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Witnesses: John Kersey, Lee Petts, Ian Roberts and Tina Rothery

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Members present

Lord MacGregor of Pulham Market (Chairman)
Lord Griffiths of Fforestfach
Lord Hollick
Lord Lawson of Blaby
Lord Lipsey
Lord McFall of Alcluith
Lord May of Oxford
Lord Rowe-Beattie
Lord Shipley
Lord Skidelsky

Examination of Witnesses

John Kersey, Lancashire Chairman, Institute of Directors, **Lee Petts**, Managing Director, Remsol Ltd, **Ian Roberts** and **Tina Rothery**, Residents' Action on Fylde Fracking (RAFF)

Q185 The Chairman: Good afternoon. This is, I think, the 10th session of our inquiry into the subject of shale gas. I would say at the outset that we have been anxious to get evidence and hear the views of people right across the spectrum on this, which means that we have had a very tight and difficult timetable, but we are keen for everyone to give evidence.

We have two sets of witnesses this afternoon, so we will probably have to stop close to just after 4.15, so I ask you to be as brief as you can because there are a lot of topics we want to discuss. Could I remind you to speak up, mainly for the recording of the transcripts and so on? If you find that in answer to one question you agree with somebody, do not simply repeat what they have to say, in the interest of time. Can I start with a very general question, which is, just very briefly can you explain the view of your respective organisations on the prospects for shale gas exploration and development in Lancashire? I ask that because obviously this session today is particularly focused on Lancashire.

Ian Roberts: I wonder whether I might be permitted to make a brief opening statement, just to put this in a bit of context.

The Chairman: Very brief, yes.

Ian Roberts: Thank you, and thank you for inviting us here today; we really appreciate it. Tina and I are here representing RAFF, which is Residents' Action on Fylde Fracking. It is a rather cumbersome title; it would have been easier to say that we are against fracking. When we formed two years ago, though, we were genuinely open minded about this industry. We thought that maybe with tight regulation it would be worth backing. However, after two years of research, we now regard this industry as a potential disaster in environmental and economic terms. We are not lifelong environmental campaigners; we are simply concerned local residents.

We have two aims today: firstly, hopefully to demonstrate that those of us on this side of the argument are not disaffected outsiders, as we are often portrayed: secondly, that the industry and its supporters in Government are not, we believe, presenting a balanced case to the British public. Thank you.

The Chairman: Would you like to just indicate your own organisations, please?

John Kersey: Thank you. I would also like to thank the Committee for asking us to appear. I have been running a business in Lancashire for 45 years, and I cannot remember an economic opportunity this significant in all that time. The Lancashire economy shows no real signs of improving. We have a strong manufacturing base and great industrial heritage, but our manufacturers have to compete on a global scale with economies that have access not just to a cheaper workforce, but also to cheaper energy.

I would like to share some interesting and quite depressing statistics about gross value added; that is each person's economic contribution. According to the Office for National Statistics, gross value added per head in Lancashire does not compare well regionally or

nationally. Lancashire added is £16,077; Greater Manchester is £18,113; Cheshire is £22,743; the UK as a whole represents £20,873; Aberdeen is £31,944. Within Lancashire, GVA in Blackpool on the Fylde coast where the shale gas extraction might take place represents £12,720, which is 21% lower than Lancashire. As a whole, it is 40% lower than the UK average. On dispensable income and quality of life, again according to the Office for National Statistics the index of gross dispensable household income, where the UK as a whole represents 100, shows that in 2011 the people of Lancashire had less money to spend in the economy, with an index of score of 90.3. Looking again to Blackpool, in 2011 it had an index score of 79.9. Compared with the UK average, therefore, people who live there are worse off. According to a league table compiled by UK Trade and Investment—

The Chairman: I am sorry to interrupt you but I wonder if you could put this in as a written piece of evidence, because otherwise we are going to run out of time for all the questions we want to ask. I take the point you are making: that this is an area that could do with a lot more employment and all the other issues concerned with industrial development. However, I think you could make that point to us in writing, if you would.

John Kersey: Okay, I have got that. It is very brief, actually. I was just making the point about how the area needs the employment and investment.

The Chairman: Yes, and if you want to add the statistics, please do.

Lee Petts: I agree with much of what John has just shared with the Committee. I see shale gas as a potential economic boost for Lancashire, which, as John has just said, has struggled for quite some time now. In fact, some people would say it has been in terminal decline since the end of the Industrial Revolution.

It also presents an opportunity environmentally in terms of helping Britain to achieve the carbon cuts that it wants to achieve. I appreciate that may sound counterintuitive because it

is still a fossil fuel, but there is an environmental opportunity associated with shale gas extraction in Lancashire.

Q186 Lord Lawson of Blaby: We have heard a certain conflict already from our witnesses. Mr Roberts has made no bones about the fact that he considers that to allow fracking in the Fylde would be disastrous. May I ask Mr Petts? You clearly do not agree with him. Why do you think he is wrong?

Lee Petts: Firstly, I do not think Mr Roberts is wrong to hold that view. I think he is entitled to form his own opinions from the information that he sees.

Lord Lawson of Blaby: Yes, but we have to take a view, and we have a conflict of evidence, so we have to try and resolve that.

Lee Petts: I have been working in the environmental sector now for 18 years, dealing daily with environmental risk management. My perception of the risks associated with shale gas extraction suggests to me that it could be adequately controlled with the right risk control measures. Many of the risks that people are fearful of I genuinely do not think will be manifest. Like Mr Roberts, I live in Lancashire with my family. I breathe the same air and drink the same water as the people that are opposed to shale gas. This is not a view that I hold loosely. I think it could be very good for us. I do not believe the risks are as significant as other people may say, and I believe that it can be done safely and responsibly.

Lord Lawson of Blaby: What do you think, Mr Roberts, is the principal risk? Why do you disagree with Mr Petts?

Ian Roberts: You can go from the micro argument, which is all about traffic, congestion, roads and infrastructure, right through to the macro argument, which is: this is entirely the wrong horse to be backing. This is an industry that should be consigned to history.

Lord Lawson of Blaby: Why?

Ian Roberts: There is a blossoming renewable energy sector in Lancashire. I was talking to people in Bowland last week who were involved in producing the new installations and equipment that will harness all the renewable energies. They are out of the starting blocks. I thought they might say, “The subsidies have been decreased and we are on our knees.” Not at all; they are saying, “This is an industry that is maturing and we are ready to take the reins here”, so I think in broad terms this is entirely the wrong industry to be backing. We need now to be backing the renewable sector.

Tina Rothery: Also, for us in Lancashire, we have been dealing with this for two years, attending public meetings and Cuadrilla’s meetings as well as doing our own research. Aside from the risks that we find unacceptable to the community, we have also found dealing with this industry less than favourable and not something we would like in our community. The ASA has already pulled them on over-claiming safety and misleading us in the information they are putting out in the brochures we receive and the public meetings we attend. Aside from all the risks, it is like asking us to do business with people we do not trust. After what they have done so far, it is very hard to actually start from any good point to discuss moving forward with it.

Lord Lawson of Blaby: I do not want to hog this, but of course it is not unknown that sales brochures sometimes put forward a glossy picture that is not completely Gospel truth. It is not the first time this has happened and it will not be the last. As to the concern you expressed, what are these great, unacceptable risks to which you referred?

Tina Rothery: The risk of wellhead failure. The industry drilling company, Schlumberger, put out their own report that said that one in six or one in nine failed in the first few years. When a wellhead fails, it is not the fracking so much that is the problem down below. When a wellhead fails at the top, though, at a point where they are either putting in chemicals or withdrawing flow-back water, there is a risk of contamination to our groundwater and

agriculture. In Lancashire, we make great cheese. Our dairy herds breed there, so consequently if they are feeding on land that has been tarnished, that will damage that whole industry.

There is also £3.5 billion in Lancashire tourism every year, and 55,000 jobs. With shale gas extraction, you get methane burn-off, so there will be 30-foot high pipes with methane burn-off. They want 800 wells; that is at least 80 well pads. This is an unattractive, dangerous industry that is going to be damaging to agriculture and tourism, which are Lancashire's two prime industries.

I do not want to sound NIMBY-ish; we do not want this in anyone's backyard. Since we started studying it, we have had people come over from America and Canada. Dr Mariann Lloyd-Smith, from Australia, has worked with the UN on toxicity of chemicals and their effects on agriculture. She has come over, and it is like getting the ghost of Christmas future. They have come and forewarned us what it is like where they are. Jessica Ernst came over from Canada. She is an industry exec, and is now suing the Canadian Government. These people have experienced it, and have come and forewarned us. We have the benefit of this forewarning, and it is wrong that we do not heed it. They have had the accidents and problems. These are not risks; they are provable incidents. Why would we put ourselves through this? Why would our Government expect us to tolerate that? We all have children and grandchildren; it is an unacceptable thing to ask us.

The Chairman: We have two points there: groundwater and methane.

Lord Lawson of Blaby: What do you have to say to that, Mr Petts?

Lee Petts: The risks and benefits in this debate are being overstated a lot on both sides, I would say, and I do not think that is helping at the moment. From a groundwater perspective, most people agree that the most significant risks of groundwater contamination will be surface risks from spills, particularly of things like fracturing fluid or the flow-back

waste water. A lot of that is based on the experiences of other countries like Australia and particularly the US, where the controls are very different to those we typically employ in this country.

In terms of the waste water storage issue, for instance, in the United States, it is very common for them to store waste water in open pits. They may be lined, but it is very difficult when you store anything like that to determine whether you have lost the integrity of your line; you just cannot see it. We do not do that in this country. Waste water here will be stored in above-ground tanks, sat in what we call secondary containment on a well pad that has been constructed to provide tertiary spill-containment. Effectively, you have three layers of protection there, and that is what we call it in risk management parlance: layers of protection, so if one fails, it fails to a safe condition. I believe that that is what we will see in this country; that is what our regulators would expect; and I do not believe they would allow it to take place if those expectations were not met. I do not believe therefore that the risk to groundwater is as significant as people say.

Q187 Lord Shipley: You mentioned groundwater and waste water. I would like to pursue each of those to get your views on the risk of contamination of groundwater and whether there are robust plans in place in Lancashire for coping with waste water produced in hydraulic fracking. We have heard that the Royal Society in 2012 said that the risks to aquifers is very low, provided shale gas extraction takes place at depths of many hundreds of metres or several kilometres. The Environment Agency has said there are no groundwater aquifers anywhere near the drilling location in Lancashire. Could we be clear as to your views about the risks to groundwater, and drinking water in particular? Secondly, just be clear about whether contaminated water, waste water, actually can be dealt with. I would like to hear in particular from Remsol about that because you have been working with

Cuadrilla on ways of minimising the problems caused by waste water. That is quite a wide agenda, but I would like to hear first about groundwater.

Ian Roberts: There is a risk of groundwater contamination because of the wellhead failure; the cement bond. There are aquifers in Lancashire very close to the surface. A lot of people who are on mains water draw the water from a well. Farmers' livestock is at risk, so there is a risk to groundwater because of the well failure.

On the waste water, this is a really interesting one, because our understanding is that they do not have any plans in place to treat safely and dispose of the waste flow-back water. I was speaking to Cuadrilla and Arup representatives at an information event only last Wednesday, and I asked them what they were going to do with the waste water. They said, "Well, it may go to Stoke or it may go to Leeds. It may or it may not." They have not got any plans in place, as far as I can ascertain, to dispose of this water. If we go back to the waste water that came out of the Preese Hall site, we really cannot get a straight answer as to what happened to that. We know that it was going to the treatment plant at Davyhulme for a time, but our understanding is that that plant became overwhelmed with the quantity, toxicity and radioactive nature. Ultimately 18,000 gallons was stored on the Preese Hall site for a long, long time before it disappeared. This is key: this stuff contains some nasty chemicals; what are they going to do? We cannot get a clear answer.

Lord Shipley: Can Mr Petts answer that?

Lee Petts: If we take them in reverse order then, the material that was stored at the Preese Hall well was consumed in the plant-scale trials that we performed last year at a range of existing industrial waste water treatment facilities to prove the concept of how to treat this waste safely and securely. As I understand it, those trials were communicated to local stakeholders in Cuadrilla's summer newsletter that year to say that these trials were taking place. That is what happened: the material was taken away and put through these trial

treatments to prove the concept to us and give us some comfort that the treatment method we had identified would actually work. That is what happened to the material that was stored at the Preese Hall site.

In terms of the plans going forwards and where some of the confusion comes from, everybody is keeping a watching brief on this at the moment. We have identified that this waste water can be treated at about a dozen existing industrial waste water treatment plants around the UK. We have selected two initially—one in Leeds, one in Stoke-on-Trent—as what we see as the host sites going forwards in exploration. The reality is: if there is an opportunity presented to treat the waste water at site and recycle it so it can be reused in subsequent fracture treatments, that is what Cuadrilla will want to do. For a start, it would be less expensive for them and make shale gas extraction more economic. Secondly, it would reduce the number of road tanker movements leaving those sites, which has been another key concern of local stakeholders. When they say it has not been decided yet, that is what they mean. It is not that there is no plan there, because there is. If we wanted to start taking this waste water away today, we could do that at these two locations.

Lord Shipley: How many lorries is it, then? People might draw the conclusion from that that it has to go a long way, and it would have to be transported there in a very large number of vehicles. Can you quantify that?

Lee Petts: In terms of the vehicular movements, from memory we estimate that departing the site—so one-way journeys—one well would produce somewhere in the region of 144 transport movements to take the waste water away in exploration.

Lord Shipley: Sorry, in total or per day?

Lee Petts: In total. On an average basis over the three-month life of waste water removal, the average would be about four tanker movements a day, but it does not quite look like that in profile. Most of the waste is removed in the early stages after fracturing has finished,

so you might see for the first few days perhaps 10 tanker journeys a day, and then it tails right off down to one or two for the remainder of the fracturing process.

The Chairman: Then on the other point?

Lee Petts: Sorry, I thought that was both points; one on Preese Hall and the other on the waste water arrangements.

Going back to the question around groundwater, do I think there is a risk? Well, of course there is always going to be a risk. None of these processes we conduct in industry could ever be seen to be risk free. The trick is to identify the risks and then manage them. I believe that is what will happen in this industry.

The issue we have to bear in mind here is that this particular part of Lancashire sits atop the Sherwood Aquifer, which is recognised to be a very important aquifer in the UK, but not for the whole of the aquifer. In the Lancashire patch, it is very brackish and saline. It is not used generally for drinking water purposes. There will be pockets of fresh water in that aquifer that people can tap, and they do. In terms of the number of people that draw water from wells, though, I believe the Drinking Water Inspectorate think there are somewhere in the region of 50,000 private water wells in the UK supplying drinking water to homes. They represent 1% of the total in the UK, so they are very few and far between. I honestly do not believe that there are enough of those wells drawing water from the aquifer in the Bowland area to present a concern. With the controls that are in place and the construction requirements for the wells, the sort of failure rates that people talk about are very unlikely.

Q188 Lord Lipsey: I would like to know some more about Mr Roberts's remark about nasty chemicals. We know that in the US the actual liquid used for fracking has become much less chemically intensive. Indeed, Viscount Ridley told this Committee, when he appeared to give evidence, that it contained nothing that is not found in the normal kitchen

cupboard. Which chemicals specifically do you describe as nasty, and what is the evidence that they exist in concentrations that could in any way be dangerous?

Lord May of Oxford: My question was essentially the same, so let me just quickly piggyback it on this point. The RAFF website points out that up to 40% of this thing we just call simply “waste water” comes back up the well as contaminated fracking sludge, which contains toxic chemicals, heavy metals and naturally occurring radon. It has not got a permit yet from the Environment Agency to be transported to a treatment facility. Maybe I am misunderstanding something, but just using the rather anodyne phrase “waste water” for this strikes me as a bit odd.

Tina Rothery: Could I also just interject? When Mr Petts is talking about the amounts and volumes, he is talking about the exploratory stage. He is not talking about what happens in shale gas production. We really need to differentiate between those two actions, because the exploratory stage is nothing compared to what happens once we go into full scale production. That is huge. Also, when he talked about recycling, it is not recycling as we know it, or the public knows it. This is water that is removed from the water table and it will not come back. It is too contaminated. They will reuse it perhaps to frack the wells, but they will not get it back into our water table, so not recycled like your recycling.

The Chairman: Mr Petts, would you just like to reply quickly to that? Then perhaps you could come back to the questions that Lord Lipsey and Lord May have asked.

Lee Petts: I am afraid I disagree with Ms Rothery’s view. When we talk about industrial liquid wastes, recycling processes and clean-up technologies, it is very different to conventional recycling processes that most members of the public may be familiar with, but it does not mean it is not possible. We have found that it is eminently possible to remove the vast majority of the contaminants from this fluid that returns from below ground after the fracturing process, such that after further biological treatment in the sewage system it

can be returned to the natural environment and discharged into a water course. We have supplied evidence to that effect to the Environment Agency, which they have accepted. So it can be treated, the contaminants can be largely removed and it can be returned back into the water environment, in my opinion. What would be a better option longer term would be to clean it up at the drill site so that it can be reused by fracturing at another stage in the well. That would make much more sense.

The Chairman: Mr Roberts, would you like to respond to the points raised by Lord Lipsey and Lord May?

Ian Roberts: I do not have a scientific background and I cannot detail the chemicals involved here. Suffice to say that we know that the chemicals that are used, as Tina says, in the exploration stage are nothing compared to what would be used in extraction.

Lord Lipsey: That may be so, Mr Roberts, but I asked you what nasty chemicals you were referring to and what concentration they are in. If you cannot answer that, you have given some evidence to this Committee which you do not appear to be able to sustain with factual information.

Tina Rothery: We will do our best but we are a residents' group. What we have discovered is that 1% of the fracture fluid that goes down is chemical, and the chemicals that go in when you are just doing exploration can be quite light, just like hydrogen chloride or chlorine—I am not sure which one it is; I cannot remember the difference—but the spillage from that when it is travelling raw and undiluted on agricultural roads would be a huge risk. When they go into full production, they have access to up to 600 chemicals in the States at each well. Each shale plate is entirely different so they will use any combination of those that suit that particular shale plate. We cannot say which ones they will use because generally they will not say. It is very hard to get this information. We try very hard, and we have

spent two years giving up all our personal time to do this, but unfortunately it is a very challenging subject and quite well locked down.

Q189 Lord Rowe-Beddoe: Let us move from chemicals, which seem to still be a mystery both in quantity and detail, and talk about earth tremors. I understand that at Cuadrilla's Preese Hall site they have been responsible for two tremors. One that took place in 2011 was 2.3 on the Richter scale, and the second tremor was measured at 1.5. Evidence we have heard suggest that the 1.5 tremor is something no bigger than a truck just passing outside. Of course, if you live on a country lane you do not normally have a large truck outside your window, so that is something. However, my point on tremor is that the Royal Society suggests that the most that could ever be achieved is a 3. What is your feeling about tremors and earthquakes? Is this one of your major concerns or less of a concern than the content of the waste?

Ian Roberts: It is a concern. I think Cuadrilla have accepted that the tremors resulted from their operations; there is no mystery there. A particular concern is that they failed to tell the regulators for six months about the damage that those tremors caused to the Preese Hall well. In response to that, they are proposing to use a traffic light system, and I think we have to acknowledge that that might mitigate further problems.

It is what happens below the surface that we have a particular concern about. It is the damage to the well integrity. In reality, we do not know what is happening down there. Nobody has gone back to Preese Hall to give us a clear picture of the geological faults that surround that, and what is happening to them. I understand that Professor David Smythe has submitted a paper to this Committee, suggesting that the geology of Lancashire makes it completely unsuitable for hydraulic fracturing because of the number of faults. His conclusion is that drilling is unpredictable, and the faults in the geology in Lancashire make it completely unsuitable for this sort of activity. It was not a huge earthquake, but it was an

earthquake and it did cause damage. Small earthquakes can cause damage to the wells with the problems that that can cause.

Lord Rowe-Beddoe: I like the way you are bringing in the word “earthquake” and I used “tremors”.

Ian Roberts: I do not want to overstate it. If you want to use “tremor” I am happy to use “tremor”.

Lee Petts: I am quite happy to share an opinion, but in that regard it is no better than anybody else's. I am not a geologist or an expert in seismicity. I would say, though, that that was 2011 and a lot has happened since then. For instance, Cuadrilla has undertaken a huge amount of work to map the sub-surface geology in a large part of its licence area in 3D, which means they can see where the faults are. I imagine that will influence site selection in the future so that they can avoid a repeat of the problems in 2011. I think the traffic light system improves that considerably further. With that control, and activities stopping if a seismic event is recorded at anything above a very low threshold of 0.5 magnitude, they have the opportunity to pause if they see some activity, and investigate the integrity of the well. My understanding is they have tools that they can run down the well to pinpoint where any damage has occurred, assess the level of damage and then repair it. That makes a lot of sense because if the object of extracting hydrocarbons from these wells is to sell them and make a profit on that activity, it is not in their interest for it to be leaking out underground because of a minor tremor damaging a well. You would expect them to have the ability to go in and repair the well to prevent those losses.

If you look on the British Geological Survey website you can get a history of tremors almost day-by-day that are taking place in the UK. There was one in Wigan in Lancashire last month or the month before that was a magnitude 1.5. We have not heard anything about

that in the press; there has been no discussion of that. No damage appears to have been caused. It is not uncommon for us to see that kind of seismic activity in the UK at that level.

Tina Rothery: Can I answer just one point, which was that Cuadrilla did not admit to it? This goes back to our problem with trust and trusting what information they are telling us. If they do not tell us and then carry on fracking and drilling in for six weeks after the earth tremor, even though they caused it, that is a deep concern for us.

Lee Petts: Can I just comment on that point? One thing that strikes me about that is until the investigations had concluded I do not think they could say with certainty that it was their activity that caused it. As I have just said, tremors of that magnitude are not that uncommon. They would not necessarily immediately rush out to say, "That was us," and "Yes, we caused that," because they did not know at that time until some activity had taken place.

Tina Rothery: It is not the magnitude; it is the depth.

Lee Petts: I am not sure that is necessarily a reason to suspect that that would not happen in the future.

Q190 Lord Griffiths of Fforestfach: We have talked about contaminated water; I would like to raise the issue of water shortages. Sir David King, a former Chief Scientific Adviser to the Government, said in October of this year that in order to have shale gas production at a reasonable level you need 2,000 wells being drilled, and this could lead to water shortages. Would you agree with that?

Tina Rothery: The way we describe it at our public meetings in order to make it visual for the members of the public who come to see us is, when you frack one well once, you take approximately four Olympic-size swimming pools. Two of them possibly will not come back because that remains underground after it has been infused with chemicals. That stays underground, and that should be part of the EU mining waste directive, but currently is not.

However, the two then come back up. Essentially, you are using four Olympic-size swimming pools per frack, per well. On the Fylde, they would like 800 wells. Each one of those wells will be fracked no less than 30 times, so it is an awful lot of water. Maybe in the north we are blessed; we have a great deal of rainfall and a great deal of water. United Utilities would struggle, and they say they put the public first, but I think certainly places down south would suffer a lot more. We have yet to know the quantity and the types of usage there is going to be, so it is very hard to comment on that. Again, it is too light on information. We are surprised it has progressed this far with so little information.

Lord Griffiths of Fforestfach: Can I ask Mr Kersey or Mr Petts to comment on that?

John Kersey: I realise that the extraction process uses a lot of water, but I am told in the context of industry as a whole the projected amounts are very, very low.

Lee Petts: I can add to that. The Waste and Resources Action Programme, or WRAP, a Defra-funded organisation, promotes resource efficiency amongst other things. It undertook a study in 2006 to 2007 looking at industrial water consumption across the whole of the UK, and reported some very surprising numbers. For example, the hotels and food sector, which they group together, in the UK combined consumed, in that period, 134.9 million cubic metres of water in one year. To put that into a shale gas context, assuming that the predictions made in the IOD Report in May this year are correct, and I think nobody can say that with certainty at this stage, one well uses 13,000 cubic metres of fluid to fracture. The amount of water that that WRAP study suggests was consumed in hotels and the food sector could be used to fracture 10,000 wells. In the context of existing water demand and usage, it is actually a very small amount. I know it sounds very big, but I am not convinced in that context that it necessarily is.

The other thing we need to recognise, and I say this as a businessman, is that we are viewing this now. We are assuming that in production, although there will be more activity, the

scale of water use and waste creation and so on will mirror what we see in exploration. I am not convinced that is the case. I think what we will see happen is efforts, as I believe there are in the United States now, to move to waterless fracturing systems using inert gases instead of water to reduce that water demand. Why would they do that? Well, for two reasons principally. First of all, less water demand and less waste water means fewer public concerns, and they are eager to try and overcome some of those concerns. Secondly, it will inevitably be less expensive if there is no water to buy and no waste water to dispose of. That is going to make shale gas extraction more economic. That is one of the benefits of further exploration now. They can learn more about the geology and how the fracture propagation works in this particular shale, which may enable them to start making some plans for how they can fracture in the future. That is why we need to see more exploratory work now, to answer some of those questions.

Lord Lawson of Blaby: I believe that in the United States they are increasingly using saline rather than potable water. Presumably that could happen here.

Lee Petts: Again, I am not an expert. I have spoken to Cuadrilla about exactly that notion of using saline water. They appear to be of the opinion that it is possible, and it is something that is being trialled a lot in the United States at the moment.

Ian Roberts: We would not want to overstate this problem. Any quality drinking water that is lost down there forever has to be a concern. It is a wonderful commodity, is it not? Let us not forget, it is not that long ago we faced a drought in April 2012 before the heavens opened. However, from our research, Water UK particularly has suggested it is the south east that is most at risk of water depletion.

The Chairman: It will not surprise you to know that we are looking at all these issues in some considerable depth with a whole load of witnesses. We are just anxious to get your reactions, and we must move on fairly quickly.

Q191 Lord McFall of Alcluith: Mr Petts, you mentioned about fewer public concerns. Tina, you mentioned that Cuadrilla had been less than open with you. What do you think the company would have to do to reach an accord with local people, to ensure that fracking goes ahead?

Tina Rothery: We have struggled with several points, partly because they have been sectioned by the Advertising Standards Authority on overstating safety claims, misleading the public and things that were really important to us when we had our community consultations. These mattered. If they had come in and been honest, it would have been a better start. They have started dishonestly. They have given us PR people to speak to instead of engineers. When we ask questions, they do not have the answers. They tell us they will come back to us by email; it does not happen. How do we get them to endear the community? Certainly not through offers of cash; that does not take away any of the risks that we have discovered along the way. I wish I could be more giving, but I cannot think of a single thing they could do to make this acceptable when we have seen so much demonstration of the harms it causes, having been spoken to by some experts on the subject who have lived it, breathed it and seen the evidence of it.

Lord McFall of Alcluith: Is it a case of no surrender? In other words, you are never going to come to an accord. There is not going to be any community harmony along with Cuadrilla's drilling.

Tina Rothery: I do not believe that the industry can be regulated in a way that is going to make it so safe a community could tolerate that risk to itself. Any community in the country is going to look into it the same way we have, and then we are going to be told "gold standard regulations". No offence, but EA has just had its budget cut.

Lord McFall of Alcluith: So there is nothing they can do to satisfy you? That is really the question.

Tina Rothery: I am not looking for satisfaction; I am looking for reassurance and safety for the future.

Lord McFall of Alcluith: There is nothing they could do to satisfy you, you do not think.

Ian Roberts: I do not believe so, no. As I said earlier, I think we are backing the wrong horse here.

Lord McFall of Alcluith: And money would not preclude that?

Ian Roberts: No. It is a community matter.

Lord McFall of Alcluith: Okay, so if it cannot satisfy you, I think you have to convince people of your concerns. Apart from the seismic activity and water supply, what other concerns do you have regarding fracking so that we can have a public record of that here? For example, on your website you mention a few, such as air pollution and the risk from chemical spills and so on. What are the big things for you?

Tina Rothery: The pads are illuminated 24 hours a day, and they have methane burn-off. That puts methane into our atmosphere. Methane is worse than carbon, so we do not believe that that is going to be very good for us. We have already mentioned the risks of the road traffic that is travelling and carrying undiluted chemicals. We also have the waste water being transported. There are also issues that are going to arise on infrastructure that is going to be required to transport the gas once it flows. We are also concerned that the job claims are nowhere near what they say they are. This is a very automated industry. They bring in people at the beginning who are highly skilled and do the work, and then there is not much left. Once you have fracked that well, it flows, because each of those fissures is opened by a little sand granule. It will flow until the next time you fracture it. The risks are not worth what they say are the gains, because the gains are not what they say.

Lord McFall of Alcluith: Lastly, you said they have not been honest. If they will be honest with you, and you have an agenda and they work along with that agenda with you, could

there be a smidjeon of a chance that you could get community accord and allow fracking to go ahead?

Tina Rothery: I think most communities would ask the same question, “Why?” This is a finite industry. There are plenty of jobs in the renewable sector. Lancashire is one of the leading counties.

Lord McFall of Alcluth: What is the answer there; yes or no?

Tina Rothery: No.

The Chairman: All right; a clear answer.

Q192 Lord Skidelsky: What I want to ask follows on from Lord McFall’s set of questions. Have you been involved in any local consultation process? Presumably there have been some. Have there been enough of these local consultation processes? And, then, you say no because of the risk, but you have not really supplied us with any quantitative estimate of these risks. There have been words like “huge” and “enormous”, but in order to be rational about this you have to have some idea of what risks you are actually running and be able to rank them in some sort of order of concern.

Tina Rothery: We do not have the industry occurring in the country yet. We are basing our risk assessment and our ideas of risk on what we have seen actually happen elsewhere. The UK is an entirely different country and geology to America, Canada, Australia and South Africa. It is very hard to get those figures that you would like, and certainly for us in a three-quarter hour session to lay out entirely a case from a residents’ group.

Lord Skidelsky: From what you are saying, they all seem to be red circles. They are all risks that are unacceptable and likely, but one wants to know the magnitude and the likelihood.

Tina Rothery: One in nine wellheads fail in the first couple of years. Every wellhead fails over time. No cement block holding that pipe—

Lord Skidelsky: In the UK?

Tina Rothery: Anywhere in the world. We do not have that here. This is Schlumberger, the biggest driller in the industry. In their report, it is documented that all wellheads will fail over time. When they finish with a well, they will then cap it with cement, which does not last the lifetime of the planet. You then have a direct route to the methane, naturally occurring radioactive material, and all of the waste that we have left underground. What happens when they abandon that well? These are not facts and figures, but they are facts on the process of shale gas extraction that will bring us into risk situations.

Lord Skidelsky: Mr Petts, do you have anything to say on that? In particular, do you think consultation processes, as they have happened, have been adequate in discussing the matters just raised?

Lee Petts: Are the consultation processes adequate? It is very difficult for me to express a real view on that because it is not something that I have been involved with directly. I am aware that lots of consultations have taken place, particularly around the applications that we made on Cuadrilla's behalf for the environmental permits that they require. I know the consultations have taken place. Is it enough? I do not know, and I am not sure what more anybody could do to convince residents locally that are worried, as these two are, that those risks are and will be adequately controlled. Part of the problem is that when we talk about risk, people in industry that deal with risk every day, and score risk in the manner that you have just described, have a perception of risk generally that is much lower than the general public does of the same issues. When we think about the nuclear industry, most members of the public are frightened of nuclear power for whatever reason. It is because they do not understand the risks and the controls, so we have a perception in the public of risk that is often much higher than reality, and I do not know how you change that.

I have read around that topic fairly recently, and one of the problems that has been identified previously is that, where information gets into the public domain in a deliberate way by an operator, for instance Cuadrilla in this case, it is much better received than it is if information appears to enter the public domain but tells a different story and emerges from somewhere else, and I think that is what is happening here. A lot of people are seeing information emerge from the United States. They are not having that information provided to them necessarily in the United Kingdom, perhaps not by Government and the regulators either, which could probably do a little bit more in this regard to improve the flow of information. I think because of the way that information is obtained, it creates a bigger perception of risk than is actually the case.

Ian Roberts: On consultation, there are two things. Cuadrilla put a community newsletter out in July 2012, which was heavily criticised by the Advertising Standards Authority. Public information sessions are held in two obscure locations within the Fylde. There is one at Elswick Village Hall, and the Pipers Height Caravan Centre, which are nowhere near the major towns in the Fylde. The Pipers Height one is inaccessible on public transport. Very few people go there and they are just not connecting with the local community, in our view. We hold public meetings and we invite Cuadrilla and the industry to attend. We hold far more meetings than they do, and try to be open-handed. We show the information at our events. They are not engaging with the community, in our opinion.

John Kersey: The problem is the operators are seen as having vested interests, and it causes a little bit of mistrust with local residents.

Q193 Lord Hollick: We have heard from witnesses from the United States that the industry's risk management is now much improved. The technology is much improved and the risks have been substantially reduced. What changes, Ms Rothery, do you believe should

be made to the regulatory regime to reduce risk here in the UK? Perhaps, Mr Petts, you would also like to give us your view of that.

Tina Rothery: On the regulation, the Environmental Agency has just had its budget cut by 15%, and its workforce as well. They have made it clear that they would not be able to reach every well to inspect it, so essentially here is how the regulation is going to work on it. There would be a nominated person at each site. Generally, that person can be employed by the operator—i.e. Cuadrilla—and they would be the well inspector. That person will then tick the box and say that this went well, and they will send that back to the Environment Agency, who will then approve that he ticked the box. To us that is not regulation; that is self-regulation. As far as the regulatory regime goes, it is weak; it has no strength. It is essentially asking the industry to mark its own homework, so we are not happy with that at all. Regulation has not gone overly well in lots of sectors in this country, from banking to food.

Lord Hollick: If the regulations were being reviewed by members of the Environment Agency, would you be satisfied?

Tina Rothery: If they were reviewing the wells it would certainly go some way.

Lord Hollick: What are the shortcomings in the regulations that concern you?

Tina Rothery: There are no actual onshore regulations. These are based on offshore regulations. They have set up—I know it by its acronym, and it is not the right one, which is “OffUGO”; I cannot remember—the Office of Unconventional Gas and Oil. It is populated by people like Lee Petts and others who are in the industry itself. Again, that does not instil any confidence in us at all, and that is the regulatory people there, so what can they do? Start from scratch, because where they are now is nowhere. They are marking their own homework. The people involved in the new group are all involved in the industry, so where do we start? You would start from zero.

Lord Hollick: Mr Petts, would you like to respond to that?

Lee Petts: I am not involved in the Office of Unconventional Gas and Oil, which is a Government Department, but I am involved in the All-Party Parliamentary Group. That is drawn not just from industry members. I have seen the correspondence many times go out with a call for green NGOs like Friends of the Earth and Greenpeace to join that group and contribute to the debate through the APPG. Although it is heavily weighted towards industry at the moment, the opportunity is there for people to join that group and contribute to the debate.

In terms of the regulatory structure, one of the problems we have in the UK is that there is a lot of regulation out there that applies to these activities; it is just a bit clunky and disjointed, or it appears that way to people who are not familiar with it. Some of the feedback that I have had suggests that people feel it is unregulated because we do not have an overarching piece of legislation on the statute book called “The Shale Gas Regulations 2013” that they can go to and identify what all of the regulatory requirements are. The regulatory requirements are dotted around all over the place, so to someone who is not au fait with that, it can look disjointed and appears to have gaps.

I think it is wrong to say that there are no onshore regulations too. The Borehole Sites and Operations Regulations, BSOR, specifically says that it does not apply offshore, but it does apply onshore, and that sets the tone for well construction and for drilling any well in the UK.

Tina Rothery: But not high volume hydraulic fracture. There are no onshore high volume hydraulic fracturing regulations. No matter how many ways you say this, they do not exist.

Lee Petts: That is the point. I do not think we need something specific. It is covered through lots of our existing legislation. It is a mistake in the way the regulations were titled too. Another set of regulations that apply, and this is where the requirement for an

independent well examiner comes from, is the Offshore Installations and Wells (Design and Construction, etc) Regulations, and because there is a comma missing in that title, the assumption when people read it is that it is offshore installations and wells, so the whole thing is offshore. If you actually read the detail, it does explain that it applies to offshore installations and onshore installations designed to extract hydrocarbons, so we do have onshore regulations, without doubt.

Q194 Lord Hollick: I do not want to be heroically optimistic, but I detect a degree of agreement around an independent regulation. That is what you both say.

Tina Rothery: I think he mentioned an independent well examiner, who may be actually employed by the company operating the well.

Lord May of Oxford: My personal view is that it was not very clever of the Prime Minister at the Conservative Party Conference to toss off the one-liner, “Let us make Blackpool the centre of Europe for the shale gas industry”.

Ian Roberts: That did not go down well.

Lord May of Oxford: It does prompt the question: do you think the Government, as well as the regulators, should be doing more to address concerns over shale gas exploration and development? What specifically would you like to see them doing?

Lee Petts: It is really difficult. A lot of this needs to be led more by the regulators. Ms Rothery has commented about the perceived weakness of our regulators. I think our regulators do a tremendous job in this country, often in difficult circumstances.

The Chairman: Can I just interrupt and say we are taking evidence from a lot of people on this subject, including international regulators as well?

Lee Petts: Sure, okay. I think our UK regulators do a very good job in often difficult circumstances. They need to be seen to be much stronger in their responses to some of these concerns because a strong regulator that comes out strongly in terms of defence and

says, “No, we understand this, we understand the risks and we will set those out clearly for communities,” would be perceived to be strong regulators that would also wield the regulatory power effectively with the industry. We need to see the regulators doing more.

I am not sure the Government can do much more than it already has, in fairness. The tone has increasingly become very supportive in the last 12 months. Again, a bit like operators and us in the supply chain, we seem to have a vested interest, and I think the Government are perceived to some extent to also have a vested interest, so it is hard to see what more Government could do. The regulators need to do a much better job of coming out and taking a stronger line.

Ian Roberts: Can I just comment on the regulation? I watched a speech made by the Chief Exec of Dart Energy recently. He was rejoicing in the fact that the Government are so supportive that they are going to reduce the time needed to get permission for their activities down from nine months to two weeks. He was talking about the Office of Unconventional Gas and Oil as if it were there to open doors for them, to smooth the way and to promote the industry, which was not what I thought “OffUGO” was going to be about.

I would like the Government to be more honest about the risks. There was a recent report from Public Health England that suggested the potential health risk from exposure to chemical and radio pollutants as a result of shale gas extraction were low. However, this was thin on evidence and research and data so it was impossible to understand how they had reached those conclusions. They referred to the Elswick well, which is often drawn on as, “Here is one we made earlier; this is fine; it is benign.” This is 20 years old. It is not a current example of a fracking well, and yet it was quoted in this Public Health England report as being indicative of how the industry is going to go and the potential health impacts. We need to get down to facts.

The Chairman: Which is exactly what this Committee is endeavouring to do.

Q195 Lord Lipsey: If I could address Mr Kersey particularly on this one, you explained how Lancashire lags behind the rest of the country in terms of GDP. Can you say what you think the impact on jobs and growth in Lancashire of the fracking programme might be?

John Kersey: I think it is self-evident really. I know Tina said that she is not sure that there would be many jobs created. The IOD report put forward that at its height there could be up to 74,000 jobs created. Those figures were taken from examples that have happened in America. Not all the jobs are direct jobs. Some of the jobs could be indirect and then induced-type jobs in the communities around.

Tina Rothery: I think that indirect and induced means more waitresses, a couple more bartenders and more hotel chambermaids. Basically, the claims are misleading. The industry claimed 74,000 jobs would be created and yet the *Financial Times* last month reported that they were forecasting just 15,900 to 24,300 nationwide, both direct and indirect jobs, and the jobs would be typically short-term, between four and nine years. We can all quote the figures because there are lots of them being bandied about, but finding the accurate ones is like the needle in the haystack.

The Chairman: Well, we have certainly been taking evidence from America on this as well, and what has actually happened there in practice, so it is another area that we are very interested in, and trying to get at the facts. Are there any other comments that you would wish to make?

Lee Petts: My only other comment would be that I hear very often that there is a risk that shale gas will divert investment and attention from renewables. I am not sure I believe that, because when we talk about renewable energy, what we really mean is renewable electricity. Yet, actually, a substantial amount of the gas that we use in this country is used in home heating, industry heating and as a feed stop for industry, and not so much by comparison in

electricity creation. That being the case, and for a long time yet we are going to need a lot of gas in home heating, it does not strike me that intuitively it will mean a reduction in investment in renewable electricity generation, nor should it either. I support the development of shale gas because of the climate benefits I think it can deliver, because of the economic benefits I believe it can deliver locally, but I also strongly suggest that we need to build a more diverse electricity-generating mix, and for me that needs to be new nuclear and more renewables with natural gas helping to displace coal, which is naturally the dirtiest fuel that we have available for electricity generation at the moment.

Ian Roberts: I would say, having spoken to the renewable energy suppliers in Lancashire last week, they are concerned that this is going to take investment away from them. It is a vibrant emerging industry, and I think that is where the investment should be. That is the future.

Tina Rothery: If we are in closing statements, we also wanted to point out that our group have spent two years writing to politicians, lobbying our MPs and councillors, not doing the bad stuff; not doing the standing on the roadside or blocking trucks. For all we have done and all the petitions we have done, if it was not for the earthquakes this would have been proceeding by now. Then we looked to places like Balcombe, where a lot of us spent the summer, and the community protection camp at Barton Moss. We are concerned that because they did not address groups like ours over the last two years honestly, and that we caught them out with the ASA and various other things where they were being dishonest with us, that is what the industry has brought upon itself: that communities will then seek to protect themselves. We started off as a few groups, but now there are tens of them.

The Chairman: You have made that point three times and I do understand it. I can assure you that this Committee is looking in great depth. We have a very wide range of expert witnesses at all the issues that you have raised today. What we wanted to give you was the

opportunity to express your view from the local point of view, which we understand, and there are a number of points that you have made today that we will be following up later with other witnesses. In that context, you may even like to stay for the second half of this hearing when we are receiving other witnesses, but meanwhile thank you very much indeed for coming. Thank you.