HOUSE OF COMMONS

Welsh Affairs Committee

Oral evidence: Energy generation in Wales: Shale Gas, HC 731

Thursday 28 November 2013

Ordered by the House of Commons to be published on 28 November 2013.

Written evidence from witnesses:

- Mark Lambert
- Andrew Nunn
- Gerwyn Williams
- Peter Brown
- Andrew Farrow
- Richard Poppleton

Listen to the meeting

Members present: David T. C. Davies (Chair); Geraint Davies; Glyn Davies; Jonathan Edwards; Nia Griffith; Jessica Morden; Mr Mark Williams

Questions 104-181

Witnesses: **Matt Lambert**, Government and Public Affairs Director, Cuadrilla **Andrew Nunn**, UK Exploration Manager, Dart Energy, and **Gerwyn Williams**, Director, Coastal Oil and Gas, gave evidence.

Q104 Chair: Order. Gentlemen, good morning. Mr Lambert, Gerwyn Williams and Mr Nunn. Thank you very much indeed for coming along. I am David Davies, Chair of the Welsh Affairs Select Committee, and Members from all parties are here. We have about 45 minutes. I appreciate that the first couple of questions may elicit slightly long responses. After that, I may politely ask you to be a bit more brief, for your own sakes and also for those following.

You may want to give a quick introduction as to what your relative companies do and where their interests are, but first could I ask you how important you feel that shale gas could be as an energy for Wales and the rest of the United Kingdom over the next few decades?

Gerwyn Williams: My name is Gerwyn Williams and I am the chairman of UK Onshore Gas, which, in turn, is the holding company for Coastal Oil and Gas and UK Methane Ltd. We hold about 500,000 acres of licences, mainly in south Wales, but some in Somerset and Kent. We are not new to this game; we were first licensed in south Wales for coalbed methane in 1993, so we have been here for 20 years, working on this. We have already drilled six exploration wells in south Wales, and we have drilled one production well. From those wells, we have had a lot of information on the rocks in south Wales. There are various layers in the coalfield. There are coal layers, and, briefly, below those there are sets of numurian shales and potential for conventional gas in the Devonian measures, and then below that, there is more shale potential in the Silurian shales. We sent the results to two consultants; one in Dallas in the US, to look at shale, called RPS, and information on coalbed methane to RISC in Perth, Australia. From these initial wells, they came up with the potential resource of nearly 50 trillion cu ft of shale gas in one part of one set of the shales—

Q105 Chair: Did you say 50 trillion cu ft of shale gas in one set of shale in one part of Wales?

Gerwyn Williams: Yes.

Chair: We use about 3 trillion cu ft a year in the whole of the UK.

Gerwyn Williams: Yes. We worked on 3.5 trillion cu ft, and they estimated that 18.7 trillion cu ft is recoverable. That is just the start of it all.

Q106Chair: That is just one small part of one set of the shales.

Gerwyn Williams: Yes. That is just one part of one set of the shales.

At the moment, we are focusing on exploration. We cannot really answer your question until we do the exploration work. We have another set of wells to drill; one in Swansea, one in Port Talbot, four in the Vale of Glamorgan and one near Llantrisant. They will give us a much better picture. The Vale wells will give us a better picture of the potential for conventional gas in the Devonian measures. The Llantrisant well will give us a better picture of numerian shales and the eastern wells will give us a better picture of Silurian potential, which has not been drilled. So, I suppose that the answer to your question is that there is an enormous amount of gas in south Wales. I have spent my life in the mining industry. I worked for 22 years for British Coal and then in private mines; they have all gone, but the energy source is still there, and in my view, we should be exploiting it.

Matt Lambert: My name is Matt Lambert. I work for Cuadrilla. Cuadrilla is probably the foremost shale gas exploration company in Europe. We hold substantial acreage in the north of England in the Bowland shale, in the south of England in the Weald and in the Netherlands and in Poland. We are not currently licence holders in Wales, although it is possible that we might take an interest in future licensing rounds. Certainly, our geologists, who are some of the foremost in the private sector in Europe, concur with Gerwyn's view that there is substantial opportunity in north and south Wales for shale.

Overall, in Britain and Europe, the shale gas opportunity is immense. The British Geological Survey came up with numbers for the north of England in the summer of this year. It was estimating 1,300 trillion cu ft of gas, potentially, in the north of England, and if you are looking at a 10% recovery rate on that, you are talking about something like 40, 50 or 60 years' worth of gas for the needs of this country, just on the potential of that part of the United Kingdom alone.

We are very focused on the opportunity there. We believe that it is a tremendous opportunity, potentially, for Wales and certainly for the United Kingdom. The importance of gas cannot be underestimated. People are thinking about gas, but the debate tends to focus on electricity generation. However, that overlooks the fact that 90% of homes in this country use gas for their central heating. Something like three quarters of the gas that is used in this country is not used for electricity generation; it is used for domestic heating and cooking and for industrial use. We foresee a role for gas in the United Kingdom in a balanced energy mix, probably for 30 or 40 years from now.

Q107 Chair: On that point, Mr Lambert, we have seen figures that the value in Wales alone could be £70 billion. Trying to bring this down into figures that people relate to, is it the case that, if we can tap into this resource, gas prices will fall, as they have in the United States?

Matt Lambert: There is a huge debate about that, Chair. It is commonly said that that will not happen, because, as you may know, the European gas market is a single market and the American market is another single market. So, the American market is fairly contained and the shale gas reserves in the United States have cut prices dramatically—by some 30% is commonly said to be the case. If we are talking about the United Kingdom alone, it is true that North sea oil and gas did not make a substantial impression on the gas price overall in Europe, because of the general wholesale market. However, if you think about adjusting the United Kingdom alone, one can say that the shale gas opportunity will keep prices stable, or prevent the upward pressure on prices, in a substantial production scenario, which one would hope is possible.

Longer term, we do not have any figures on that, but PŐYRY plc, which is a respected economic consultancy, issued some figures, I think, last week. It has looked at all of the data from the British Geological Survey and its equivalents across Europe. It thinks that, over a longer term, you could see substantial reductions in the wholesale and consumer prices. So, we are talking about quite a long way out, Chair, but 2050 is when it says that there will be an average reduction, at a modest shale scenario, of 6%, and in a "boom" scenario—that is what it calls it—a 14% reduction in the wholesale price. In terms of the consumer in that scenario, you are talking about an 8% reduction in prices in 2050 compared with now, and 11% in the boom scenario. So, there are some figures that suggest that that is possible, but they are not our figures; they come from others.

Chair: Forgive me, because I think that I asked a question that was going to come from a colleague, who might want to come in with a supplementary question.

Q108 Glyn Davies: We needed to get to the bottom of that, because there is so much talk about it. Energy prices are such a sensitive issue now. Whenever you start to discuss shale gas with anybody, there is always a discussion of energy prices. Clearly, we have heard several people say that, certainly on its own, shale gas would not make much impact, but I always wondered, if you had the same kind of result in European countries, whether that scale of production, right across Europe, would have an impact. You pretty well answered that in saying that it may well have an impact in keeping prices down and might lead to a small reduction over the long term.

Matt Lambert: Yes. That is PŐYRY's point; you are assuming that the other European countries also develop the known shale opportunity at the moment, which is substantial. If you are talking about quite pervasive shale opportunities across Europe, it follows that, even if you increase the supply, the price should come down. However, all of that is unknown, because, as Gerwyn said, the simple fact is that we are drilling a tiny number of exploration wells. We need to drill quite a few more in order to establish the truth of all of this.

Q109 Jonathan Edwards: *[Translated]* If planning authorities were to grant licences for shale gas drilling, and that was done successfully, could you tell us how that gas would be transported to consumers? Would we use lorries, for example, or are we talking about pipelines? Could you give us an idea of the scale of the infrastructure project that would be required in order to convey gas through these pipelines, as has been done in the United States?

Chair: Perhaps I could ask Gerwyn Williams to answer this question.

Gerwyn Williams: I am sorry; I did not understand all of the Welsh and I cannot get the translation on my headset at the moment. What channel is it on?

Q110 Chair: I am sorry, Mr Williams. Mr Nunn, do you have any thoughts on that? I do not know how active you are in Wales yet.

Andrew Nunn: I am the exploration manager for Dart Energy. We have quite a considerable position in Wales and the prospects for shale, coalbed methane and even shale oil. From the pipelines and infrastructure point of view, you must remember that there is a vast amount of infrastructure already in the UK. That is certainly one of the benefits of working in a country like the UK: you do not have the huge infrastructural requirements of places like the US or Australia, where you need a certain resource to justify an investment in infrastructure. I very much see that the UK could develop in a very boutique manner, with small dispersed projects feeding directly into the National Grid. You do not have to fund capital investment in a major infrastructure project to monetise a shale project.

Q111 Chair: How active are you in Wales at the moment, Mr Nunn?

Andrew Nunn: Basically, we are planning a CBM exploration programme over the next 12 months.

Q112 Chair: I am sorry; what is CBM?

Andrew Nunn: Coalbed methane. It is another form of unconventional gas. With our new partners in GDF Suez, we will be behind the drilling of a shale well in Wales within the next two years, I would have thought, from an exploration point of view.

Matt Lambert: Could I also comment on Mr Edwards's question? I think that Andrew has answered the point in one way; we have quite a pervasive gas network in the United Kingdom. I am not totally familiar with the situation across the whole of Wales, but certainly in the area that we are most interested in—Lancashire—that is certainly the case. It is pretty likely that you may be able to connect straight up to the National Grid. With regard to the water, again there is also the possibility that, over time, the water can be piped in and you would have fewer tankers and less disruption from truck movements, which is important because anything that you can do to reduce the amount of traffic is critical to the success of those projects, I think. We are very focused on how you can do that. However, I very much concur with Mr Nunn's point, you have well-developed infrastructure in the United Kingdom, and it is one of the great benefits of being able to develop this opportunity in the United Kingdom generally.

Q113 Geraint Davies: You have already outlined the massive opportunity here, and we have been told that that could translate into tens of thousands of wells across Wales. Is that true? What would be the practical impact in terms of logistic movements and environmental impacts on people's daily lives, and opportunities for tourism and destroying our green and pleasant land?

Matt Lambert: My colleagues can talk more about the engineering, given their backgrounds, I think. I would have to leave them to talk about what is known about the shale deposits in Wales more specifically, although I believe that they are relatively thick. However, I will just draw the Lancashire connection. The shale layer there is very thick; it is at least a mile thick. I do not think that it is as deep here in Wales, but my colleagues could comment on that. The key thing is that you can drill a vertical well and then a number of horizontal or lateral wells underneath, with several potentially coming off the same vertical well. So, effectively, you are stacking them. That means that, on the surface, you have much less disruption than you typically have in the United States. Commonly, people say, 'You cannot have industrialisation of the countryside', and by the way, I very much agree with that. I really do not think that it is tenable in the United Kingdom to have mass industrialisation of the countryside. As is commonly said, that would never be allowed. Frankly, I do not believe that the politicians in this country would accept that, and I do not think that it is appropriate either. However, we are very fortunate, potentially, that that is not going to be necessary.

Q114 Glyn Davies: May I make a point about that? I have heard this argument about the depths of the seam and the lateral drills many times before. Clearly, that means that there will be many more potential wells on one site. If you have 10 on one site, for example, which I suppose you could quite easily have, how big of an area is it? That is all that I am interested in.

Gerwyn Williams: We can send you information on sites in Arlington in Texas where there is a 24-well site right in the centre of Arlington town alongside the University of

Texas. It is probably drilling a mile under Arlington. That is, approximately, on a 2 acre to 3 acre site.

Q115 Chair: Could you send us some photographs, Mr Williams, because I doubt whether we would get the money for a trip over there to have a look?

Gerwyn Williams: The better example, actually—and again, we can show you this—is a 50-well site right in the middle of Beverly Hills, right alongside the main shopping complex. So, there are wells in towns and cities in the USA, as well as in the countryside. In south Wales, the majority of the area where the licences are is forested plateau, mainly north of the south Valleys. Most of that plateau is owned by Natural Resources Wales, which was the Forestry Commission, so it is Welsh Government-owned, and we can be up in the forest, drilling directionally under common ownership, without affecting the public at all.

In terms of water management and tanker movements et cetera, just to go back a little, we are working closely with a company in Newport, trying to establish what we call a closed-loop system for water, where we will drill for water on-site. We have built a 67,000 litre inflatable tank, which will go up to 100,000 litres, and we have a filtration system, so we should be able to produce water, store it, take it back out and clean it up on-site and, with a discharge licence, put it back, which will absolutely minimise tanker movements. It will not get rid of them altogether, but you are not going to see, in the future, trains of water tankers coming in and out of drill sites.

Andrew Nunn: I would like to come back to the issue of land take and industrialisation with some quick numbers. So, we are talking about one 4-acre pad, with 10 wells draining 10 sq km. When you put that into context, 1,000 wells is 100 pads of 400 acres draining something like 250,000 acres of reservoir. You are looking at a land take of some 0.002%; it is a very small amount of land, and, for 1,000 wells and 400 acres, that is equivalent to three solar farms that are being built down in the south of the country, and the energy return is much greater.

Chair: That is helpful; thank you. Mr Davies, do you want to come back on that?

Q116 Geraint Davies: If I may, so that I am clear about this. In terms of drilling these wells in national parks and that sort of thing, I think that what you are saying is that there should not be an objection to that and that the impact of this sort of industry is far less than that of wind farms or even the Swansea tidal lagoon, visually and environmentally.

Andrew Nunn: Yes. The process is very capital intensive, so you tend to spend a lot of money, but it is very diffusely spent as well, so the impact in any one area is really quite low.

Q117 Geraint Davies: I think that you have made a case for the visual impact above ground, but the other case is about lorry movements. I know that Gerwyn Williams mentioned the issue of having water cleansing and usage contained without movements, but what is the overall impact in terms of the movements of lorries and that sort of thing? If it were in a national park, for example, would that not have major disruption on the amount of traffic flow?

Matt Lambert: Further to Mr Nunn's point, there is something to consider here, which is that you have relatively short-term disruption when the drill rig and fracture equipment come in. You could be talking about disruption for several months, depending on how much production there was and how many wells there were—it might be up to two years. However, when that work is done, the site is relatively unobtrusive, and I would say that a production site, typically, when it is in production and there is no further drilling or fracturing going on, is in many ways less obtrusive than the electricity substations that you see dotted around the countryside, or similar to those. We have a production site, which I think that your Committee was planning to visit, and hopefully will at some point, in Lancashire, which has been producing for 20 years or so. It has our name on the gate, but it is a farm gate and you could drive past it and miss it quite easily, because it is very unobtrusive.

That is true, but, in terms of truck movements, you cannot disguise that there is quite a lot of work that goes on. It is a relatively short-term disruption, but it is disruption and it could be a significant amount of lorries for a short time. For a typical well site, you might have 15 lorries a day on average. You might have peaks that are higher than that, or you might have fewer lorries.

Q118 Chair: For how long?

Matt Lambert: That would depend. It might be for three months, or, if you had a larger production site, it might be over the course of a year. You have to get that into context. The Institute of Directors did a report on shale gas, which came out in the summer, entitled *Getting Shale Working,* and it looked at the number of tankers that are moving milk across rural areas, and it found that, typically across the United Kingdom, there are, in any year, 366,000 large tankers moving milk around in rural areas. So, you have to see it in context, but you cannot disguise the fact that, of course, there would be disruption.

Q119 Geraint Davies: If I understand this correctly, you are saying that, in this particular example, if you had 15 tanker movements a day for one year, that would deliver you a capacity of output for, say, 10 years of gas. Is that what you are saying in terms of what would then be happening operationally?

Matt Lambert: Yes. It could be longer. The gas flows at a much greater rate in the early years, that is for sure, but it can potentially still be flowing 20, maybe even 30 years after that. It is possible.

Q120 Mr Williams: My first question is to Mr Lambert. Unfortunately, one of the characterisations of fracking to date—and I appreciate some of the optimistic stories and figures that you have presented in terms of the opportunities—has been circumstances of seismic activity such as at Preese Hall. The publicity around that certainly led to many letters from constituents who were concerned about that. I was wondering whether you could explain the circumstances of what did happen there, and fundamentally what you were able, or are able, to do to ensure at that particular site that such things do not happen again.

Matt Lambert: There were two seismic incidents in 2011. Subsequently, I think that Durham Energy Institute and other experts have looked at it and, in the scheme of the

Richter scale, they were relatively minor. However, they were felt as tremors, and that was unfortunate, for sure. We have been working with the Department of Energy and Climate Change and experts looking at how you mitigate and prevent a repeat of these incidents. One of the key things is that we have now undertaken that we would make the full seismic data available. We have shot 100 sq km of our licence area in that part of Lancashire, so we have a much better idea than we had in 2011 of where the faults lie in that area of Lancashire. That enables you, on future sites, to predict where substantial faults are, to take steps to avoid them and, effectively, to avoid a repeat of that incident. The Government has instituted what it calls a traffic-light system, so you will have a series of seismometers and tiltmeters around future sites so that you have a much better idea of whether you are causing tremors, or are likely to cause tremors. The traffic light is set so that at 0.5 on the Richter scale you would stop, pause, and discuss with the regulators the next step and how to mitigate—

Q121 Chair: You said 0.5—what is that? What would it mean for me if I was sitting there?

Matt Lambert: I am not an expert on that, but my understanding from experts is that you would not feel that above ground—at 0.5. For example, it was commonly said where we were drilling in Balcombe—and that, by the way, was a conventional well where there was no history of significant seismicity or such problems—that we would cause earthquakes and all sorts of things would happen, but a recent report found that the railway that was running alongside it caused a reading of 1.5 every time that a train went by. So, that puts it into context.

Q122 Mr Williams: You agreed with the Government that there would be a pause in the fracking operation after that, and, presumably, as a company, given that there was a lot of concern in the area, your public relations department had to swing into overdrive to reassure people.

Matt Lambert: Of course people need to be completely reassured. The key thing is that people who look at this are beginning to understand that it is a manageable risk, and it is a very low risk, and the experts, particularly from the Durham Energy Institute, have looked at this and said that—I think that this is the phrase they used—hydraulic fracturing would typically cause seismicity that would be equivalent to someone jumping off a stepladder. So, we do have to get this into context, but I do not want to belittle it. If people are concerned about it, they need to be reassured. I believe that they can be reassured that hydraulic fracturing would not cause major earthquakes that would affect people's safety or the construction of buildings.

Q123 Mr Williams: Thank you for that; I just wanted it on the record. I think that all of us as Members of Parliament will have had those concerns expressed to us.

More generally—to Mr Nunn and Gerwyn Williams as well—what assessments have been made or can be made of the risk from this unusual seismic activity in a Welsh context? Again, I think that this is a fundamental concern that needs to be addressed by potential developers, because this issue is going to raise its head, is it not?

Gerwyn Williams: On seismic activity, if you look at the BGS website, you will see that there are regular, I would not say daily, seismic occurrences in south Wales now.

Around 1974, we had 64 very large coal mines working in south Wales, from Llanelli right across the area, and we are talking—I will come back to answer your question—about drilling out boreholes for shale gas wells about a hand in diameter, and, at St John's, we had about 16 to 17 miles of roadway, 3m to 4m high and 4m wide. There was more seismic activity from mining in south Wales ever than there will be through shale gas; it went unnoticed. So, I would say that there is not going to be a noticeable effect.

Q124 Chair: May I ask you a question? I like to get things into a context that a layman like me can understand. The seismic events are caused not by the fracking itself, but by the fact that something has been dug out of the ground and the ground sometimes in-fills. Is that correct? For example, if you dig a hole that is 3m to 4m deep—a mine shaft—what actually creates the seismic effect? Is it that, at some point, there might be a collapse and that the ground moves that way, or is it—

Matt Lambert: Are you talking about mining or shale gas?

Chair: Well, either, really. Why is it that digging into the ground might physically create something that some people might describe as an earthquake or an earth tremor?

Gerwyn Williams: In coal mining, there can be falls of ground. When you are working a long panel of coal, the roof will collapse and that will have a seismic effect on the surface.

Chair: In other words, it is the earth giving way to fill in the—

Gerwyn Williams: Yes. Often, though, when you used to drill the roadways, you would drill 50 to 60 holes in the roadway and set off 50 or 60 explosive shots. So, that is a seismic activity that could be measured on—

Q125 Chair: It is nothing to do with tectonic plates moving or anything like that.

Matt Lambert: The shale gas is different, because, typically, you are not going to get subsidence, because the well is not sufficiently large to cause that. The issue is where you have existing faults and you, in effect, lubricate them and cause them to slip. So, you cannot really put in more energy from fracturing; it is the energy that is already contained in the earth, and where you have faults rubbing up against each other. That is how I understand it; I am not a geologist by rights, so this is my understanding from what has been explained to me. What potentially happens, and what probably happened at Preese Hall is that you caused the faults to slip and move by lubricating them. That is what you want to avoid.

Andrew Nunn: The incidents at Preese Hall were a very specific set of conditions that are not normally present in most faults. The faults were overstressed to begin with and were ready to move, effectively. In most areas, however, when you are planning your horizontal wells and your fracks, you consciously move away from existing faults that can be mapped, because they make drilling more difficult. They can also sap all the energy out of your fracks. So, you do not stimulate the rock volume that you intended

to, because all your energy and your water can disappear into a fault. It does not necessarily mean that the fault is going to move, but it will affect the way that you do your fracks. Generally, you always try to avoid major faulting anyway.

Q126 Mr Williams: I appreciate what you are saying about the scale of what happened in the Blackpool area, but, presumably, what happened there was not envisaged. Obviously, it was not envisaged. So, should it have been envisaged? Could it have been envisaged?

Matt Lambert: With hindsight, if we were starting again—and now we are proposing to start again—we would not do so without three-dimensional seismic surveys, so we would have a very good view of where the faults are. We have an extremely good view now in the area; we have a 3D survey that shows us where the substantial fault—

Q127 Mr Williams: So, that was not done initially, was it?

Matt Lambert: No, it was not done previously, but there had not been very much, if any, history of that, I think. I could be wrong and there might have been some—

Q128 Mr Williams: However, that would be a practice that you would now undertake on the basis of that experience.

Matt Lambert: Absolutely, yes. That is partly good industry practice and partly, quite rightly, requirements from the Department of Energy and Climate Change.

Q129 Jessica Morden: Obviously, those incidents at Preese Hall got quite a lot of media attention. What was the local community reaction to it and what work do you do with communities, particularly in relation to that incident?

Matt Lambert: We do a huge amount of work in Lancashire, talking to communities, holding drop-in sessions and giving them all of the information. For the future sites where we will be hydraulically fracturing, Arup will be doing environmental impact assessments. It will look at all of the potential risks and mitigations, and there is a huge amount of public consultation attached to that—and we are doing this all the time, including this week—through which people can give their views to Arup on what the risks are and Arup will look at those and advise on what the sensible mitigation would be.

In terms of people's understanding, we do quite regular opinion polling in Lancashire and we find that the concerns about seismicity are lessening—quite substantially so, actually. The last survey that we did was in August and I think that the overall number of people in favour of exploration in Lancashire in that survey—that is in the particular area where we are operating—went up from 50% to 57% or 56% in favour of the exploration programme.

Q130 Jessica Morden: What other concerns do people bring up?

Matt Lambert: They are concerned about water and contamination. That would be the No. 1.

Q131 Geraint Davies: What you seem to be saying about seismic activity is that, if there is a geological predisposition or an existing fault, that can set it off. If there is a great deal of fracking activity across, for example, south Wales, at the same time, given that it is over this existing network of disused mines, is there a risk of multiple problems occurring? Does the whole mine network in itself add to the risk of fracking in terms of these seismic events? As I said, if it all happened at once, would it not be quite a risk?

Gerwyn Williams: No, in fact, I think that it would have the opposite effect, because mining would have de-stressed the ground. We are drilling a long way below the coal—well, we are not, actually, because we are drilling in the coal. At this stage, we are not drilling for shale, we are drilling to explore for shale. In the short term, we have no intention to hydraulically frack. The intention of our company is to develop coalbed methane first, and that is what we are trying to do. We drill exploration holes. However, to answer your question, mine-workings, particularly when they are filled with water, would help to suppress rather than cause a danger.

Q132 Geraint Davies: So, fracking would not cause coal collapses in disused coal mines, would it?

Gerwyn Williams: No.

Q133 Nia Griffith: I would like to ask a very fundamental question. You are seeking out a fuel that will contribute to our emissions problem, not only in its extraction but in its use as a fuel. Really, we should be thinking of ways to reduce the amount of emissions that we produce. Given that this is a new venture and there is a lot of investment going in, how can you justify the fact that that investment is going into using and extracting a fossil fuel and making it available, rather than being invested in carbon-neutral energies?

Gerwyn Williams: May I answer that? We need a bridging fuel in this country, and we need it fairly quickly. Yesterday, 38.7% of electricity was generated from gas in the UK, 32.8% was generated from coal, 5% was generated from nuclear energy and 2% by other means, and then the interconnector was 2%. Hydro power generated only 390 MW. I agree with you that in south Wales in particular we should be exploiting the tidal range that we have. However, in answer to your question, there is no reason why wind, solar and gas should not work together for the benefit of each other. Texas is a huge producer of oil and gas, but still generates about 28% of its electricity from wind.

We see gas as a bridging fuel, with coal stations to close in 2015, and you cannot build nuclear power stations very quickly to replace them. So, we have to have replacement generator capacity, and the only thing that we can do quickly is to build modular gas stations. Once that bridging period is over, to answer your question, our partners have worked for a number of years treating methane not as a fuel, but as a feedstock. What is being done already, and this will develop in future years, is to split

methane, which is CH4, into its component parts of carbon and hydrogen. The carbon is spun out in nanotubes to make carbon fibre in order to make lighter vehicles, lighter ships and lighter planes, which would cut down on fuel usage. We are then left with the by-product of hydrogen, an emission-free fuel, which is where we are trying to get to—an emission-free economy. You are never going to get from A to Z in one fell swoop; you have to take it progressively, but the ultimate for methane, as far as we see it, is producing hydrogen.

Q134 Nia Griffith: You can justify the extraction of methane, perhaps, but, in terms of shale gas, which we are talking about now, and further exploration, we are talking about huge investment for what you are calling a bridging fuel. We visited Milford Haven and we saw gas coming in there. Is it viable for you to compete against those sources?

Gerwyn Williams: Whether it is shale gas, coalbed methane or North sea gas, it is all the same gas. It varies in purity slightly, but it is still methane.

Matt Lambert: If we could drill some wells to establish the potential here, if the potential is as great as we hope, what we need to consider is that we will still have gas in the mix for probably 30 years or 40 years from now, for the reason that I said at the outset, which is that 90% of people are heating their homes with gas for one thing. It is undeniable, I think, that we need gas. Something like 4% of current total energy used—not just electricity—is coming from renewables currently, so we are really not at the stage where we could replace gas very quickly with renewables. However, I completely agree and concur with Gerwyn Williams that it is part of a mixed, balanced set of energy resources.

It is clear that we will need some gas. Currently, where is that gas coming from? Up to about 2000, we were self-sufficient in gas; I think that we were exporting 14% of our gas at that time. Now, I think that 45% of the gas that we use in this country is imported. The Institute of Directors estimates that the figure will be 75% by 2030, the cost of which is £15 billion a year, so there is a balance of payments issue there. Undeniably, we are going to be using gas; the question is where that comes from. At some point, it is pretty inevitable that we will be importing shale gas from the United States; the way that things are going, it is looking that way. It would be far better, including from an environmental perspective, if we could get the gas domestically from onshore as well as offshore sources. The chief scientist at DECC did a report recently where he looked at the relative CO2 impact—the emissions—of all of these different types of energy use, and it is very clear that gas of all types is much cleaner than coal, which is the main problem here, actually, and, by the way, we are increasing our coal use at the moment, which is most unfortunate from the perspective that you are raising.

It is also very clear that shale gas is substantially better for the environment than imported liquefied natural gas because, self-evidently, you have to transport that to the United Kingdom, and all of the processes involving liquefying it and putting it back into a gaseous state mean that domestically produced shale gas is a cleaner fuel than imported gas, for the most part.

Andrew Nunn: Coming back to your original question about investment, despite all the investment that has gone into shale gas in the US over the last decade, the spend on renewables in the US has increased significantly over the same time frame, so, there is no real evidence from the US example to suggest that it will divert investment from green investment.

Chair: Thank you very much. We are running a little bit short on time now, so I would appreciate very quick questions and answers. Also, the acoustics are not very good here, so if you, gentlemen, were able to speak up a bit, it would be much appreciated.

Q135 Jonathan Edwards: Fracking is a technology that uses a huge amount of water. If you had a fully functioning well, can you give us an idea of how much water would be required for that well to function? Secondly, we know that various parts of England have extreme water shortages. If there were fracking there, can you foresee a situation whereby water would have to be transported from somewhere like Wales, where we have an abundance of water resources, to support the fracking industry in somewhere like the south-east of England?

Gerwyn Williams: We have licences in Kent. Two years ago, when there was a drought, we were talking to landowners about, as part of the gas-producing process, taking water out of the trough measures to use for irrigation. In south Wales, there is plenty of water available, as we know. In Kent, actually, there is plenty of groundwater available. So, the short answer to your question is 'no'—we do not think that we will have to be transporting water all over the country.

Matt Lambert: If I could comment on the point about water shortages, first of all, shale gas is no different from other industrial use in that domestic supply has first priority; that would not change, and the water utilities have been very clear about that. We signed, as an industry, a memorandum of understanding with Water UK yesterday to say that we are working with it on all of these issues: water contamination issues, water usage and all of the issues related to water.

Expert economists—for example, the Institute of Directors—have looked at this and, actually, the overall water use is not that substantial. I would need to check the precise figures in the IoD report and confirm them to the Committee, but I think that, in the scenario a fairly substantial shale gas operation, it was saying that the overall water usage would still be 0.5% of the overall use in the country. We are looking at 50,000 barrels of water, I think, per typical site in a test scenario. That amount is less than one half of 1% of what United Utilities supplies in a single day. So, it is not as substantial as people typically say.

Q136 Jonathan Edwards: I thought that I was going to have a good hit on you there, so I think that I will move swiftly ahead. Can you explain the regulatory process, beginning from the application for an exploration to fracking on an industrial scale?

Chair: I think that we will probably need a fairly brief answer to that.

Matt Lambert: I could have a very quick run at it, Chair.

Q137 Jonathan Edwards: What is the difference between the Welsh system and the English system? That is probably a better question.

Matt Lambert: I am not the expert on that.

Gerwyn Williams: Probably the first thing to say is that we have 22 local authorities. We deal with six different planning authorities in south Wales, from Swansea to Cardiff. We have only ever had one planning application turned down—sorry, we had two, but only one lately—for exploration wells. All of the others have gone through very quickly. We are meeting Natural Resources Wales tomorrow. We think that NRW will adopt the same policies and guidelines as the Environment Agency in England; we hope that that is the case. However, I cannot tell you today what the differences are going to be.

Q138 Jonathan Edwards: How surprised are you that the Welsh Government has not issued a technical advice note for local planning authorities, and are you surprised that it is washing its hands of this, considering the huge public concern that is starting to emerge?

Gerwyn Williams: No, I think that it understands that there is a very big potential resource, as mentioned earlier. I think that everybody is of the same mind: that we have to drill and quantify that resource, and, when we have those figures, make decisions then. Until you know what you have got, you cannot make decisions as to how you are going to use it.

Matt Lambert: I think that the system is not substantially different between Wales and England. If I could very quickly explain how it works, you apply to the local authority, and that is the same in Wales. It must give the planning approval, and it is the mineral rights authority. The Environment Agency issues permits for a whole range of different things: water use and so forth. Typically, for a site, there would be eight or nine permits overall of different types, all with public consultations. The Health and Safety Executive is responsible for regulating the well design and providing independent inspectors who will check that the wells are properly created and working. DECC is responsible in England, and I am not absolutely sure of the situation in Wales; I will need to check that. However, DECC is the overall final licensing authority that gives the well consent that says, 'Yes, all of these permits are in place, and the planning permission and so on, and you can go ahead'. So, there is a very substantial amount of regulation involved.

Gerwyn Williams: It is the same, apart from NRW.

Chair: Geraint has a brief question, if that is alright.

Q139 Geraint Davies: Very quickly, I forgot to ask, Chair, about what people think about the local economic impact, in terms of employment. Secondly, I know that the environmental impact would not be great, but if everything happened at once—if all these drilling things happened at once over a period of a year—presumably it is true that that would be very disruptive to the environmental footprint of Wales. Do you think, therefore, that the whole process should be properly phased? But, could you mention about the employment opportunities first?

Chair: Could we have a very quick answer to that?

Matt Lambert: There are a range of different scenarios. In terms of actual jobs, various different studies have come up with estimates of what the opportunity might be, ranging from 15,000 to 100,000. It is clear that quite a lot of jobs—tens of thousands of jobs—would be created in a substantial shale-gas scenario. There would be all types of jobs. There would be very highly skilled jobs, including jobs for geologists and engineers, lower skilled, but nevertheless well-paid jobs, potentially, across Britain, down to low-skilled jobs and a substantial potential number of what economists call "induced jobs" or jobs that involve supply and support to the industry.

On the industrialisation point, I cannot speak about Wales, but I will just say quickly that the Institute of Directors, in its report on a substantial production scenario, was looking at 100 wells taking 2 sq km. To give you some context, our Lancashire licence is 1,200 sq km. So, you are talking about 100 different sites of about a football-pitch size; put them all together and it is 2 sq km in a 1,200 sq km area. I will emphasise that they are spread out.

Gerwyn Williams: To come back to the point about jobs, in Pennsylvania alone, in one state, there are 238,400 people working in the shale gas industry.

Q140 Chair: What sort of salaries are they getting?

Gerwyn Williams: They are on good salaries. I cannot tell you what the level is, but they are high salaries.

Q141 Chair: We are not talking about minimum-wage salaries.

Matt Lambert: No, definitely not. Some of them are very skilled, and there are quite a lot of substantially well-paid jobs. They are skilled, but not very highly skilled.

Q142 Chair: Not in an academic sense then.

Matt Lambert: No, and as an industry, generally, those jobs are pretty well paid, compared with what people would typically expect for those kind of jobs in other industries.

Chair: Are there any final questions?

Q143 Glyn Davies: I know that we are under a lot of time pressure, so I will ask a bit of a wrap-up question in a way. We are at the start of what could become a significant worldwide industry, and it has taken off in America, but it depends a lot on the response of Government in Wales and, probably, in the UK even more so. If you could have a responsible wish list, what would you like the UK Government and the Welsh Government to do to enable this industry to develop as you think it should?

Andrew Nunn: Trying to get development working in Scotland at the moment, one of the fundamental things that we would look towards is certainty in the planning process; not certainly about outcome, but about time frames. You enter into a process that should be four months and we are now 18 months into that programme, and we

still do not know when we are going to get a result, positive or negative. So, it is about certainty about planning time frames.

Chair: Are there any other clear answers?

Matt Lambert: Quickly on that point, there are some changes that need to be made to regulation and legislation. Clearly, there will need to be a change and a look at how the land rights issue works. The Government need to look at some of those issues. Overall, I agree that there does not need to be less regulation, but it needs to be streamlined and efficient. Obviously, full regulation is important, but is also needs to be efficient and it needs to be clear about how long things take. Whether you get a "yes" or a "no", you need to know.

Chair: Would you like a final word, Mr Williams?

Gerwyn Williams: Again, I would like to see a defined time on planning applications.

Chair: Excellent. Gentlemen, thank you very much for coming in and I apologise to you and to the next witnesses for the fact that we are overrunning a bit, but it is a very interesting subject. Thank you.

Examination of Witnesses

Witnesses: **Peter Brown,** Deputy Director, Policy, Health and Safety Executive, **Andrew Farrow,** Chair, Planning Officers Society for Wales, and **Richard Poppleton,** Director for Wales, Planning Inspectorate, gave evidence.

Chair: Good afternoon, gentlemen. Thank you very much for coming along. I am going to call Mark to ask the first question—he looks surprised; no, he is going to do it. Feel free, in answering, to tell us a little about what your respective roles are, although, I am sure that we are all pretty familiar with them.

Q144 Mr Williams: My question, which is a general one to start with, is to Mr Brown of the Health and Safety Executive. You are responsible for issuing the health and safety permits for drilling operations. What are your key concerns about the health and safety impacts of fracking? Perhaps you do not have any.

Peter Brown: Our main focus is on the integrity of the well. That is where our involvement is directed. The way in which the law works, there is the embracing Health and Safety at Work, etc. Act 1974. Beneath that, there are two sets of well-specific regulations, which are aimed at getting operators to design, construct, operate and close out wells, while maintaining integrity through the course of the process. Our health and safety concerns are about an uncontrolled release of hydrocarbons that can lead to an explosion, but when we are looking at process safety—

Q145 Mr Williams: That is related to well leakage, rather than the actual practice of the fracking operation itself, is it?

Peter Brown: Yes, it is. Around any form of process like this, there is always the issue of environmental damage, which is why we work so closely with the

Environment Agency. If the integrity of the well is lost, there is clearly the potential for environmental damage, as well as health and safety risks to workers.

Q146 Mr Williams: So, what kind of monitoring regime is, or should be, in place during that process of the drilling of the well? How robust is that? If I can move on to my next question as well, are you satisfied that commercial companies are operating in the safe and appropriate manner that you, as the Health and Safety Executive, would expect?

Peter Brown: The regime is very long-standing. As you will be well aware, there is drilling offshore and onshore. So, we have a lot of experience in this area. The expectation is that operators will provide us, in advance of drilling, with detailed plans around the construction of the well. They will also send us weekly reports during the construction of the well and there is a requirement for all activity designed to be signed off by an independent well examiner who is not directly linked to the construction operation.

We also receive reports during the operation of the well. For shale, specifically, we have agreed with the Environment Agency—I will come back to Natural Resources Wales—that we will make joint site visits and spend time with all new operators going through the process, expectations and standards around the activity. So, we are convinced that, if good practice is followed, we can be confident about the operation of the well. That said, you can never guarantee or eliminate all risk. Any such process has to involve an element of risk.

Mr Williams: Thank you.

Peter Brown: I will just come back, if that is okay, to the Natural Resources Wales point. We have an agreement with the Environment Agency about joint site visits. We are looking to establish something similar with Natural Resources Wales, if it wants to enter into a similar arrangement.

Q147 Mr Williams: You are looking into doing that. What is the response? Obviously, it has gone through a period of re-organisation, which obviously takes time, but what response have you had? You say that you are looking to it. Why are you only looking to it; why has it not happened to date?

Peter Brown: We are waiting for a call back.

Q148 Mr Williams: How long have you been waiting for the call?

Peter Brown: Not long.

Mr Williams: Okay. That is good to hear.

Q149 Chair: Mr Brown, you said in the written evidence that you sent to us that you felt that shale gas production posed less of a health and safety risk or issue, if you like, than coal or offshore oil or gas production. Is that correct?

Peter Brown: That is correct.

Q150 Chair: I assume that that is because the environment is less dangerous.

Peter Brown: Well, one, it is less dangerous. In the initial phase, before the fracking takes place, the well is pressurised. After the fracking has taken place, there is less pressure in that well because you are relying on the gas to come out without being pressurised. It is different from penetrating a reservoir offshore, for example, where gas is under high pressure.

Q151 Chair: So, the issue here for you, really, is to make sure that the well itself is safe and secure, and that gas cannot either leak into the water table or anywhere else. I assume that that is going to be your main concern.

Peter Brown: Yes, that is the main concern.

Q152 Chair: Okay. I understand that, in the North sea, there has been an issue where a big oil company can go along, take out all of the easy-to-reach oil, and then abandon the well, as it were, or sell it on to someone else who is in no position to do very much with it, disappear and leave someone in charge of a well that is not producing much oil, but which would cost a fortune to dispose of. That is my layman's understanding of it. Am I broadly correct in this and, if so, what is to stop something similar happening with shale wells? Could it happen and are you, or any of the other gentlemen, in a position to prevent that from happening?

Peter Brown: We are in a position where, within our regulation, there is a requirement to maintain the integrity of a well throughout its life. So, even in the later stages—even at close-out—the duty is there to finish something off and abandon it safely.

Q153 Chair: What happens, then, if you turn around and say, "That is not very safe and you are not producing anything, so dismantle it"? Is that something that is fairly easy or possible to do?

Peter Brown: It is possible.

Q154 Chair: Presumably, it is quite expensive.

Peter Brown: It would be expensive.

Q155 Chair: What happens if the company says, "Sorry, but we're a new company, we've only just taken over and we thought that there was lots of gas there, but there isn't, and we can't afford it; we are bankrupt"? I am putting this in very simple terms. Is that not possible? How do we prevent that from happening? Is that something that we in Government should be worried about and should try to prevent?

Peter Brown: Obviously, within the law we could take action to insist on certain things being put into place. Obviously, if a company is bankrupt, that is different. At the moment, as I understand it, there are discussions going on between the Department of Energy and Climate Change and the UK Onshore Operators Group around the establishment of an industry system to help in situations where companies have gone out of business and have gone bankrupt. I am unaware of what stage that discussion has got to.

Chair: I may be picking unfairly on you with that question. I will now turn to Nia and then Geraint.

Nia Griffith: I wonder, Chair, whether we can move on to planning issues as I will have to leave soon.

Chair: Okay. With Geraint's permission, please ask your questions.

Q156 Nia Griffith: Obviously, they are to the two planning experts that we have here. In terms of the issue about environmental impact assessments, at the moment it is the local authority that decides whether it is necessary for any particular application. Would you favour a situation where it was mandatory in respect of all shale gas applications? Some local authorities may interpret it as such because it is a large development, and some may not. Following on from that question, on the issue about the Department for Communities and Local Government advice to local councils in England that limits what they can raise in their examination of planning applications for shale gas and the presumption in favour of shale gas operations, do you think that that is a satisfactory model? Would you like to see that adopted in Wales or would you like us to have a more stringent approach?

Andrew Farrow: Shall I start off? I am Andrew Farrow, I am the chair of the Planning Officers Society for Wales and in my day job I am the head of planning at Flintshire County Council. May I just come back to the question about the restoration of wells that the Chair asked, to start off with, and what would happen if a site stopped producing? We could control that through a planning condition, so that if we were notified that a well's production has begun to fall or ceased, a restoration condition could kick in at that point to require the site to be restored in accordance with the scheme that was submitted to us. So, we have a way to capture that under the planning regime.

Your question was, first of all, about the EIA and whether it is mandatory or not. Certainly, it would clarify the position, but whether it is reasonable or not is another question. The EIA regulations as they are set up test that reasonableness and what the significant effects of this type of development are. At the moment, the exploratory aspects, and also the production, fall into what we call schedule 2, so they are not mandatory. So, we as the local authority make the test in terms of what the significant effects are. My personal opinion is that, for an exploratory well, unless it is in a particularly sensitive location, and we have heard from your witnesses before that they have some sort of flexibility in terms of the choice of location, I cannot see that an EIA would bring much to the decision-making role in that sense. Once we are into production, it is different, and we are seeing discussions in the European Parliament in terms of that, therefore, being mandatory; there is something to that.

My view, just to go on in terms of EIA, is that it sets a framework and timescales for decisions and what information needs to be submitted with it. Do not go away from this session with the impression that if you do not have an EIA, the local planning authority cannot require all the information to assess an application, because it can. I think that that is where the CLG guidance that you referred to, which came out in July, is helpful. It pulls together a variety of different guidance and identifies the roles of the four separate regulators. It is useful from that perspective and it identifies what

each of those regulators should do, and it identifies the factors that the local planning authorities should take into account. An environmental impact assessment is about identifying what the impact is and then what the mitigation is. You could do that through a planning application: you could identify what the noise impacts are, you could identify what mitigation the developer is going to put in, and then it is up to the local planning authority to decide whether that is acceptable or not.

Coming back to the guidance and whether it is useful, yes, I think that the guidance is useful. Already, local planning authorities in Wales that are dealing with exploratory wells are referencing that guidance, accepting that it is English guidance. However, in terms of pulling together a variety of different sources of information on unconventional gas and the roles, it is very useful.

Chair: Do you have any further questions, Nia?

Nia Griffith: No.

Q157 Geraint Davies: May I ask a simple question? The previous witnesses, quite naturally, were keen to get on with the job of developing shale gas. We have mentioned this issue about Natural Resources Wales, which has been brought together, and Mark Williams mentioned that, obviously, a new structure takes time to settle down. Finally, the previous witnesses also said that they wanted to speed up planning and to have a tight time frame on that to get moving. Is there a problem here in Wales that, at a time when we have a reconstitution of Natural Resources Wales, when you should be providing vital inputs in terms of public safety and protection while there is a pressure to have things done, we will not be able to deliver quality outputs in a time frame that is reasonable because of that?

Andrew Farrow: Shall I answer?

Q158 Geraint Davies: Yes. As a planner, of course, you are in a position where the former Environment Agency—now Natural Resources Wales—can give advice and you can ignore it, in any case, can you not?

Andrew Farrow: Well, it could challenge that, if we were to ignore it. I would say that local planning authorities have a good working relationship with the Environment Agency in its original role, and also with Natural Resources Wales.

Q159 Geraint Davies: Which has not yet got up to speed with its original role, as Peter Brown said, has it?

Andrew Farrow: No. It has not got to the stage they have got to in England with this concordat between the HSE and Natural Resources Wales. However, the roles are the same in Wales as they are in England, so I do not think it is a great step. I think that that concordat is a useful document, and I do not think that it is a great step to adopt that in Wales. What would be the disadvantage of that?

Q160 Geraint Davies: So, there is no problem, then.

Andrew Farrow: No, absolutely not. Structurally, no.

Q161 Jonathan Edwards: [*Translated*] You have started answering some of these questions, but what criteria do the different planning authorities in Wales use to assess applications for doing this exploratory work for extracting gas? Do the different authorities use the same criteria or not?

Andrew Farrow: It depends in terms of what impact they are assessing, to a certain extent, and that depends, to a certain extent, on the site as well. There is a whole range of material considerations that we do take into account as local planning authorities. They may have slightly different policies within their local development plans, or indeed their unitary development plans, but when we are assessing things like noise, it is national guidance, not local planning guidance. There is a consistency across the piece there.

Equally, in terms of dust and air quality, we are picking up national limits for that rather than local limits as well. There will be particular issues around local landscape protection, which is specific to that area. You would expect that to be reflected in the local development plan. What we are trying to bring out, I think, is consistency for the developers and the public in terms of the way that these applications are handled. I think the CLG guidance, if we adopted something similar to that, would give that consistency. I also think that what is happening in north Wales in terms of the way that these applications are being dealt with—we have a shared service where we will assess applications for all of the north Wales authorities and make a recommendation—is similar to what is happening within Carmarthenshire and south-west Wales. There is a consistency of approach in that developers can go to a single point of contact.

Q162 Jonathan Edwards: [*Translated*] In this regard, do you believe that some kind of technical advice note from the Welsh Government would help the planning authorities in Wales, or not? I think that the Welsh Government is washing its hands of this matter. It knows that protests will be held when these projects go ahead, and what that says is, "It's nothing to do with us. It's a matter for the planning authorities, or DECC in London." Do you believe that the Welsh Government should show a bit of leadership on this issue by adopting the CLG document as a whole, or should the Welsh Government adopt a clear stance on this issue?

Chair:[*Translated*] We will turn to Mr Poppleton on that question because he, in a way, represents the Assembly.

Richard Poppleton: I am Richard Poppleton, director of the Planning Inspectorate. Just to make clear, the Planning Inspectorate does not make planning policy. We are an appellant body, and we deal with planning appeals and called-in applications. The Welsh Government makes policy, and it is not for me to suggest to the Welsh Government what policy it makes. Having said that, I have read the DCLG guidance. It produces some useful flow charts and process information, but it does not actually include any policy. It will be helpful, but does it add anything to the amount of knowledge in the environmental world? In terms of the process, it is analogous to that which applies in Wales. Again, you can cross out "EA" and put "NRW" there, but, as I say, what added value would there be if the Welsh Government produced something? Inspectors dealing with appeals would follow that process because it is

pan-country—it is UK policy that DECC is involved in, as is EA/NRW. So, again, an inspector would go through those processes.

As for what is considered at appeal with these sorts of things, *Planning Policy Wales* and *Minerals Planning Policy Wales* set out quite clearly the range—and it is a wide range—of environmental, social and economic matters that should be taken into account and balanced one with the other—that is, balanced with the energy needs and the energy White Paper and so forth. So, I did not hear the original question itself, because I was on the wrong channel, but from what I have gleaned from the answer, that will hopefully answer your question.

Can I just go back to a point that was raised by you, Chair? I do not know the answer, but I raise this as a question. Your question was this: how could you ensure that if a firm went bankrupt, restoration work could be put in place? Mr Farrow certainly mentioned that the conditions imposed on any planning permissions regarding aftercare would be normal. That would be the normal type of condition. An analogous situation would be highways. Under the Highways Act 1980, under section 278, a developer places a bond with a local highways authority to ensure that the work is completed up to a certain level should it go bust. I do not know whether that could exist in this world, and I do not know whether it would be appropriate. However, as an analogous situation, that just came to mind when I heard that answer.

In terms of Nia Griffith's point about the EIA, there are those two schedules: schedule 1 is the major mandatory EIA requirement, and schedule 2 depends on the significant likely effects test. Beyond that, there is cumulative impact as well. That regime is well established and it works well. However, I think that it is important to say that the EIA regime is not there to prevent development; it is there as a means of gathering information into one place, which can come as part of the environmental information on a planning appeal in any case.

Q163 Chair: Could you clarify something for me, Mr Poppleton? You obviously dealt with the Vale of Glamorgan issue.

Richard Poppleton: An inspector did.

Chair: An inspector. Okay.

Richard Poppleton: Not the organisation.

Q164 Chair: We perhaps cannot ask about a specific case, but, basically, if a local authority refuses a planning permission, the developer can take it to the planning inspector, and the planning inspector then decides, whereas in England, they would go to CLG.

Richard Poppleton: We are confusing several things there, if I may say so, sir. The inspectorate in Wales is funded by the Welsh Government as a separate directorate dealing with Welsh matters—planning applications. So, applications under the Town and Country Planning Act 1990 would be dealt with by my directorate here in Cardiff for matters in Wales. In England, if a planning application is refused, the applicant would appeal to the Secretary of State, Mr Pickles, or to Mr Boles, and it would be

dealt with by inspectors appointed by DCLG on their behalf. So, that would be inspectors based in Bristol, as it happens. So, there are two regimes. In terms of the law, it is the same.

Q165 Chair: It roughly works in a similar way, does it? You do not feel that either in Wales or England there is more political interference, let us say, or intervention in one than in the other?

Richard Poppleton: Legally, there could not be. Once an inspector has been appointed, there is no interference; there is no contact between the organisation managing the appeal and the decision makers sitting in isolation who are hearing the evidence, reading the evidence and coming to a decision.

Q166 Chair: Before I call Glyn, my recollection from my time in the Assembly is that there are Members who have undertaken planning training who sometimes make that decision instead of—

Richard Poppleton: There are very few—99% of decisions are transferred to an individual. Some 0.5% to 1% of them are recovered by the Minister. Those are schemes of larger than local interest, generally. The criteria are set out in "PPW" as to what they would be. Then the Minister would make a decision, having received a report from an independent inspector.

Chair: Thank you for clarifying that.

Q167 Glyn Davies: I just want to clarify just how often that system operates and how it operates. My mind flies to an application for a dairy farm near Welshpool recently, where the recommendation of the inspector was absolutely to refuse it, on several grounds, but the Minister approved it despite not having heard any of the evidence at all. [*Interruption.*] Well, he certainly would not have sat in on the inquiry. Anyway, that is beside the point. Is that how it would apply with a very significant shale gas development? Would it be a ministerial decision at the end of the day, even after the inspector has made a recommendation?

Richard Poppleton: I would hazard a guess that the application itself would probably be called in. That is, the responsibility for making a decision would be taken away from the local planning authority and called in by the Minister. In a case where there was a refusal of planning permission, it would be a recovered case for determination by the Minister. In such events, the inspector, as an impartial and independent person, would hear the evidence, hear the inquiry and make a recommendation to the Minister as to what, in his or her view, the decision should be and, if it is allowed, under what conditions. It is up to the Minister then to review all of that written evidence and that recommendation and to come to his or her own decision as to whether the decision should be in accordance with what the recommendation was or whether some other decision should be taken.

Q168 Glyn Davies: We do not know whether that would apply to a significant shale gas development, for example, and what system would operate.

Richard Poppleton: If it is extraction, that is likely to be the case, because it would raise matters that are of more than local interest. However, it would be a matter for Welsh Government to decide, first, whether to call it in and, secondly, to recover it if it was an appeal.

Q169 Jonathan Edwards: That is very interesting. So, what Minister would it be? Would it be the First Minister, as the Minister responsible for energy, or would it be the Minister with responsibility for planning?

Richard Poppleton: If it was a Town and Country Planning Act 1990 application, it would be Carl Sargeant, the current Minister, who would make the determinations as to whether it is called in or, if it is an appeal, that it is recovered.

Q170 Geraint Davies: I have some quick questions about environmental impact assessments. Could you explain who decides when one is required? Some witnesses have said that they should be mandatory for all shale gas applications. Could you comment on that? People have also asked whether they should be mandatory for national parks and areas of natural beauty. What do you feel—should they be mandatory, mandatory in certain instances or discretionary? If discretionary, how should it operate?

Richard Poppleton: We need to be clear as to what we are talking about when using the phrase "shale gas projects", in terms of exploration as opposed to extraction. If it comes to extraction, obviously it may well fall into schedule 1, in terms of large-scale projects of 500,000 cu m per day. Automatically, that would require an EIA. If it is exploration, we are talking about quite a small geographical area.

Q171 Geraint Davies: We are talking about extraction at this stage.

Richard Poppleton: If it is likely to draw out 500,000 cu m a day, then that would automatically be under schedule 1, which means that a mandatory EIA process would be triggered. So, as I said, when we are talking about this, we need to be careful as to which it is.

Q172 Chair: In other words, if they are just drilling down, there is not likely to be any disruption anyway; they are just having a look to see whether there is something down there.

Richard Poppleton: Yes, exactly.

Q173 Chair: If there is something down there, then the impact will be a bit bigger.

Richard Poppleton: In a project in the Vale of Glamorgan, for example, which we dealt with a year or so ago, there was a pipe with a Portakabin-scale-type plant room and a compound, which covered less than 0.1 ha. It was not in a sensitive area, nor was it likely to have significant environmental effects. Therefore, it did not trigger the EIA regime.

Q174 Geraint Davies: I know that the situation is the same in Wales and in England; it is quite acceptable.

Richard Poppleton: The same regulations apply. Well, they are being revised in England slightly, but in terms of the basics, the principles are the same.

Q175 Jonathan Edwards: May I ask a question? I am not sure whether you will know the answer, but what calculations have public authorities in Wales made of the revenue potential for Wales of shale gas exploration?

Richard Poppleton: I have no evidence on that.

Q176 Geraint Davies: I would like to ask Andrew Farrow a more general question. There is widespread concern about the overall impact of thousands of these developments across Wales in terms of tourism and everything else. Do you have a view on how this process should be managed? In particular, the case has been made that, in the process of establishing operations, there can be disruption. If that occurred at the same time over a couple of years across Wales, it strikes me that that could have a major impact on our reputation for environmental tourism. What does the panel feel about that, and what controls should be put on it?

Andrew Farrow: The visual impact of the development and the impact on landscape character are matters that we would take into account through the planning process as well. There are certain elements around that that could be mitigated, such as visual screening and traffic management. We could put in place traffic management plans so that particularly busy times of the season can be avoided. If that can be supported with evidence, that could be applied as part of a planning condition.

In terms of an overall detrimental impact on the tourism industry, that is a very difficult thing for us to evidence. We have nothing to hang our hat on or to use in terms of the determination of any application for that, so it is very difficult to quantify. However, things like landscape character, visual impact and impact from traffic, noise and dust are all matters that we can deal with at the evidential level.

Q177 Geraint Davies: What I am getting at is that an individual project might be normally approved on its merits, but there might be a different scenario in addition to a number of others that have already been agreed in terms of the collective impact on the environment. There are all sorts of issues about whether that is fair or not et cetera. How will those issues be managed? Is it the case, for example, that authorities have come forward as developers and said "We want to put this here", and that that would have been all right had it not been the case that other people had developments? That is not grounds for rejection, is it?

Andrew Farrow: To a certain extent, we have to take into account the cumulative impact. There will be a line that is crossed when the landscape impact of these developments is so unreasonable that there is a case to be made for the refusal of planning permission. I do not know whether you have undertaken a site visit yet, but when you go to look at a shale gas site in production, I think that you will be struck by the limited size and scale of it, and also, around that, the mitigation that can be put in.

Chair: We are trying to organise it. The problem is more around the Whips of various parties.

Richard Poppleton: May I just go back a stage? I failed to mention a point about national park EIAs. What I would guard against is adding more policy, which may be unnecessary. The existing minerals planning policy says that minerals development should not take place in such areas, save in exceptional circumstances. So, it is about highlighting that as a potential problem for any decision maker, along with the exceptional reasons for allowing it if it is a large-scale, industrial-type development in a national park. The policy guidance for designated areas such as sites of specialist scientific interest, Ramsar sites and all those sorts of areas highlights this as a potential area of concern, and one would not normally expect industrial-type development to interfere with the special qualities of those areas.

In terms of national parks, the duty is to preserve the special qualities of the area. That would be the test. One would ask, "Does this harm that special quality?"

Q178 Geraint Davies: So, the safeguards are already in place.

Richard Poppleton: They are there in *Planning Policy Wales* and the minerals planning policy, in addition to any local policies that individual planning authorities may have introduced in their local development plans. The structure and guidance is there at the moment. When one looks at an appeal proposal, those are the sorts of things that one is looking at.

Q179 Geraint Davies: Flipping the question over, from the point of view of the developer, are all those protections too much to enable a reasonable rate of progress for the industry?

Richard Poppleton: What one would expect with a proposal is that the developer would be aware of those protections where they apply, and one would expect them to come forward with appropriate mitigation management of their impacts. That is what we would expect.

Q180 Chair: I will just allow myself one very last brief question, as the clock strikes 1pm. Do you accept the points made by the previous witnesses, that what they really need is certainty in terms of the process—obviously, not in terms of the outcome of the process but in terms of the time and expense of putting an application in? Is that a fair comment, would you say?

Andrew Farrow: Yes; I would agree with that. Speaking on behalf of the planning authorities, certainty is one of those things that we would like to deliver through the system.

Chair: Excellent. The very last final question—

Q181 Jessica Morden: What is your gut instinct, then, about what will happen in future and the scale of any developments that we might see in Wales?

Andrew Farrow: I think that the geology and the economics of it will tell you that we will attract interest from the shale gas industry. What we need in place is a system of guidance. It is a question of whether we pick up on the CLG guidance or develop something ourselves. I think that that goes quite some way in terms of pulling together a variety of different sources. So, we need that in place. It will be interesting

to see what Welsh Government says; it has taken a precautionary approach with respect to policy.

The other aspect is not to forget about the expertise that is needed, and the resources needed, to assess these applications when they come in. In my evidence, I have referenced the fact about the planning fee. If you are calculating it purely on the basis of the above-ground development, that is a relatively small fee. However, with these applications, you can see what has happened in Lancashire, in terms of the amount of interest that they generate and the technical aspects related to them. My view is that the planning fee should reflect that.

Chair: Excellent. Thank you very much indeed to everyone who has taken part. Order.