you. Mr Mitchell?

Frank Mitchell: First of all, I think every company has to constantly improve its role in engagement with stakeholders. It is not a journey you finish. We have tried to work on that. We have had feedback from stakeholders on how to improve it. We work through many channels, we have stakeholder groups, but it is very difficult. You have groups that are very active and knowledgeable who want to be involved and others that are very passive. I think the comment was made earlier that many customers just see you as the electricity board. They don't understand the structure and what you do. It is a key area where we have been investing in brand awareness, awareness of what we do, so that people can differentiate, but that still has a long way to go. From our own market research, only 40% of customers knew who to phone when there was a problem with their electricity supply. It tells you the gap we still have to get through despite all the work we are doing.

On domestic consumers, we have found that trying to tap into consumer groups, Citizens Advice Bureaux and other groups like that, has been the most effective way. We also have a social media site where we have direct access for end user customers. Domestic customers have volunteered to give us feedback on issues. We use that on an ongoing basis to get feed back about our communication, ease of use of our internet site, our products, our pricing, how we go about that, so that we get a feel for that. That is not open to everybody. It is only open to people who want to actively take part in that, but it is very difficult to reach every one of the end customers. We try to look at the relevant consumer groups, the rural customers, the off-grid supply customers, customers particularly between Glasgow and Liverpool who feel some of the pressure of energy more than most out there, and we try to make sure they are represented in the communities we bring together in a stakeholder group.

Q163 Albert Owen: I want to move on to network charges and how they vary across the 14 electricity and 12 gas regions. Can I ask you individually and briefly—I have to leave at 11 am; I apologise for having to depart from this session early—what are the arguments for and against standardisation of charges across the UK networks?

John Pettigrew: I have already explained the electricity transmission charges. You are absolutely right; we have 14 zones and charges vary across those zones. The principle is to try to give to customers an indication of the cost that they are imposing on the transmission system. If you move to a standardised charge then of course there will be winners and losers and whenever we have done a consultation on charging you get people at both ends of the spectrum, both very passionate about what is the right solution. Historically, we have tried to stick to those principles, which have resulted in a tariff structure that is reflective of the costs in the transmission system rather than a standardised one.

Q164 Albert Owen: Don't you understand the argument I have made a number of times that, from an area on the periphery that generates electricity on to the grid, customers in close proximity to where that electricity is generated pay more for their domestic use?

John Pettigrew: Absolutely. If I take north Wales, for example, the demand charge is lower than the south Wales demand charge. There are two zones in Wales and both demands in Wales are lower than the national average, reflecting the generation in Wales.

Q165 Albert Owen: I am not making a north-south Wales issue here. In south Wales they produce electricity as well and they pay more for it.

John Pettigrew: Looking at the generation and the demand in each of those two zones, what you have is a tariff that reflects the costs imposed on the transmission system. If you standardise it, if you just take those two zones, then you increase the charge in north Wales and reduce it in south Wales and that would be the impact to customers.

Q166 Albert Owen: Why? Why wouldn't it be a UK average?

John Pettigrew: It could be, but there will be winners and losers.

Q167 Albert Owen: There should be, because the UK gets a lot of the production from north Wales, and that is my point. There is an unfairness there and you have not really answered that. There would be winners and losers, and many of the areas that generate it would be winners.

John Pettigrew: The risk to customers more broadly is that without those signals you could end up investing more in the transmission than you need, because people aren't taking into account the cost of transmission and are locating miles and miles away from the transmission system. They are not picking up the cost of that and ultimately customers generally would pick that up.

Q168 Albert Owen: I am going to go to everybody, but I will come to Mr Nicholson first because probably we will get similar answers from the rest of the regional distributors who are here. From a customer point of view, you may have representatives in different areas of the United Kingdom, so could you give that perspective of why it is more expensive in some areas and how that impacts on your business?

Jeremy Nicholson: Exactly as you say. There is a wide range of charges, depending on your geographical location, and indeed what voltage you are connected to the system and so on, which may be something of an historical accident in certain instances. There can be very different charges being paid for relatively similar types of load. From looking at the national system as a whole, you may ask why that makes sense, and I think we have heard part of the answer. There is a benefit to consumers overall, but not necessarily to the individual consumer in every instance, in having an element of locational charging. To the extent that those who impose costs on the system fairly pay for those costs, and those who provide benefits to others receive benefits for their load management or their location or whatever it happens to be, overall that should benefit consumers. That said, nobody is going to move their factory from one part of the UK to another because their transmission charges are higher or lower in one zone. It does affect how new demand and more particularly new generation connects to the system in the first place.

We have already had some references to the cost of a green agenda and so on, and God knows that is not small and consumers are going to pay very heavily for that. Leaving aside whether we should be doing it at all, if we are going to do it let's at least try to do it in a cost-effective way and if we can create appropriate signals for generation to connect in a way that lowers the average cost to the consumer who—

Q169 Albert Owen: Just to put you on the spot, do you support the regional variance or do you support the more standard—

Jeremy Nicholson: We support the principle of there being a regional variance. I think the difficult thing for us as industrial consumers is to know whether the price disparity is correct or not. National Grid has expertise on this; they have their own view. I am not saying it is wrong, but from an external perspective the variance in those charges is not something that we can independently audit and recognise as being "right". The other factor that is definitely problematic for our members is when there are sudden swings in those charges. This is an issue not just for them but in fact also for the suppliers that are bidding for work to supply the business sector. There is uncertainty about not just the average level of transmission charges but difference in zone charges. Grid will publish data about what those tariffs and charges are going to be for X years ahead and so on, but I think the more volatility and uncertainty there is the more problematic that is for consumers and those who supply them.

Q170 Albert Owen: Any other comments?

John Pettigrew: Just to respond to that, one of the things reflected in the feedback we have had from customers is the need to make sure that we are better at making forecasts. We currently now forecast those transmission charges five years out. As part of RIIO, where there is volatility in

terms of revenue recovery, we have lagged that two years so that you don't get a sudden increase or reduction in charges in a particular year, to try to smooth that out. We are listening to our customers and trying to make sure, to the extent that we can, that they are more predictable going forward.

Frank Mitchell: The only comment I would make is you get a roomful of economists and you will get a roomful of answers. I guess there is more a social question at the heart of it. Within any region, you spread that cost evenly across the customers; between Liverpool and north Wales similar customers pay similar amounts. On that principle, you are increasing the regional spread. I guess the counter question is: are people confident that will create consequential increased costs to customers? I think you can argue that on perhaps some industrial customers, but can you really argue that for domestic customers? Is there another loop that says different customer groups may be treated differently, given that some of them have a very high reliance on electricity more than other customers out there?

Q171 Albert Owen: So you think social tariffs, as opposed to—

Frank Mitchell: I think there is an argument for looking at that to make sure that for certain customer groups you don't create the unintended consequences of increasing costs for everybody.

Graham Edwards: Just echoing Frank's comment, clearly on gas distribution charges they are the same across our region, so there is no differentiation there. Where we have tried to support—

Albert Owen: No, but there is between the regions.

Graham Edwards: Yes, there will be between the regions, but within region I think one of the things that we have tried to do is support in particular those consumers who are in fuel poverty with various schemes, which you will be very familiar with, as a means of trying to support people who are clearly struggling. But our charges are standard across our operating region.

Q172 Albert Owen: My final point, and it has been touched upon, is that you talk about myths when the reality that we, as consumers and as members of this Committee, have been told by the retail companies that they are fixed charges and they can't control them so that is why bills are going up. One of the fixed charges is the network cost and they have no control over the wholesale cost. Do you think for the future and for greater transparency and clarity that the distribution and transmission costs should be on individual bills and should be clear so that there are not these myths, so people actually know what costs form what proportion of their bill on a quarterly basis? I know that would be difficult, but it should be segmented so that they know.

Frank Mitchell: Let me start with that one. I have no issue with the network charges being shown in any bill. About the communication with suppliers, we have quarterly forums of suppliers. We communicate quarterly about looking right out as far into the future as we can and the price reviews. We also have specific communications in December and January about what those bills are going to look like in the future, looking at any under and over corrections. I would not say that they are the best attended forums, and we even hold some of them in London, north Wales and the north-west of the UK, despite the fact that we are based in Scotland, to try to get as many people there, and we hold them by phone. A question I would ask you to press with

suppliers is how much they really tap into the available resources to see the future pricing that is out there and very transparent from network companies. In the ED1 business case that we have submitted, that reduction from year one will be there in real terms and is forecast, lasting all the way through the next eight years.

Q173 Albert Owen: I have noticed it on my gas bill, Mr Edwards, but more on the electricity bills there is lack of clarity.

Phil Jones: We would support that. We don't feel hugely strongly, that is not our most important issue, but, as Frank said, we have no issue with it.

Albert Owen: It is from the customer perspective, Mr Jones.

Phil Jones: I think you might be right; I agree. The other observation I would make is that that would help the broader questions that were asked about stakeholder engagement and just that level of awareness.

If I could highlight two other points associated with that. The rising network costs that have been talked about have been a fact, and I understand why suppliers would point to that. The reason that they were rising during this period, 2010 to 2015, in electricity distribution is that a decision was taken to spread over the period the increase that would otherwise have come in one lump in 2010. It was deferred to give the customers a break in 2010. The second thing—stimulated largely by the interest of this Committee in storm response—is the single emergency number that has been talked about that will also result in us, for the first time, getting the names and contact details of those customers so that we can communicate with the occupiers. So I think the level of engagement is set to increase and seeing that level of cost on their bill would be only a step in the right direction. That is our view.

John Pettigrew: From our side, Mr Owen, we would have no issue with it. We have experience of it. In our US utilities, the bill is two-sided. On the one side is a very simple explanation of the bill and on the other side is the regulatory explanation of the bill that breaks down all the components of the final bill, including taxes, subsidies, transmission distribution charges, as well as energy. We have experience of working in that, so we have no issue with it.

Tony Glover: It would be very welcome, I think, speaking on behalf of other members who are not here today. I think it would be extremely welcome and would engage people. Just another thing about how we engage people. We do so through some of our innovation projects. We are increasingly, as network companies, working with customers, the public, in a way we have not done before, and this is just part of that process. People like Phil are leading on projects like that. That is the way of the future, so it would be welcome.

Graham Edwards: Some suppliers do put a breakdown of the bill and will show the element of distribution charge. I think the issue—certainly the one I would take issue with—is then a projection about what is happening to distribution charges. Going back to Frank's point, they have visibility five years forward about what our projected distribution charges are. We meet quarterly. Prices—distribution charges—change once a year and they know in the November before the April what those changes are going to be.

Q174 Albert Owen: You could put that on a bill. You could project what you think—

Graham Edwards: You could put it on a bill. I think it would be great to say distribution charges are going to remain flat up to 2021. It would dispel some myths, I totally agree with you.

Q175 Sir Robert Smith: Do any of you have any views on whether the set of benchmarks that are used for the price control are appropriate? Is there anything that needs changing on the benchmarks?

Phil Jones: As you can imagine, that is always a central point of debate and discussion with our regulators. If I talk specifically about the price control that Frank and myself and our peers are involved in, we are in the middle of that right now. Some significant changes have been made, we think for the better, to look at things in the round, ie total cost has been taken into greater consideration right now. I would have to be honest with you and say we are in the middle of the negotiation with Ofgem, but we have some concerns about the settlement that is being proposed for us. We are still working through it, so it is appropriate that we just let that take its course. The fundamentals of that benchmarking process are as Graham highlighted earlier. The big change is that outputs are now an explicit part of the regime, and so they should be. If you go back before 2010, you basically just had a pot of money and not really any commitment to do anything with it other than just run your business. Now there are explicit commitments of the things that we will and will not do.

Once you start that, those benchmarks have to take account of what those outputs are. Our current view of the settlement that is on the table for us is that the costs that are being proposed for my company would not fund those outputs. Because of the way those outputs have been calibrated by the benchmarks with other companies, you have to look across at the peer group and see whether you think you are being treated fairly. We are in the middle of that process now so it would be unfair of me to suggest where I think it is going to turn out, but they are absolutely crucial. They are always going to be debated so I do not think they can ever be set and left. They are always going to come under scrutiny and they will never be perfect, but they have to be close enough that the outputs that we are being asked to deliver, in our case quite significant service improvements, has to carry some level of cost.

Frank Mitchell: Perhaps just adding to Phil's comment, in any benchmark you can often get swings and roundabouts. Typically, as a company we will net them out in the round. We will take most of that on the chin, but when we do see benchmarks that I believe will end up meaning that there will be serious safety and security of supply issues through some of our assets not being funded to be replaced, then that is where I really get concerned and that is where we are engaged just now. I guess, taking Phil's point, we need to see how that process runs to see the outcome of that. It is first and foremost as a priority for me about the safe and reliable nature of the network I have to run.

Q176 Sir Robert Smith: Is the safety and reliability not a benchmark?

Frank Mitchell: It is a benchmark, but it is how you interpret that. There are parts of it about where companies are on unit costs, and on unit costs we fare very well. We are frontier on unit costs, but on asset lifecycles—it was a discussion we held earlier on—different companies have different asset lifecycles. In total expenditure through volume you may be at different points on

that curve. Sometimes, in some crude benchmark analysis, that might clip off some investment and it is just because you are in a different stage from perhaps other parts of the industry in your asset lifecycle replacement programme.

Graham Edwards: Having been through the price controls, so I am not encumbered by saying we are in the middle of it, I guess I should make some observations about benchmarking generally. Clearly, there is benchmarking within the sector, company to company, particularly at the operational level, around and down to quite a lot of detail. Clearly, it is easy to benchmark that.

Now, one of the accusations externally will be that you are only comparing with each other; how is that raising the bar? Well, then externally we do comparisons and benchmarking particularly on things like customer service. Clearly, there are obvious benchmarks around business financing. As a company, we do our own benchmarking globally with other similar companies. You will be aware from the information from DECC that charges in the UK are at the lower end of the scale compared to other European countries. We have found it difficult. When we have tried to do more benchmarking, there are so many variables that come into play here around is it Government funded, do they get grants, are you measuring like with like. It is very difficult, so I think it is fair to say that the benchmarking tends to then be at the activity level. We will measure all of those—HR, procurement, not just operational activities.

It is interesting. When we talk about customer service—one example—we have to respond to complaints within 10 days. At the moment, for 50% of the time we respond to complaints in one day. Some external benchmarks: my bank has eight weeks to respond to my complaint. I know I am being a bit frivolous there, but when you look externally, some of our standards really are leading edge in terms of customer service and delivery of service.

Q177 Sir Robert Smith: Do any of you go looking at how other regulated industries like aviation, rail and water perform?

Graham Edwards: Ofgem will do that, but we will also do it ourselves, yes, certainly across all utilities. Regulators talk to each other. They compare notes. Companies talk to each other and compare notes. I am sure we have all done it. We have done benchmarking visits to other companies. If somebody has a reputation for being great at something, then everybody will beat a path to their door to understand how they are doing it. I think we all take the view that if somebody is out there doing something better than us, then let us learn from that.

Phil Jones: It is probably worth just briefly highlighting—I am sure Ofgem will make a point of this in their evidence, but that is for them to say—you asked earlier about changes to the regime. I am sure you are aware that the overhaul that they did that they now call RIIO in 2010 was a huge root-and-branch review of the way in which the 20 years of regulation since privatisation had worked. There was a significant amount of participation from all manner of industry participants and other regulators in that process. I think it is fair to say, absent the concerns I have just outlined around its implementation in our case now, generally it has been viewed very positively. The concept of bringing outputs and benchmarking across them has been viewed positively in other regulatory sectors. We can see the influence of other regulators, but also it is fair to say that what has happened in energy networks has influenced the behaviour of others, in a sense following what they have seen in energy.

Q178 Sir Robert Smith: Mr Nicholson, do you have any view on how it has happened?

Jeremy Nicholson: I would echo the comments. I think there is a lot of co-ordination between the regulators in other utility industries and trying to look for comparators outside regulated industries that can be taken into account as far as benchmarking is concerned. It is not a perfect process, and the work here never stops, but I am not aware of any evidence that any energy regulation is out of kilter with other sectors in this or that they are missing a trick. I am sure that those in the regulated industries will have their view about the appropriateness or otherwise of benchmarks and you would expect them not necessarily to coincide with the regulator's view on the subject, but I think the broad approach and the opportunities to challenge those and look outside your own industry does seem to be broadly working.

Tony Glover: It is interesting that across the EU they are particularly focusing on our regulation, and particularly our energy regulation, and want to repeat that. They are very interested in how we encourage innovation and some of the work that is going on with that. It is interesting and if you look, as Graham says, at the comparators across the EU, if you look at electricity and gas, they perform extremely well against other network companies in other parts of the EU, particularly the larger countries like Germany and France and Italy. There is a message there and they are beating down our doors to ask about how we are regulated.

Jeremy Nicholson: I would echo that point. A lot of our members operate in other European markets as well. Many of them are headquartered in other parts of Europe. The difference in terms of the regulatory system and, indeed, in the past of the ownership of network industries has been quite marked. It is true to say there has been a movement somewhat in the UK direction. Although it is a great thing that price reviews are being challenged by this Committee and others, and long may that continue, I think sometimes we forget that we have been rather innovative in certain aspects of regulation in this country. There are aspects of both the regulatory system and, indeed, dare I say it, of the energy markets of which we ought to be quite proud. We should be careful in our quest to improve these things to recognise that we have not all by any means but some of the fundamentals of the market structure and regulation at least approximately right here, and perhaps that needs to be recognised more often.

Frank Mitchell: Perhaps just one additional point. I worked in the west coast of the US for three years covering gas and electricity out there and quite clearly the US regulatory model was not one that incentivised efficiency. Even within that, there was a stark difference between investor-owned companies' efficiency, state owned or co-op. Mutual or not-for-profit organisations were typically the least efficient companies, even within a US context. Perhaps to take Mr Owen's point, there are some other lessons from other countries about how over time the not-for-profit sector benchmarks compared to investor-owned companies as well.

Jeremy Nicholson: One word of caution on international comparisons on network costs. If you think there is a lack of transparency in the UK, have a look at some of the continental markets, which are changing but not fast enough. Benchmarks in terms of tariff rates and so on for industrial consumers are very difficult to compare and we certainly would not expect some of the low network costs that apparently are available to our competitors elsewhere in Europe, which seem to be, shall I say, somewhat less than cost reflective. The suspicion, if not the reality, is that there are all sorts of covert industrial subsidies from which our competitors benefit to a marginal degree, which are effectively underwritten by domestic consumers in a number of the continental markets. This is relevant from the point of view of competitiveness of British industry,

but it is not necessarily a model that we would wish to follow here. The reform is needed elsewhere, but I think one should bear that in mind.

Yes, there are issues about volatility and absolute levels of network charges here, at least on the electricity side, but a like-for-like comparison with what is going on in adjacent markets, at least on the industrial side, could be quite misleading if you did not understand that cost reflectivity has not necessarily been the hallmark of charging there.

Q179 Graham Stringer: Mr Edward, if the Government's policy is carried through and energy supply is decarbonised, you will have nothing to put down your gas pipes in 30 years' time. Is this impacting on current proposals for investment or costs in the distribution system?

Graham Edwards: It is a very good question. First of all, I think that gas is going to be around for some time to come.

Q180 Graham Stringer: You do not think the Government will decarbonise energy production?

Graham Edwards: Clearly, longer term, we know what the overall strategy and vision is. For me, I was going to say it is one of timing. I think it is more than timing as well because I do think there are issues around security of supply and affordability. You have seen some of the headlines in the last few days about what security of supply is looking like over the next couple of years, and I think there are some serious issues there. I do think there is a need to really examine what the ongoing strategy is.

If I pick up gas specifically, if I may I will refer to a piece of work that was done it must be two years ago now. It was by Redpoint Consulting Group, who were asked on behalf of all the networks to do a piece of independent work about what the future of energy should look like and, in particular, what part gas could play in that, particularly against this background of an agenda that said by 2050 we need to almost eliminate gas. I will not bore you with all the details, but the bottom line said, look, we are capable of achieving the carbon reduction targets by 2050, by still having gas as a clear key component of the energy mix and, by the way, if we do that then there is a cost saving of circa about £2,000 per UK consumer by 2050. There was a big, big cost saving associated with that. Jeremy has made comments about the cost of low carbon. We need to have a more open debate about what the future of energy looks like. The basis of your question is: are we wasting money investing in the assets?

Q181 Graham Stringer: But the question was: is it impacting on your current costs and investment policies?

Graham Edwards: No, it is not and, believe it or not, each year more and more people are connecting to the gas network, particularly under the banner of fuel poor. We have people clamouring to get on to gas. Where they are supported through a fuel-poor scheme that was introduced in the sector in 2010, we far exceeded our estimates of transferring people on to gas. I will give you an illustration and, unfortunately, some of our poorest consumers are in areas

where there's no gas on supply, so they rely on coal and they rely on oil. We transfer them on to gas and they save something like £700 a year. It is an enormous sum of money.

While I hear all the comment that we need to eradicate gas, on the ground that's not the picture at all. The last point I would make is we are seeing an increasing number of projects that are looking to put renewable gas into our network. If you think of the gas network, clearly there's an ongoing need to maintain it, but why wouldn't we use that fantastic network across the UK to transport other forms of gas? We are having loads of inquiries. We have something like 80 inquiries at the moment for biomethane. We would probably have about six schemes by the end of the first quarter next year. There's a head of steam building up, excuse my pun, for gas, so the future is not as clear as perhaps some commentators would have us believe.

Tony Glover: Sorry, just briefly to add to that, one of key issues, of course, is, as Graham has referred to in terms of fuel poverty, the whole debate about heat. Some work—building on the Redpoint work that ENA commissioned looking at that—we looked at the views of the public, we looked at the technology that's available, the type of housing and, as a result of that work that we inputted into DECC, they have modified their views on the role that gas can play, certainly out to 2030.

This, of course, is critical in terms of investing in the network, but there is still a big debate out there about customer preference, what people want, what people can get hold of, how much they can afford to pay in terms of heat. Dare I say, it is a big challenge for you, as politicians, because there is probably a whole area that people are not focused on. We talk about networks, but the future of heat is something that the public are not thinking about and they don't realise some of what is being discussed in policy circles.

Jeremy Nicholson: This is relevant for the industrial sector too, of course, and we want the gas network to stay there. We can fantasise about large amounts of biomethane entering and possibly even hydrogen at some stage. It was a lovely idea and it may yet happen; I hope it does. It is not something that one can plan for, for a particular date, particularly at the moment but, by all means, retain that network, we need it. It is not necessarily a decarbonisation problem either. If you're interested in cost-effective decarbonisation you would want to retain gas as part of the system, and not least as a backup for the more intermittent renewables.

For the industrial users, some of our members are feedstock users in the chemical industry, and they have no substitute for natural gas. Others are running kilns and other high temperature processes and so on, which require 1,200 degree Centigrade temperatures. Yes, you can do that electrically but, my God, it is a lot more expensive than gas. Unless you have a totally decarbonised electricity grid, there's not much of an environmental advancement doing it and, by the way, as we heard earlier, DECC's estimates are that climate costs will have added up to 49% by 2020 and 71% by 2030 before compensation measures for any intensive industries, so huge price increases. It makes sense industrially to carry on using gas as a medium-carbon fuel, for want of a better way of putting it, with the possibility long term, I guess, of applying carbon capture and storage in due course.

The realism on this subject was desperately needed. In fairness to DECC, which is a phrase I don't always find myself using, they have shifted enormously on this in the last three or four years. I remember shortly after the Department was founded—there were a number of fundamentalists there, it's fair to say—and this idea that there was going to be a super-rapid decarbonisation, not just of electricity but of heat as well, and doubtless transport. It is a lovely idea, but one has to be realistic about this and the recognition that gas needs to be there and not least as a backup fuel

and for heat purposes for the foreseeable future, is a good thing from consumers' point of view and obviously from the point of view of gas distribution networks.

John Pettigrew: Just to add something, from someone that looks after forecast and distribution networks. In terms of capacity, we are absolutely not seeing growth in the demand in the gas distribution network. The investment is 90% around replacement of many of those things that were put in place 80 years ago. When you look at the longer term, the gas profile is one that is incredibly peaky over the winter, so when you apply the economics to it, it seems very difficult to envisage a world in which you totally remove the use of gas; four times more energy in the UK is used from gas than electricity—80% of all households in the UK still use gas for heating. You can see a world in which there's less gas flowing through the networks but providing that support over the winter in particular in the very long term seems to be the right economic solution and it allows you to meet those global kinds of targets as well.

Q182 Graham Stringer: That was very interesting, a slightly different response than we get from Ministers, but very interesting. Can we move on to leakages? Are the incentives that Ofgem put in place to the network the right incentives? Is there enough monitoring of leakages that takes place?

John Pettigrew: With regards to distribution networks I think the answer to that is yes.

Graham Stringer: What, the incentives are right?

John Pettigrew: The incentives are right. If you just look at what has happened over the last five years, the leakage on the gas distribution network is reduced by 20%. Because we have the mains replacement programme running, that helps greatly to reduce leakage, so that incentive to drive down leakage is absolutely working.

Graham Edwards: Can I put in on the context on that? This isn't lobbing grenades in any way, but clearly there's a different scale of leakage in electricity than in gas, for fairly obvious physical and fundamental reasons. John is absolutely right, but if you put leakage into context in gas it is, what, 0.7%. If you eradicated it all, it would probably take another £4 off the consumer bill. But that's not being complacent about it. We have reduced it. There are very clear targets in place and we have targets to achieve further reductions over the coming years. In our network we have reduced by 5% last year, but it is clearly against a much smaller number in gas terms, in terms of overall leakage. But, to answer your question, there are very clear targets in place and we are incentivised. Clearly, if we outperform those targets we get some financial benefits, so there's a very clear focus on it.

Q183 Graham Stringer: On electricity?

Phil Jones: On electricity, it would help if I could just tweak the phrasing. We don't leak it. It is not falling out of the cables; it is lost in the physics of the power flowing down the network. That is quite an important distinction because in and of itself, for a start, it is just a reality of the laws of physics that remain in place and in and of itself a given level of loss is not a bad thing. All other things being equal, you would rather it be lower, but one of your witnesses in an earlier hearing highlighted the value of sweating the networks, getting the most out of the networks, in other

words putting more power down them, if you possibly can, without building new ones. If you do that, the losses on the network will increase significantly, but that's not a bad thing.

In other words, an automatic assumption is that if the typical number is 5% and the answer comes out at 6%, there has been a problem, a failure of incentives and companies should have avoided that loss. If that's because—as you asked earlier—we are doing everything we can to avoid building new assets and to get more life out of the existing ones, if we put more energy through them simply, more will be lost. As I say, it is the energy that's used to propel the energy through a network, if you will. We are not leaking it. As soon as energy does leak from our system there's a fault and a power company has to go and fix it. I don't think they are the same thing and we shouldn't automatically assume they are a bad thing.

Frank Mitchell: Typically, there is a number that was about 6% losses of about 1% or slightly more could be down to fraud and theft of electricity. That is the responsibility of the retailers' side, not our side. They go out and they inspect the meters and check what is going on for any fraud. We look at the physical nature, back to the law of physics about our network. Phil is quite right to say that if you push more down it then you could see increases in losses but, equally well, we have to address the fact that the network is not uniform.

There are parts of the network that create more physical loss than others. We identify those losses, particularly in older transformers. We can take out assets that have high losses and replace them economically over time to have that environmental impact. But that doesn't shift the big numbers; it is an incremental approach over a long period that starts to address some of the assets, particularly older assets that have that higher loss in categorisation.

Q184 Graham Stringer: Going back to a previous question and answer about information on bills, should energy leakages be explained on the bills with other information? What are the pros and cons of introducing location charges, so that there are different charges in different parts of the network?

Phil Jones: I would say that it would be unhelpful to highlight energy losses on the bills because of the complications I just described. For exactly that reason, it would mean very little to people and be almost immediately misunderstood and just lead to more debates; it would be unhelpful. As for locational signals, it is basically the reverse of the question that your colleague asked us earlier, the pros are the equivalent of the cons of standardising it. At the end of the day, yes, the sharper the locational signal the more likely it is over the long term that people will be discouraged from connecting to a network at a point that will drive up network costs for everyone else.

But let me say that broadly that balance is about right. Setting aside Jeremy's observations on ongoing charges and their volatility, which is a useful thing that should be debated some more, the fundamental is that most of those costs fall on the person who is connecting to the network. Just to give you a stat, last year we made offers to the value of over £300 million to people to connect to our network. Of that £300 million, less than £15 million was money that we would have had to spend to reinforce the network. The majority of it, in other words, is the assets that customers are spending to connect their factory into our network, the physical, what we call sole-use assets. That is a very sharp locational signal already because you have to pay for the assets that connect to your factory. Lots of people would like that to be free or spread around the 4 million customers on our network, but they are already there quite sharply and, in the end, they

are the right thing, otherwise inefficient development of the network over the long term is what will happen.

John Pettigrew: From our transmission network perspective, it has been debated and discussed probably every other year for the last 20 years. Losses on the electricity transmission system are only 1.7%. The locational debate comes down to, is that sufficient to materially shift people's decisions on where to locate to be on generators? Where we got to was probably not. We have a standardised charge at 1.7%. Will it influence and reduce losses is the question that has been debated many times.

Q185 Chair: Thank you. Yes, just in relation to what some of you were saying earlier on about gas, given that you have such big capital programmes you must be looking very carefully at long-term trends. What assumptions have you made about demand for gas for heating after solar power reaches grid parity probably within the next five years?

Graham Edwards: We have to produce 10-year rolling plans and our plan over the next 10 years, if I recall correctly, is probably broadly flat. We certainly don't see any growth and perhaps a slight decline and I can't remember the actual figure, but it is not substantial. That is taking information obviously from National Grid in terms of what projections they have for transmitting gas over that period of time. Obviously, we do lots of research with the user community, particularly gas industrial users. I think domestic is much easier to predict, certainly over a reasonable period of time. To answer your question, Chairman, I think broadly flat over a 10-year period, perhaps a slight reduction.

John Pettigrew: For gas distribution, I absolutely agree with that. For transmission it is more difficult to determine. National Grid has set out and consulted on various scenarios, depending on your views on CCGTs and whether you are going to see CCG generation coming forward, economic growth and so on. So there is a slightly more mixed picture on the transmission side. Certainly, over the last few years, we have seen a decline in gas transmission demand, but going forward it really is going to be influenced by things like the generation background, the economic growth, and also the amount of electrification of heat as well.

We have set out four scenarios, some of which are of a continuing decline in demand, but in some of which you can see growth in demand going forward as well. So it is very difficult and a mixed picture at the moment.

Q186 Chair: Nothing any of you have said in the last two hours gives me the impression that you have thought sufficiently about the potential transformation of energy consumption from the continued rapid fall and the cost of solar. In 10 years' time, why would anyone want to heat their house other than through a solar panel? What that does to the demand for gas and the impact on distribution seems to be quite dramatic.

Jeremy Nicholson: Chairman, can I ask whether you are talking about solar thermal or solar photovoltaic?

Q187 Chair: I am talking about both. Then there is the speed of the changes that are taking place, and we have seen the cost of solar PV fall far faster than anyone predicted, even five years ago. That

is likely to continue. The cosy assumption that, “Okay, of course, we’ll need all these huge amounts of transmission and distribution assets for all time”—which was implicit in some of your earlier answers—seems to me a rash one.

Jeremy Nicholson: Before the network companies answer that, certainly, from an industrial perspective, I am not aware of anyone who is planning to run a factory powered by solar panels and I am not quite sure what a factory—

Chair: I am talking about heating houses actually, not running factories.

Jeremy Nicholson: Yes. Generally speaking, you want to heat houses when the sun is not shining rather than when it is. So there is a small matter of storage and that is going to require—

Q188 Chair: So you are assuming there is no progress in technology on storage—

Jeremy Nicholson: I am not assuming anything of the sort.

Chair: —not in the 20th century.

Jeremy Nicholson: I am not assuming anything of the sort, Chairman. I very much welcome the fact that there is bound to be progress on batteries and all sorts of other energy storing technologies. Starting from where we are now, it is impossible to know at what point an affordable, truly competitive and reliable combination system of—let’s say—solar plus batteries could be available, either distributed within the system or at particular premises, whether industrial or domestic. There are people who will tell you they think this is going to be available in X years’ time. My answer to them is, fine, I am sure that in genuine grid parity terms, that is for a dispatchable unit of power that can be relied upon. If a battery and solar system becomes available, which is cost effective for industrial suppliers, or for domestic heating or for any other purpose, then, fine, do us a deal? Sell me one now for X years’ time. No one can do that at the moment. So this is a theoretical development. That will be hugely welcome, by the way, but it is not one that we can integrate into planning of the systems other than to make them able to accommodate such developments as and when they might occur.

Chair: That is a very helpful answer. That gives a clear insight into your capacity to think in any way out of the box.

Graham Edwards: Sorry, could I answer your question?

Phil Jones: I think the question is directed to us also. I think we would—

Graham Edwards: Let me give you my answer first, so that the panel does not think that we have our heads buried in the sand and that we think gas is going to continue for ever more. I said earlier on that our plan for this period is very much geared towards maintaining serviceability. It is not spending money on growth. We are not anticipating growth. We have already said that. We are anticipating a small decline. We certainly don’t see that picture changing in the next 10 years.

We are going to spend about £1 billion over the eight-year period and probably about £650 million of that will be spent on the mains replacement programme. This is the worn out, shot, iron mains we have in the ground. It is a 30-year programme. Why would you continue doing that? Because we have the best part of 1,000 fractures a year. Any one of those could end up in a

pretty serious incident, so it is absolutely right that we replace that. That is not looking forward 20 or 30 years. That is saying, “The condition of our network needs addressing”. There is an argument that says, “You should replace those mains sooner than that”, but the deal that was struck in 2002 was a balance between safety and affordability, and that is why they came up with the 30/30 programme. We are 12 years into that now and that programme continues.

It is not like we are saying we are going to be running gas for ever more, far from it. Our plans are very much geared towards the relative short term, not 30 or 40 years’ time. We take each price control period on its merit. In seven years’ time we will have to pitch again up to Ofgem to say, “This is what we think our expenditure looks like over the next eight-year period”.

Phil Jones: If I come on to photovoltaics now—solar-generated electricity. Two things to bear in mind: the endgame of what you describe, Mr Yeo, would be the removal of the need for subsidy. I accept that, but that has nothing to do with the physical reality of how the network would have to perform. Just imagine a world where there are more and more people with solar power, either in their homes or nearby. That would require more power network, not less, on the distribution side, because that power has to go somewhere when the person who has made it does not want to use it. That is the first thing.

The second thing is typically—and I think we could all figure this out—the peak generation from a solar output would be around about the next couple of hours on any given day. The peak demand is from 5.00 pm to 7.00 pm all year. Particularly in winter, when it is dark, there will not be any solar electricity being generated because it is dark. Therefore, the networks will still be required to connect to the generation that can dispatch electricity at that time.

So your point is well made, it does change the economics about how much generation is ultimately built and how much of the overall megawatt hours are consumed in the country. As to its effect on networks, well, you have not heard us talk about it because you have not asked us any questions on it until the last 10 minutes. The reality is that it is a core part of the business plan that we have published in terms of the effect. Our position is—and I said as much last week—it is not a very pressing issue in the next eight years. We do think in the 10 to 20-year horizon we will likely see significant shifts in the way that the power networks are required to operate. But at a distribution level it will not be to have less. It will probably be to have more. Because more homes will want to shift the generation that they have made, which they do not want to use, to other customers somewhere else. So I would just reject the observation that we are not thinking outside the box, I am afraid.

Frank Mitchell: Just to add to Phil’s comment, one of the roles that I think will emerge out of this change—and you can put some time scales on it—is to be at the heart of facilitating this change now. We support the role of photovoltaics and heat pumps and so on. All these things are coming at a volume never seen before and we are forecasting what that will look like. Certainly over the next eight years, while we are supporting that, we do not see it having a material impact on the network but, to your point, the risk is very real.

Going back to an earlier point, these assets we are putting in the ground we have to recover over 45 years. I think you can imagine a source of energy that can stand on its own and support a domestic customer with storage, of whatever it is, within that time scale. So it clearly points back to the inherent risk in our business. Part of the issues we are talking to a regulator about is: how do we manage those risks in such a long period now that we have to recover funding, with the implementation of investments we are doing today and over the next eight years?

Q189 Dan Byles: Following on from the Chairman's question, there has not been a great deal of discussion about the whole smart grid programme, which of course is very closely linked to these sorts of changing patterns. What sort of risk do you see the evolving smart grid programme is to your current business models and your cost profiles?

Phil Jones: I would not characterise it purely as a risk. If we have costed it wrong, then it is a risk. To the extent that we get it right, there is a level of opportunity for us. In our business plan—and ours is very typical of what you would see in the other DNOs—we have about £145 million. That is the headline number that we talk about over the eight-year period, split over two licensees, which is spent on doing what we would call smart grid investment.

Around half of that is connecting more solar generators, which relies on some smarter technology to basically make sure that each home's voltage levels stay within the required limits. You cannot just allow people to pile it all on there. Low levels of penetration are okay, but once it gets above a certain level we have to be able to fix that. The traditional way would have been to put big, fat cables into everyone's homes. That is expensive. So that is the first thing. We have that in our plan.

Then for us what we can see is that, as electrification of heat and transport is a prospect in the 2020s, our network would have to be ready to deploy those kinds of solutions that I just touched on. In the next eight years, we will deploy those but not en masse. In the following period, we will have to be able to deploy them very quickly. There is about £80 million in our plan, again, over eight years, to create the technology infrastructure that would receive all those signals back at our central control network and so on. That would allow those kinds of smart solutions—storage, those kind of things—to be rolled out very quickly. In any scenario where heat and transport take off, the estimated saving in our network is of the order of £400 million, eight to 15 years in the future.

Q190 Dan Byles: Savings to whom?

Phil Jones: To the customer. When we come around for that next price control, as Graham described, we will forecast a lower level of expenditure because we will be able to use all these smart grid solutions. That is the business case. It means that we would spend less connecting all of those higher consuming customers who now have an electric vehicle or a heat pump in their homes, or solar PV. We would be able to do that at a much lower cost.

Q191 Dan Byles: There have been a lot of concerns about the whole smart grid, the smart meter programme, about whether we will genuinely see these cost savings passed on to the consumer. Are you confident that the consumer will benefit from the rollout of smart technology?

Phil Jones: It is important to separate them, Dan, if I may. The fundamental benefits of the smart meter programme pertaining to energy use have to come through the supplier mechanism. On the network side of the equation, yes, I am very confident. Exactly as we have said, we will make the investment and it will be seen that we have made it. We will be tested at the end of the eight years as to whether it has been there, and then we will be able to see the number of times we

connect a customer using technology we currently do not use. It will be virtually auditable, I would have to say.

Frank Mitchell: One point I would add to Phil's comment is that obviously we would reduce that cost of connection for customers. I mentioned before that it is all about not putting copper in the ground, by using technology and bringing information to bear about how to use that wisely. That is going to emerge as a new skill set and a new requirement. Working in transmission, we currently work with National Grid's transmission system operator, and there is going to be a distribution system operator to work at that much more local level with distributing generation, different types of demands, trying to make that network work effectively.

But ultimately some of those benefits that will come through in our standard charges will be passed through to retailers. They then have to pass that on to customers. Where we deal directly with customers, we will reduce their cost of connection. The actual underlying cost in our use of system charges will go to retail suppliers and they are the ones responsible for passing that through to the end user.

Q192 Dan Byles: So there is still potential uncertainty as to whether the customers will benefit fully from that slice of the cost reduction. That is outside your gift?

Frank Mitchell: Yes, it is.

Jeremy Nicholson: I think there is considerable uncertainty about whether the potential benefits—which I think are real of smart meters and smart grids in the domestic sector—will bring net benefits to consumers as a whole. In the industrial sector, our members are already highly engaged in providing demand side services: frequency response, Short Term Operating Reserve, the new demand product for this winter and next that Grid is trialling, and in Triad demand response to avoid high Triad transmission charges. So the industrial sector is very engaged in this and there is an element of demand response in the gas sector too, which is likely to grow.

The question is: how can you get the benefits of that active involvement in the domestic sector in a socially acceptable way? I am speaking personally rather than on behalf of the Energy Intensive Users Group here because it is personal opinion, but I am hugely sceptical of whether the multi-billion pound rollout of smart meters will deliver the sort of benefits it needs to in order to be truly transformative. Smart metering is a gateway technology. It can potentially enable a lot of exciting things to happen, but on its own it is a cost. I can see what is in it for the meter manufacturers. I can see what is in it for the meter distributors. I can see what is in it for politicians saying, "We're moving towards a smart future". I cannot see what is in it for the consumer, unless a whole load of other things happen.

Dan Byles: That cannot happen unless the smart meter happens first.

Jeremy Nicholson: Yes, so they are necessary but not sufficient, and I think it is that next stage that concerns me. On demand response in the domestic sector, yes, it is a great thing if we can have more cost reflectivity in tariffs, and incentives and rewards for those who consume off peak power, of which there may be large amounts at certain times in a more heavily renewable dependent future. All of that is well and good, but I think we need to be realistic, rather like the comment we had from Phil earlier that we are still going to need the distribution capacity and the transmission capacity.

If every fridge in the UK switched off tomorrow that is only half a gigawatt or a gigawatt worth of power or something like that. Even if you maximised what people could do with their fridges and washing machines, assuming that they could tolerate all this being done automatically with or without their consent, and you added all of this up, that is not going to offset perhaps 20 to 25 gigawatts of wind and how many gigawatts of solar coincidentally going on or off the system. Something else, for want of a better word, some grown-up power generation is going to be required to fill that gap. I would love it to be low carbon but in the meantime if it has to be a mixture of nuclear and gas—hopefully some of it is produced here by whatever technology—then so be it. I think we need to be realistic about this. We need to turn our attention very quickly to making sure that something good happens on the back of fast metering, other than just getting a more accurate bill.

Tony Glover: Notwithstanding that, though, it is not just about smart grid. As Phil was saying, it is about smarter networks as well. There are huge savings that can be made by looking at new innovative ways, talking about thinking outside the box and developing ways of dealing with diverse generation, different demands, and using the existing asset in a far more smart way. Those exist regardless of some of these debates. That is without the customer doing anything.

Q193 Dan Byles: But some of this stuff is causing you problems, because right now the increased tendency to distributor generation is causing a problem when it comes to grid connection, isn't it? We have heard in this Committee, and I have heard from companies in my constituency where they have a really exciting distributor generation project and they are being told by their local DNO, "Come back in 2019. We're quite busy. We can't get you on the grid".

Phil Jones: There will be those cases. This may not be a very welcome answer, and this is a comment now on the broader energy position than it is specific to networks, but just allow me. I think it is inevitable in a situation where what we have is a fixed subsidy in place for those things. That is out there so everybody is going to want to get at that subsidy for the lowest possible operating cost to their business, whatever that business is. Inevitably some people are going to be well placed and some people are going to be less well placed, because they are going to say, "Here is the field that I have and I am going to put a load of solar cells in it. How is the network in that part of the region?" If that network is full then it is going to cost more to connect it.

I would say that is exactly right. As a nation, I think for the good of the country, what we want is for the people who happen to have fields near parts of the network that do not need any reinforcement to get on before the person who says, "I need a massive investment in the distribution network" because it is not cost effective.

Q194 Dan Byles: So rather than socialising that cost do you think you should say, "Let us use that cost as an incentive mechanism to put it in the lowest cost area to do it"?

Phil Jones: In the right place, absolutely right. We have already put the subsidy to one side, and I am not aware of the Treasury saying that they don't think they have overdone...they've undercooked the subsidy. I think the concern is perhaps the other way. There is a lot of money being put into that system now to make what at the moment is not parity investment, make sense financially. I do not think we should go any further.

Q195 Dan Byles: At the National Grid level you socialise this much more, don't you?

John Pettigrew: Yes, we do. I think it is to do with the generation. It is an emerging challenge for us because the operability of the system historically has been a very clear one, which is that energy flows down through to the distribution networks and the distribution networks have, operationally-wide, been very passive. As we see more distributed generation and different characteristics of the type of demand on the distribution networks, we are starting to see a different challenge for National Grid, in terms of voltage control, distribution networks importing back on to the grid. That is one of the key challenges that we are starting to think through now. It is still early days; we are not seeing huge amounts of it. But as that comes through it is clearly one of the things that smart grid, smart meters, distributor generation brings to the industry. It is a real challenge that we have to think through over the post-2020 framework.

Frank Mitchell: I think it is important to deal with the current issues of where there is capacity and where there is not capacity. As an industry we try to do our best here. We talk about it. We do that. We meet with the groups and developers to signal where that capacity is, so they know where they can go and get ease of contact much quicker than perhaps when we have to reinforce a lot of the network and what that can cause from a planning point of view and so on. Indeed on our website we also have images of a network right down to quite a local level, where we have it colour coded for ease of developers to say, "Well, it's green. Not much of a problem going on over there; amber, I might have to consider that, I might have a problem; red, we definitely have a problem". Just to signal as early as we can in the developer's mind, "You may be developing in an area that is not ready for what we have to do here, so why not look at another option or another route to your development that taps into available capacity". I think that is right because that reduces cost for everybody.

Q196 Dan Byles: I want to come back to the volatility question. Jeremy, you raised it when you were answering one of Albert's questions, about the difficulty in the volatility of the costs. John, you came in a bit on it. It is not the first time we have heard that. In earlier evidence sessions, this has been raised as a concern. Given the long-established energy infrastructure and the long-established patterns of consumer use, notwithstanding where we are going with all this distributor stuff, why is there such volatility on the network charge? Surely you should be much better at being able to forecast what the network charges should be? I want to hear from Jeremy first because you raised it as an issue.

Jeremy Nicholson: Yes, you are right. Intuitively, you would expect this is the one element of the bill that ought to be relatively stable. This is a capital intensive, fairly fixed—*notwithstanding efficiencies*—operating cost world for many of the services provided by networks. It is slightly different for National Grid with its other responsibilities and so on. But basically there are a number of factors combined. Obviously, there are certain cost increases that we have talked about already as a result of Government policy but, from the volatility issue, it is more to do with the methodology for charging and the way those charges are distributed, both geographically and between different classes of consumer.

I think it is a well-intentioned effort, both by the network companies and Ofgem in fairness, to make those charges more cost reflective. However, this does seem to be a somewhat never-ending process. If it was a one-off adjustment, yes, we have gone from one system to another

and it is settled for a generation, or at least for a foreseeable period of time. That may be uncomfortable for some—particularly the losers rather than the winners—and there might be a question about whether you phase that in over a period of time rather than doing it in one go. I think for future changes and tariffs and so on, that might be something that the network industry and its regulator might reflect on. Even if you agree that a direction of change is right, there is a question of accommodating that for consumers, and phasing those changes in would be welcomed by industrial consumers and domestics alike.

But the extent of the volatility here has taken a lot of us by surprise. It does not seem like there is an end to it at the moment. I take the point that Grid is publishing charges out for a number of years now. That does help in terms of certainty for consumers, those of us in business who have to know what our competitive position is going to be. But also to the suppliers, to those industries and to domestic consumers, if they have uncertainty about what the costs are that they are going to have to incur on behalf of those consumers, it makes it difficult for them to quote. It is a barrier to entry for suppliers too if it is—

Q197 Dan Byles: That point was raised in some of the earlier evidence sessions. We talked earlier about competition and the fact that there is a degree of competition at the end of a network, but this is a real barrier to new entries coming in. Some of the comments we have had include, from First Utility, “Volatility means that suppliers have to put a risk premium on their tariffs. With network charges there is no hedging product you can use to lock in your charges. You are exposed to a price that sometimes is set only 40 days before it starts being charged”.

Phil Jones: We need to be careful to differentiate; the conversation earlier was about competition for building networks.

Dan Byles: Yes, I accept that.

Phil Jones: Those comments are competition in the supply market where effectively a supplier is operating on—they will always say—tight margins, and they obviously are, but the question is how tight. They feel those bumps in the road. That is what that is questioning.

In answer to your question why is it difficult to forecast, as Jeremy said, it is a very complicated arrangement. It is one that in the end was followed up ultimately at the behest of the regulator, with input from the industry. Personally I can see the misgivings. We had them at the time. What that charging model is not doing is looking to say, “What are the historical costs of the network? Who is connected to the bits of the network that cost the most in the past?” It is saying, “Who is likely to drive future costs in the network? Let’s send a signal to the people who are threatening to cause more cost to make them go away”. That is how it works. So we would have to be able to accurately forecast the new requests that we get. We are obviously not going to be able to do that perfectly.

As colleagues have mentioned earlier, we would then have to be bang on the money as to who is going to use how much. If we under-recover our fixed allowance—which is what Graham has talked about—out there we can see, “This is how much we are going to be allowed to recover from somebody”. Those numbers will move around with the amount of units that are charged. As I mentioned last week, the reality is that the fact that units vary does not change the need for the network. That is driven by the peak demand. But I can understand the economics of wanting to say to the customers, “Those of you that do drag more energy down the network are going to pay a greater share so a proportion of our revenues is recovered on the units that are consumed”. If it is a mild winter, that will be a lower number than it otherwise would be. We will under-recover

and then unexpectedly, in the two to three- year time horizon, we would have to add that money back in for the following year. If the reverse was true, and it is a cold winter, we would take more money. The tariff would be the same, but we would recover too much and then we would have to reduce it the following year.

Dan Byles: There is a lot of regional variation in the volatility as well, of course.

John Pettigrew: I wish to talk about electricity transmission charges rather than distribution. If you look back over the last few years, there are four things driving it, and I think we are interchanging volatility with increases. There has been some volatility, but there have been increases as well and I think we interchange the two, because the volatility has not been that great in electricity transmission.

First and foremost, what is driving it is the fact that more revenues are being recovered to support the investment that we talked about earlier. Secondly, over the last few years, because we have been in the midst of the recession, the demand levels on the transmission network have reduced. Therefore, there is a smaller base on which to recover the tariffs and, therefore, that has impacted on the tariffs as well. The flows on the network are changing. So to Phil's point, the principles of transmission charging are looking forward. It is trying to give a signal for future investment. Therefore, as the flows on the network change because generators close or we get different demand forecasts from the DNOs, that impacts on the tariff.

Finally, there have been continuous reviews of the charging methodology. The most recent one by Ofgem called Transmit was looking at how you share capacity on the transmission network, between renewables and traditional generation, to reduce the tariff in the north of the country and to avoid about £3.4 billion worth of investment. All of those things are playing out. As you go forward, it looks like demand will recover.

Q198 Dan Byles: Are Ofgem still consulting on that or have they delayed?

John Pettigrew: They have completed the consultation and they are implementing it from April 2016. That has now been concluded. As you look forward, the demand reduction definitely is starting to flatten out so I think that will be less of a factor.

The challenge we face is that we have absolutely listened to customers and we make a five-year forecast. Then about 15 months before the year in question we give an indicative, and then at the six-month phase and the three-month phase, and ultimately we publish our charges in the January prior to the April. That tariff in itself is dependent on industry data, so knowledge about generation closures, generation commissioning and new demand influences that tariff. There is a bit of circularity in that the more predictable that information is, the more predictable the tariff will be. At the moment, we are going through a significant change, with a lot of generation either opening or closing, and we are seeing very different forecasts on distribution networks as well, which feeds through to what National Grid needs to support.

So there is an awful lot going on, but fundamentally Phil is right, it comes back to the fact that transmission charging is forward-looking to give future people connecting to the network an indication of the cost of transmission.

Q199 Dan Byles: Is that the right approach, if that is leading to higher volatility than we otherwise might see?

John Pettigrew: It has been the approach that has been in place now since the 1990s. It has been modified and consulted on with the industry probably five or six times over the last 20 years. The most recent consultation was on what was called Transmit. So it continuously goes through a process of consultation with all the stakeholders. As I said to Mr Owen earlier on, you always get two ends of the spectrum, in terms of people's views about locational charging and the impacts of moving to something different.

Q200 Dan Byles: Yes, quite a few people have come to complain to me about project Transmit.

John Pettigrew: Indeed, and there are others who think it is fantastic.

Q201 Dan Byles: Yes. It depends on what part of the country, though. What about the 40-day notice period? Is that enough? If it is not practical to reduce the volatility just because it is the nature of the system, can we give people more notice? This 40-day period does seem quite short.

John Pettigrew: We do give people as much notice as possible. I think the 40-day notice they are referring to is the final confirmation of the tariff in January prior to the April tariff coming live. The customers would have had an indication of the tariff in the autumn before that, and the spring before that and the winter before that, as well as a five-year forecast. The reason it is finalised at the point is that we need the data on what the demands are in the previous winter to set the tariff for the future winter, so that is one of the determinants of the tariff. We try and give as much information as possible and try to limit the variation, right up to the point where we finalise the charge.

Phil Jones: On distribution, there has been a move in what I think is the right direction in this respect. Our world is not as volatile as the one that John describes, rightly so. They are dealing with a much more dynamic and lumpy set of data inputs. So what has happened this year—and we are willing to posit it in our business plan—is that the draft determination, which I mentioned earlier, that we have concerns about with Ofgem, to the extent that they change their final determination, will not change our revenues in 2015-16. That is coded into the arrangement. It is not a gesture on our part. It is the way it is going to work, and we are happy for that. We will take the revenues that the draft determination offers us in 2015-16. To the extent there is any change to that, it will true up over the longer term. There are already greater degrees of certainty. That is basically where Ofgem drew the line in saying, "That is where we are prepared to give the lock-in". There are arguments for and there are arguments against. Speaking as a network company, we would be okay with longer notice periods. That is a matter of fact. We propose to do so in our business plan. It is settled in the way I just described, which gives more notice than the old arrangements where basically it would have been around the turn of the year that we would have given the 40-day notice.

Q202 Dan Byles: Jeremy, as a representative of the users, is there something that you would like to see changed that could improve this?

Jeremy Nicholson: I am not sure there is specifically a great deal more to say, other than that longer notice periods are preferable to shorter notice periods, both for business users and for those who supply them.

Q203 Mr Lilley: What impact does European Union network policy currently have on UK network costs, if any?

John Pettigrew: There is an awful lot of work going on to review the impact of the European codes in the UK. At the moment, there is significant work going on in that area. In terms of cost, at the moment it is working through with the industry and with the associations about what those codes will look like, and then we will have to work out what the impact is on that. So it is early days in terms of code implications.

There are broader implications for the UK networks, in terms of European legislation on things like emissions. For example, in our gas transmission business, the emissions directives on CO₂ and NO_x will drive a significant amount of investment in our compressors, which we will need to replace in order to comply with them. So there is a lot of work going on at codes level, but there is investment that is driven by European legislation as well.

Q204 Mr Lilley: At present there is not much impact, but it will come through these codes when they come in. Could you give us a little more operational idea of what these codes are?

John Pettigrew: It is looking at the unification of how the networks operate, so in the UK we have a thing called the grid code, which sets out the operating parameters of generators. It sets out how we will fundamentally operate the day-to-day network, and also the interaction of the market. So it could have implications for the dynamics of generators in terms of how they comply with that grid code, for example. It is quite technical, I guess.

Phil Jones: Based on the statement of the morning, I would say that it is quite technical; these are impenetrably technical discussions around how European grids may or may not operate. At the distribution level, we have yet to see any real impact. There is a potential for that. We first saw it in the transmission networks, but you are talking about relatively long term. I cannot speak for transmission, not with any authority, but I think we are a number of years away from seeing any material impact in distribution, but eventually it could come in.

Q205 Mr Lilley: I had already found it impenetrable and I was hoping you were going to enable me to penetrate it. As I understand it, these codes will require harmonising network charging and capacity allocation across member states. That sounds quite concrete and significant, although not necessarily necessary.

Jeremy Nicholson: This could be quite significant. There are a number of areas where existing and proposed European legislation could have some bearing on network charging and investment. To take one area that is already applying, there is a change in the split between those costs borne by generators and those borne by the demand side on transmission and the so-called G/D split between generation and demand. Theoretically, this should not have any effect on

consumers. What is not charged to the generators will be reflected in the wholesale prices and so on. But what this has meant is that the demand element of those charges has risen, which tends to be perhaps somewhat clearer to consumers than a reduction in costs to generators. If you believe in efficient markets—and some of us at least believe in the concept, not necessarily the reality—then this should not matter. But this has a bearing. There is a limit to the amount under EU guidance that generators can be charged for the system. That is the claim across Europe.

There is the position on priority access for renewables as well, which I think is regrettable for any number of reasons. We are all in favour of low-carbon generation where it is cost-effective and secure and so on, but it has never been obvious to me why uniquely renewables should require priority access to the networks. There is the possibility of interconnection targets, which might be beneficial for the UK, I do not know, but the point is it would not necessarily be up to us. We would be required to do it, and I think—

Mr Lilley: Interconnection targets?

Jeremy Nicholson: Yes, for levels of interconnection.

John Pettigrew: I am not sure it has passed as legislation yet, but there is talk about potentially having an integrated target of 10% of total capacity for member states. If you take the UK, for example, at the moment we have 4 gigawatts of interconnection with Europe and Ireland, against a big demand of just under 60 gigawatts, so you could see a more than doubling of the amount of interconnection in the UK.

Jeremy Nicholson: That might be “a good thing” for all sorts of other reasons to do with security of supply or managing intermittency and so on. But it is highly questionable whether that should be coming about as a result of a European initiative. That said, from an industrial energy user’s point of view, a greater interconnection, both in gas—which has largely happened without European directives—and in power, and an integration of what is supposed to be a single European gas and electricity market, but in reality is a connected regional one and influence. That is good for security of supply and the Commission’s role in policing that and enabling that market to come about is “a good thing”, but being unduly prescriptive about it may come at an unnecessary cost to the UK consumer.

One last area that also relates to interconnector use. There have been changes in the way charges associated with transmission across the interconnectors are levied, as a result again of direction from Europe. I am not saying this is good or bad but those are tangible examples of where European guidance has an effect on our networks.

John Pettigrew: I was just going to make a point. We entered into a study on interconnectors, which indicated that a doubling of the interconnection in the UK would potentially deliver a billion pounds of savings to customers per annum, which is about £13 per bill.

Dan Byles: A what?

John Pettigrew: A doubling of the interconnection between Europe and the UK could potentially save customers a billion pounds per annum, which is about £13 off the bill.

Q206 Dan Byles: Do you anticipate that the interconnectors will be allowed to bid into the capacity mechanism?

John Pettigrew: I know that was debated. That was debated as part of the capacity market mechanism. I am not sure where it has got to, to be honest. I know there has been discussion.

Q207 Dan Byles: Do you think they should be allowed to? There should be a market mechanism rather than directives to help perhaps drive investment to interconnectors?

John Pettigrew: It potentially would drive investment in interconnectors if they did have access to it. My honest answer: I am not sure where it has got to. I know it was being debated and discussed.

Q208 Mr Lilley: Other than interconnectors obviously giving us access to more alternative sources of supply, will this proposed harmonisation of charging and capacity allocation result in any increased competition, given that we are a fairly clear market with three or four potential interconnectors?

John Pettigrew: I think the purpose of it is to facilitate competition, so to the extent that you believe harmonisation of charges would do that, then I think that is what—

Q209 Mr Lilley: Surely the electricity will come through on interconnectors, so it would depend on the interconnector charges. It will not depend on what the Germans are charging their customers.

John Pettigrew: Yes, but it will also depend on the dynamics of how the European markets work and interface with the UK markets, so how capacity is made available in the European markets and the timeframes, are they consistent with the UK? It is more about harmonising the market so that everybody can operate consistently and, therefore, would have more choice as to whether they export to the UK or do something in Europe. I think that they are trying to remove those inconsistencies to facilitate competition.

Q210 Mr Lilley: I thought, as everybody has a particular charging structure, they could export to the UK if they were not consuming it domestically.

Frank Mitchell: That would be the difference in the demand and supply covered in each country for the interconnection, whether it is going to work or not, because there may be an advantage in being an hour different that says, “We may hit some areas where we have demand, but demand is dropping off in our interconnected region”.

Q211 Mr Lilley: I understand that National Grid represents a lot of the British interested parties in negotiating the development of these European network codes. Therefore, could I ask everybody else whether you think your case and interests are being properly represented by Mr Pettigrew?

Phil Jones: You will not be surprised to hear me say that there is often a lot of industry discussion back and forth on the issue. Fundamentally, we do not have an issue. Clearly on

occasions people may like our colleagues at Grid to take a different line or to have consulted in a different way, but from my perspective it is just the normal bump and grind and noise of the sector. They know what they are doing and, as I say, if we fundamentally objected you would have heard us talking about it.

Frank Mitchell: From our point of view, we are a transmission owner as well, so we work closely with the National Grid, and our teams work through these issues jointly, and ultimately these get represented. A lot of debate goes on but, typically, these get represented in these discussions. We can also go directly through our parent group—through Iberdrola as well—to Europe in any positions we have as well.

Chair: Thank you very much. We have kept you a long time. We are very grateful for your time and your answers.