



Environment, Food and Rural Affairs Committee

Oral evidence: [Defra's responsibility for fracking](#), HC 589

Wednesday 10 September 2014

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Members present: Miss Anne McIntosh (Chair); Richard Drax; Jim Fitzpatrick; Mrs Mary Glendon; Mrs Emma Lewell-Buck; Neil Parish; Ms Margaret Ritchie; Roger Williams

Questions [1–73]

Witnesses: **Rt Hon Elizabeth Truss MP**, Secretary of State for Environment, Food and Rural Affairs, **Dr Paul Leinster**, Chief Executive, Environment Agency, and **Mark Ellis-Jones**, Environment and Business Manager, Environment Agency, gave evidence.

Q1 Chair: Good afternoon and welcome, particularly to the Secretary of State. May I congratulate you formally on behalf of the whole Committee? Thank you very much indeed for being with us this afternoon and honouring the slot that we had to discuss fracking. Secretary of State, could I just ask you for the record to introduce your team today, if you would?

Elizabeth Truss: Certainly. It is very good to have this early opportunity to appear in front of the Committee. I look forward to working with you all and appearing in front of the Committee, no doubt, again. Let me introduce Paul Leinster, who is the Chief Executive of the Environment Agency, which is the responsible body for environmental permitting on fracking; and Mark Ellis-Jones, who is the Onshore Oil and Gas Programme Lead at the Environment Agency.

Q2 Chair: Thank you very much indeed. I should just declare a local constituency interest. Secretary of State, I have shared many of the items of correspondence from my own constituency.

Elizabeth Truss: Yes.

Chair: So I do have a constituency angle, and I am sure I will hear separately from you on that. How is the Department and how are you personally responding to the concerns of the public in relation to their very real anxiety about the fracking procedures?

Elizabeth Truss: First of all, I just want to say I do think fracking and shale gas presents an opportunity for England. It has got the potential to bolster our energy security, to create jobs and to cut greenhouse gas emissions. I am very clear that we will not compromise environmental standards in the way that this is carried out. It might be worth just explaining how we work across Government to make sure that we both have—

Chair: There may be other questions pertaining to the relationship with other Departments, rather than pre-empt them. There will be opportunities.

Elizabeth Truss: Fair enough. My role specifically, together with the Environment Agency, is to make sure that fracking is safe and has a low environmental impact. We can do that, provided that fracking is done in a responsible way.

Q3 Chair: Given the fact there is a potential and a very real energy crisis, we cannot run away from the fact that we have to look at alternative sources of energy, but why has the Government chosen to go down the path of a fossil fuel that causes potentially so much environmental damage as fracking for shale gas?

Elizabeth Truss: First of all, we need a broad range of energy—a mix of energy. Fracking is one part of that energy supply, but we need to have other options as well—whether that is nuclear, renewables or further options. The Department of Energy and Climate Change leads on the development of those policies. What I would say about fracking is where it is undertaken in a responsible manner, it is safe; it does have a low impact on the environment; and in terms of its greenhouse gas output, it is lower than other fossil fuels. It can be a good part of the energy mix as well as helping to deliver jobs and lower-cost energy here in the UK. The Royal Society and the Royal Academy of Engineering have written a report about this, which does explain that, provided the techniques used are proper, provided the companies carrying out the work are properly regulated and permitted, then it can be done in a safe and responsible manner.

Q4 Chair: Secretary of State, why do you think France has banned fracking?

Elizabeth Truss: I would not like to give an insight into the French Government policy and I have not met my French counterpart on the environment side. I have met the French agriculture Minister, but I have not yet met my French counterpart on the environment side. We already have an onshore oil and gas industry in the UK, which is well regulated; the permits are supplied by the Environment Agency. It has been working for a number of years; it produces large amounts of oil and gas onshore, in conjunction with the local community, so it co-exists with the local community. There is additional technology required in fracking. We have seen that technology effectively used overseas. Where it is properly regulated—I will give the example of British Columbia—it has been done in a safe and responsible manner. Provided we have got the right checks and balances in place, through the Environment Agency as well as through the Health and Safety Executive, through the planning process and through DECC's own permitting process—there are a wide range of Government Departments making sure that this is done properly—we can be confident that it is safe and it does have a low impact on the environment.

Q5 Chair: What assessment did the Government carry out of alternative sources of energy to bring us to the conclusion that fracking was the source we wanted to use, given the fact that possibly only 10% of the amount of shale gas available could be exploited?

Elizabeth Truss: It is not the case that the Government is going to limit the number of sources of energy. If there is an energy source out there that is safe to produce and has a

low environmental impact, then it is something we look at, and the Department of Energy and Climate Change does support a wide range of energy sources. Where we do face issues with our future energy security, I would suggest that it is better to have a wide range of potential sources, provided they can be dealt with in a safe and responsible manner, and my job at Defra is to make sure the environmental protections are in place so we do not have a negative impact on air quality or on water quality or on surface-level waste.

Q6 Chair: Just a technical question. I am told currently there is shallow fracking taking place in Ryedale that does not cause any environmental concerns. The risk assessment that the Department has chosen largely assumes that fracking takes place for shale gas at significant depths. Are you aware of operators applying for permits to explore the use of fracking to extract shallow reserves either of shale gas or of coal-bed methane?

Elizabeth Truss: I am not aware of that in the context of fracking. I would need to ask the Environment Agency.

Dr Leinster: For shale gas, the technique that is used is high-pressure fracking, and high-pressure fracking would be done at depth. There are other techniques that are sometimes used, but they are not high-pressure fracking, and that is the technique of concern that people express.

Q7 Chair: So there would be no greater risk of aquifer contamination from the shallow fracking because the techniques are different.

Dr Leinster: As part of all assessments and all technical activities for which we issue permits—and for that activity we would have to issue a permit—we do not allow any drilling to happen that potentially could cause pollution of an aquifer. We do not allow drilling to happen in Source Protection Zone 1, which is the area that is around drinking-water aquifers. We are very careful to make sure that operators cannot drill in areas that potentially could impact on drinking-water sources.

Q8 Chair: Are you expecting that, for example, with Third Energy/Viking, which is currently fracking at shallow level in places like Ryedale, it will be another company, such as Cuadrilla, that will do the deep depth—

Elizabeth Truss: My understanding—and I would like to bring Paul in on this—is that they do not have plans for fracking. What is proposed at that site is conventional gas extraction. That would be under the existing rules of oil and gas extraction rather than fracking.

Chair: That is the Ebberston site.

Elizabeth Truss: Yes, exactly. The Third Energy company that you are describing.

Dr Leinster: Yes. To confirm, they have not applied to us for high-pressure fracking.

Q9 Neil Parish: Again, Secretary of State, you are very much welcome to the Committee—and so early on; thank you very much. Your predecessor I think we would all describe as a very forthright gentleman. He said that people opposing fracking on environmental grounds are “scaremongering”. Do you agree with that statement or not?

Elizabeth Truss: Clearly there are environmental risks. What we know is that if we have a proper process of checking out the operators, of making sure that they have the technical expertise—which is what the Environment Agency does—and of monitoring their operations when they are in place and making sure they are properly permitted, the risk is extremely low. That is what the Royal Society have said; it is what the Royal Academy of Engineering have said. My focus is making sure it is done in an environmentally safe way so the public can have confidence that this is a safe process, like the onshore gas and oil operations we have at the moment, which co-exist with their local communities. I want people to have the same confidence if there is fracking taking place in their area. It is all about making sure that people understand the process that we have put in place and making sure that process addresses any potential concerns, whether those are about water, whether they are about air pollution, or whether they are about the waste emanating from the site.

Q10 Neil Parish: Your position, then, would be that you want to reassure those who are worried about the environmental conditions for fracking; you would not necessarily say they were scaremongering. Is that a fair judgment on what you have said?

Elizabeth Truss: I appreciate that when there is a technology that might have been tried overseas but has not yet been tried in Britain, people may have concerns about it. What I want to do is address those concerns and make sure that they have confidence in our process. It is a very well thought out process. I have spent time discussing it with the Environment Agency and also with my colleagues at the Department of Energy and Climate Change. We have got a strong programme across Government. We are also doing things to improve the process to make it clearer and more open, creating a one-stop shop for applicants. We already have onshore gas and oil operating in this country. The visual amenity of these sites is going to be no more affected than for that onshore gas and oil operation. The technology is a proven technology that has been shown to work overseas and, provided it is carried out in a safe and responsible manner, we know that it has a very low environmental impact. That is the message that I want to get across to people: that they can have confidence in it.

Q11 Neil Parish: That leads me quite neatly into the questions. I agree with you we need gas from wherever we can get the sources, but one of the concerns that people may have—and I am sure you can reassure us on this—is that both yourself and Sir Philip Dilley have been working within the oil and gas industry. Therefore, naturally, what we are seeking is that, as Secretary of State, you take an impartial view on it. We seek those reassurances, really.

Elizabeth Truss: Yes, absolutely; I completely take an impartial view. My experience in the gas industry was in shipping of liquid natural gas, which is an industry that has a very good safety record, and I understand the processes that companies go through to make sure they are properly monitoring their activity and making sure that activity is safe. The

Environment Agency has a wealth of experience in environmental monitoring and enforcement, and what I want to make sure of as Secretary of State is that the Environment Agency has the proper resources it needs to monitor effectively what those operators are doing. In my view, if we are to have a sustainable industry, the public need to have confidence that the environmental impacts are being properly monitored and that the companies that are carrying out the fracking have the proper technical expertise they need to have. I do not know if it is a future question, but it might be worth just outlining the precise process those companies will have to go through and the environmental monitoring processes that we have put in place.

Chair: I think we will have the opportunity to explore that.

Elizabeth Truss: Forgive me.

Q12 Neil Parish: Could I just press Dr Leinster—perhaps it is a bit difficult for you—on your chairman? Sir Philip Dilley also has had experience within the oil and gas industries. I do not know who would like to reply on his behalf.

Elizabeth Truss: I will take that. Philip Dilley has strong engineering experience. It is good to have somebody with that expertise chairing the Environment Agency who understands the challenges, who understands the risks and who understands the safety procedures so that we can make sure the Environment Agency is maintaining environmental standards in an efficient and safe way. I do not know, Paul, if you want to comment further.

Dr Leinster: Just to say that we have the checks and balances in place. The permitting process, which no doubt we might come to—

Chair: We are coming on to it in some detail.

Dr Leinster: That just ensures that we are doing this in a way that protects the environment, as the Secretary of State says.

Q13 Jim Fitzpatrick: Secretary of State, welcome. It is nice to see you here this afternoon. Thanks for being here. I know that I and other colleagues have got specific questions to ask you about aspects of our particular regulations and the regulatory regime, but you have mentioned the experience from overseas several times in your answers to Mr Parish. Lots of the negativity about fracking comes from the way it was done in the US. Is that what you are talking about when you say “overseas”, and maybe mistakes were made elsewhere and we are not going to replicate them, or are there other countries? What connection have you had with those countries to make sure that we get it right here?

Elizabeth Truss: You are absolutely right, in that there are cases from overseas that may not have had the same level of regulation and oversight that we are putting in place here, and the Environment Agency has been looking at the overseas examples. I personally have not yet had any contact with my counterparts in the US or Canada, but I am interested to do that. I understand, for example, that British Columbia has been able to implement a lot of the environmental regulations in an effective way, and that is a case study I am interested in looking at further. It is not something I have directly engaged

with, but I understand the Department has had a lot of experience. Clearly, there are lessons we can learn. What we want to do is make sure the public have full confidence that we are implementing this in a safe way that has minimal impact on the environment. Paul, I do not know if you want to go into a bit more detail about that.

Dr Leinster: We have close working relationships across the European Union. We are a member, along with our Defra colleagues, of the group looking at the technical standards and learning lessons from elsewhere. We have also had joint sharing of experience both in the States and in Canada and also in Australia. We are seeking to learn lessons from across the world and, as you say rightly, to understand what has gone wrong and what has gone well and then to learn from both of those as we implement in this country.

Q14 Jim Fitzpatrick: That is very reassuring. Dr Leinster, it is nice to see you again. The Chair mentioned the situation in France. What is the pattern across the EU? Do many states have reserves that they are examining and identifying, or are we in a minority? Are some doing as we are doing—looking at it and seeing what can be done—or are others doing what the French have done and saying, “No, we do not want to go down that road”?

Dr Leinster: It is mixed. The Poles are certainly looking at this actively. There is a complete mix across the EU and we are working closely with all of those partners to understand both what the resistance is, to learn from that, and also what the technical knowledge is, to learn from that.

Q15 Mrs Glindon: Welcome, Secretary of State, and congratulations on your appointment. You have already mentioned yourself that DECC has responsibility in this area and there are a number of other Departments that are involved in regulating fracking. Who is taking the overview in order to protect the environment in relation to this?

Elizabeth Truss: DECC has the overall policy lead on this area—on shale gas. They are also responsible for the impact on climate change and seismicity. Those are the two key environmental aspects they are responsible for, whereas Defra is responsible for environmental aspects of shale gas policy excluding those areas. The reason it has been set up like that is that that is where the expertise within the Government lies. What we have in the Environment Agency is a body that has already got experience of issuing environmental permits and monitoring the environmental impact of, first of all, the onshore oil and gas industry, which is probably the closest example, but all kinds of other industries that potentially have an impact on water quality and air quality. The overall lead on the policy is DECC, but we have a responsibility for the environment except specifically for climate change and seismicity, if that makes sense.

Q16 Mrs Glindon: Could you tell us what discussions you have maybe already had or you will be having in the next few months with the Secretaries of State for Energy and Climate Change and Communities and Local Government on fracking?

Elizabeth Truss: I have already been in touch with the Minister responsible at DECC for this policy issue, specifically to make sure we are well co-ordinated in terms of

understanding the impacts of fracking. We have been discussing that. I will be seeing my opposite number at DCLG on the issue as well.

Q17 Mrs Glendon: We are entering into an era of potentially significant onshore exploitation of unconventional hydrocarbons. Where in Defra's list of priorities do you place ensuring environmental protection from fracking operations?

Elizabeth Truss: One of my key priorities as Secretary of State is improving the environment, and this is a key element of it—so, making sure we have the right processes, looking at the environment for, in this case, oil and gas extraction. It is one of my main priorities.

Q18 Mrs Glendon: Do you think there is a need for more Defra resources to provide other Departments with policy and technical input on environmental protection?

Elizabeth Truss: All Departments have a finite budget for research and for policymaking, and what I want to make sure is that that is prioritised in understanding the environmental impacts. I see myself and the role of the Environment Agency as there to make sure that Government policy does not have an adverse impact on the environment and that also we are promoting positive aspects of the environment, whether that is biodiversity or, more broadly, improving things like water quality and air quality. It is an important priority and we do make sure that our core resources are focused on that.

Q19 Chair: Were there any other comments you wanted to raise about relations with other Departments? I rather cut you off at the beginning.

Elizabeth Truss: I have outlined the role of DECC, which is the overall policy lead on this area. DCLG clearly lead on planning policy, and it is an important aspect when a particular operator wants to start developing a site that they need to go through the local planning process, the process with the Health and Safety Executive and the process with us and with DECC. It is important to realise there are a number of parallel processes that operators are going through to make sure that every aspect of their operation is safe, is feasible and is viable. Those are the overall responsibilities across Government.

Q20 Jim Fitzpatrick: Just to perhaps drill into this a little bit further, different Departments have different responsibilities. Do you see a conflict between the different Departments because there will be different priorities politically for the different Departments? Is there a Cabinet sub-committee on fracking or on energy resources generally? Which Department leads on that?

Elizabeth Truss: I certainly have not been to a meeting of a Cabinet sub-committee on that subject. It is something that our officials work extremely closely on. As I have said, there is different expertise in different Government Departments, so it would be wrong to try to lump them all together. We already have cross-departmental working for our onshore oil and gas industry. This is an analogous situation and that is why it can work here as well. Sorry, what was the start of your question?

Jim Fitzpatrick: The start was: different Government Departments have different priorities. Saying there is a conflict does not necessarily have to be negative; it could be that is how you get to a good place.

Elizabeth Truss: One of my priorities is making sure we improve the environment and also protect it from potential adverse impacts, and that is what I see my priority as being in this area, rather than anything else. However, for a successful shale gas industry, any company that operates in this area has to have an exemplary environmental and safety record for that industry to have public confidence and to be successful in the long term. It is in everybody's interests that not only is this done in an environmentally sustainable fashion but also that people know that that is happening and there is full transparency so that the public understand that.

Q21 Chair: You alluded to the role of planning officers locally. Do you know if they will be given any training? Outside of Aberdeen, I cannot imagine there will be too many that will be used to this type of planning application.

Elizabeth Truss: Planning officers locally already go through that process for onshore gas and onshore oil. The planning officers are not looking at the deep operation of the well; they will be looking at things like transport, traffic movements and visual amenity, which is within the expertise of planning officers. It is going to be the Environment Agency and the DECC specialists in seismicity who are looking at the very technical aspects of fracking. It will be the right people who have the right expertise in the right areas looking at the relevant aspects of the policy.

Q22 Chair: Helpfully I think it is the Prime Minister who has said that fracking will only be permitted in areas of outstanding natural beauty and national parks in exceptional circumstances. It would be very helpful to know how exceptional circumstances are going to be defined. Presumably Defra will have an input into that definition.

Elizabeth Truss: I would expect so, yes.

Chair: That is helpful to know.

Q23 Roger Williams: Good afternoon, Secretary of State. We have already heard that there is public mistrust out there in terms of how fracking is going to affect them. To that extent, the genie is out of the bottle already and it is going to be quite difficult to put it back in again. How can you reassure people that there will not be contamination of their water supplies by methane or by fracking fluids?

Elizabeth Truss: This hearing session today is very helpful in terms of enabling the Environment Agency to inform people about the process and how the process is going to work, and the lessons we have learnt both from regulating onshore oil and gas and from the discussions we are having with our international counterparts. I would also point to the report written by the Royal Society and the Royal Academy of Engineering, which are both respected, trusted bodies that the public would listen to and understand, which, again, shows that, if operated in a responsible manner, fracking has a low environmental impact

and also is safe. I would point to that. The other point I would make is, as with the onshore oil and gas, there are already operations working, like at Wytch Farm in Sandbanks, which is in an area of outstanding natural beauty. That operates and co-exists with local residents. The Environment Agency tell me there are very few complaints from local residents about the operations—maybe local MPs might have something to say about that. We need to demystify it and say, “In terms of the surface operation, a shale gas operation looks very similar to an onshore oil and gas operation”. The difference is what goes on underground. We have proper checks in place to make sure that there is not leakage and that there is proper monitoring. DECC are putting in place seismic monitoring to make sure that they have regular updates on what is happening on that front. It is by showing that the different elements of this technology are proven and that scientists and engineers from the Royal Society and the Royal Academy of Engineering have said that it can work if it is done in a responsible way. It might be interesting to hear about your engagement with the public.

Dr Leinster: Yes. As part of the process, before somebody can drill, there will be a planning application that will go through the local authority. As the Secretary of State said, that is really talking about where an activity is happening, and then how it happens below ground is where our expertise lies. We need a rigorous permit application, which will consider all of the environmental risks associated with that activity. That will include the use of water; it will include groundwater aspects; it includes, potentially, radioactive substance issues; it includes what happens to gas when it comes back up above ground, spills and any waste water. They have to make an application that then says, “This is how we are going to control those impacts” and we carry out an assessment of that. When we receive the application, we go out to public consultation on that application and we receive comments back from the public about those applications. There are just now only two permits that are considering high-pressure fracking as an activity, both up in Lancashire. We then consider the comments that we have received back from the public. We are now in the permit determination phase of that, looking at what the company has said, and we might ask for clarification on what the company has said if we do not believe they have provided us with sufficient information.

What the company says; what the public says—then we do an assessment to make sure that we can write a permit in such a way that all of those environmental risks are properly managed. Then, when we write what we call a “minded to” position on that permit for these fracking activities, we will go back out to public consultation and say, “These are what the risks are. This is how we believe through a permit they can be controlled. Public, what do you think about this position?” The other thing that we do is a check on the financial and technical competence and capability of the organisation, to make sure that they are what we consider to be a fit and proper entity to carry out that work. Then, in the future, when the permit would be finally issued, if we issue a permit—because we have to make the decision whether or not to issue a permit—we would go back and do inspections; we require monitoring; and we will do audits to make sure that the company is following the conditions as laid down within the environmental permit.

Q24 Roger Williams: The point I was trying to make is that the learned societies will issue their papers, but unless the public understand that things can be put in place to

mitigate risks, they are going to really gum up any planning process or permit-issuing process by raising these issues time and time and time again. Unless you get that information there, the whole process will become very time-consuming and creaky.

Elizabeth Truss: This is why it is important to get this information out about how the process is going to work and the fact there is a public consultation where people will be able to express their views. Clearly, they will be able to express their views in the planning process on issues like traffic movements and visual amenity and then, through the Environment Agency process, they will be able to express their views. This is about getting a wider understanding of how fracking works, what it is, the fact that in terms of some of the aspects of the operation it is very similar to what already goes on in onshore oil and gas, which people are comfortable with, and getting that information out more broadly. It is one of my strong interests that we need to explain science better. It is one of the things that I am keen to work on at Defra: that people understand the evidence and the science behind the policies that we develop. We are an evidence-led Department. The Environment Agency also has a strong body of expertise and we need to do a good job in communicating that to the public when these processes are undertaken. It is not always easy—there can be misinformation out there—but it is our job to get that message across and to reassure the public that all of the various aspects, like the impact on the water table and the impact on air quality, have been thought about and dealt with.

Mark Ellis-Jones: I was just going to add another point to the Secretary of State's answer, which is that certainly for the environmental permit consultations we will also do local drop-in sessions in the local area. For example, in Lancashire, where we have been consulting on the two permit applications for Cuadrilla, we ran a number of drop-in sessions, which are usually very well attended by members of the local public. We have local officers who attend that and who explain their concerns, the risks and how the regulation works. That face-to-face contact is really very effective, and it is something that the Environment Agency is able to do.

Q25 Roger Williams: We have got a number of regulatory bodies involved in this process: the Health and Safety Executive, the Environment Agency and planning authorities. Who ensures that they are all co-ordinated in the work that they do, to ensure that we have clean water and safety during these processes?

Dr Leinster: We have a lot of experience across all of our regulatory regimes in working both with our planning colleagues at local authority level—we do it for a number of our regimes—and with the Health and Safety Executive. We are co-regulators of many sites with the Health and Safety Executive and we have liaison at both a local level and also a national level on issues like this.

Q26 Roger Williams: Could I ask you, Dr Leinster: will the Environment Agency be out of pocket if it does the necessary work to have to issue a permit but then finds there is no need for that permit and, having done the work, there is presumably no income to it?

Dr Leinster: In terms of permit applications and us determining the permit application, if a company applies to us for a permit, that permit will only be assessed once we have received the application fee. This is payment in advance for the application process. If we were to go all the way through the process and we were then to find that, for whatever

reason, it was not possible, or the operator decided to have the permit but then not to use it, we have been paid for that determination process. When it comes to us having issued a permit and then they start working and start developing and exploring the site, we are paid what is called a subsistence fee; we are paid an annual fee to regulate and carry out the regulation of that work. There is then some up-front money that we have from Government Departments, mainly from our sponsors within Defra, which is paying for establishing the overall approach and the technical underpinning and expertise that we need. As we have said, so far we have only had two permits coming forward that have asked for high-pressure fracking to be carried out.

Q27 Roger Williams: During the course of the Water Bill, I put an amendment forward that people doing fracking operations should put a financial bond in place so that if there were any problems—clean-up problems and things like that—if the company then went bankrupt public money would not be used to clean up what was a private-sector problem. That amendment unfortunately did not go through. Are you saying now that in the work that you do with these companies you can find out whether they are financially strong enough to deal with those situations?

Elizabeth Truss: Yes.

Dr Leinster: Yes, we can, and also, if they require a permit under the Mining Waste Directive, they have to provide a financial bond. That could either be through insurance escrow or some other financial instrument. We can require them to provide that.

Q28 Roger Williams: All this work you do and the fees are on a cost-recovery basis, so any cuts to your budget will not affect this operation.

Dr Leinster: Yes, that is true.

Q29 Chair: Dr Leinster, you mentioned the two applications for licences in Lancashire. The previous activities in Lancashire were suspended, for reasons we are all familiar with. What reassurance will the public have that there will not be further seismic activities there? Either the Secretary of State or Dr Leinster.

Elizabeth Truss: We now have new processes in place since the activity you mention in Lancashire. This process that we are describing is new since then. As I have said, seismicity is the responsibility of DECC, and they have put in place a monitoring system so that operators monitor the level of seismic activity. It has not been the case that fracking has caused an earthquake, but, on a safety-first principle, they have put in place a monitoring process. I do not know, Paul, if you have got anything else.

Dr Leinster: DECC will require the operators to put in what is called an array, which is a number of monitoring devices at different levels throughout the geology, which will enable real-time monitoring to go on of any seismic activity. There will be very low-level seismic activity across large parts of the country that is just happening. That real-time monitoring happens. The companies are the people who put the arrays in place for their

particular wells. There is then a traffic-light system whereby they have to report back to DECC if they see certain levels of seismic activity, and then DECC will intervene.

Q30 Chair: Let us hope it works. Just following on from Mr Williams' question, Secretary of State, when we had the flooding incident in the Somerset levels it was against a backdrop of changes, shall we say, to the Environment Agency budget and staff numbers. From what we have heard this afternoon, undoubtedly the Environment Agency has the expertise, but there will be concern about the resources and about the numbers of staff that are dedicated to this process. Can you give the Committee a reassurance that the budget and resources will remain in place for as long as the activities go on, taking up Mr Williams' point that it is not just when the application is first made, but should the company default at some later stage?

Elizabeth Truss: As Dr Leinster has outlined, there is a lot of cost-recovery of these fees, but I appreciate the absolute importance of making sure there are the relevant staff available at the Environment Agency, not just to issue permits and be checking up on the operators but also to develop future policy and make sure that the regulations stay in touch with what is going on on the ground. That is very important. I have discussed with the Environment Agency making sure that there are the sufficient number of people available in the agency. The agency has done quite a lot of restructuring to make sure we are focusing on front-line support. We have protected the flooding front line, with reference to your comment on the Somerset levels, and we are increasing the investment in flood defences this Parliament. We have had a discussion about the precise number of staff. Dr Leinster feels that that is sufficient for the number of applications we are likely to receive, but, as I have said, it is my priority to make sure that this is conducted in an environmentally responsible fashion and it would not be good for the industry if the permitting process is not properly resourced and, likewise, there is not sufficient monitoring. It is in everybody's interests that we make sure that the relevant resource is in place. We have discussed that. The resource is sufficient at present. Clearly, if something changes, then we will review that again.

Chair: That is very helpful. Thank you.

Q31 Ms Ritchie: You are very welcome, Secretary of State. I wish to move on to well integrity. Experts consider that well integrity is essential to prevent water pollution. How is well integrity monitored on an ongoing basis?

Elizabeth Truss: My understanding is it is the Health and Safety Executive that is responsible for monitoring the integrity of the well. You are absolutely right that, provided that is maintained, that prevents a lot of the potential environmental risks occurring, so that is critical. I do not know if, Dr Leinster, you could outline exactly what the HSE do in that respect.

Dr Leinster: The first thing that has to happen is the proper design and then construction of the well. The operators will come forward with a proposal for that; the HSE will review it. It has specialists that it uses. They will then oversee the construction of the well and make sure that the appropriate tests are carried out to ensure the integrity on an ongoing basis. Part of the work that we will do in the Environment Agency is to have

some joint inspections with the Health and Safety Executive looking at those particular issues.

Q32 Ms Ritchie: And as part of cross-departmental work and given that the Health and Safety Executive is part of another Department, I understand—DWP—

Elizabeth Truss: DWP.

Ms Ritchie: Do they communicate directly with Defra and with the Environment Agency with their reports requiring action?

Elizabeth Truss: Absolutely. On the ground they are working closely together, and likewise with the DECC counterparts and with the local authority. I think Mark wants to comment.

Mark Ellis-Jones: I can elaborate a little bit more on that. We have a working-together agreement with the HSE to share information on well integrity. You are quite right that well integrity is critical for protecting groundwater in particular, as the well goes through the groundwater-bearing zone. A couple of years ago we did an assessment of the HSE regulations. The HSE regulations for boreholes were originally designed for health and safety reasons and we did a review of whether or not those standards meet the standards that we need for environmental protection. We were comfortable that—as Paul elaborated—both the design and the construction and then, importantly, the decommissioning regulations that the HSE work by are sufficient to maintain that integrity.

Q33 Ms Ritchie: Moving on to the disposal of that fracking liquid, how do you reassure the public and how can you reassure the Committee that fracking liquid discharges do not or will not threaten the quality of water supplies?

Elizabeth Truss: Again, this is down to the proper process in the permitting phase, to make sure that the operator has a clear plan to deal with that liquid.

Dr Leinster: There are two aspects. One of the areas of concern is whether or not the liquid coming back up the drill—so, the well—is going to be able to get out into the groundwater, and that is the well integrity aspect that is so important. Well integrity, as has been said, is vital. Then, when fluids come up to the top, within their permit they have to describe to us how they are going to deal with that material. There are specialist companies that they can go to. The water company in the area might be able to take it at a local sewage works or another specialist treatment works; there are other specialist treatment companies that are able to deal with that material. Those companies that then deal with that material will be licensed by us as well; they will have permit conditions and the activity involving this liquid—frack liquid—has to be dealt with in a way that does not breach their permit conditions as well. At all steps through the process, there are permitting and monitoring and auditing and inspection controls that make sure that the material is dealt with in the appropriate way.

Q34 Ms Ritchie: In terms of the fracking liquid, we are told that 90% is water, 9.5% is sand, then then 0.5% is made up of additives—chemicals.

Elizabeth Truss: Yes.

Ms Ritchie: Can you tell us, Secretary of State, what this chemical or combination of chemicals is and what environmental and safety testing has been done on its impact and on whether the water can be purified again after its use?

Elizabeth Truss: I can tell you what it is; I am going to require Dr Leinster to explain the testing regime. It is less than 1%; you are absolutely right that water and sand are the main components of the fracking fluid. It includes scale inhibitor, acid biocide and friction reducer surfactant.

Dr Leinster: As you say, the majority of fracking fluid is sand and water. If at all possible on a site, they will try to recycle as much of that material as possible and re-use it in the well. That is an important part. It is not just a single pass-through; if at all possible, they will clean it to the state as though it were a fresh fracking fluid and if it can be done then they will use it again within the process. That is what we will be challenging them to do in the first instance. There are a number of generic materials that can be used for these particular activities, as the Secretary of State outlined—surfactants and scale inhibitors—but a company has to declare to us the actual chemicals that they are going to use, and then we put that on the public record. So, the information about the chemicals will be publicly available and, when they come to us with those chemicals, we will do an assessment to make sure that they are appropriate for use in that particular circumstance.

Q35 Ms Ritchie: Thank you. If I could move on now to another area, what assessment has the Environment Agency, Dr Leinster, made of the health and environmental impacts on local communities of naturally occurring radioactive materials in flow-back fluids?

Dr Leinster: When you drill into certain wells—and this will be not just in fracking but also in other onshore oil and gas activities—you will, as you drill the rock, release naturally occurring radioactive substances. They are in the ground, they are naturally occurring, but they will be released into the fluid and then, as the fluid comes back, so there will be radioactive materials. Currently, there are a few companies in England that are able to take those materials, again through a permitted system, and to deal with them within their permit requirements. These will not be the only naturally occurring radioactive materials that those specialist operators will be facing. They have got the techniques and they are able to deal with that radioactive material in a way that is covered by their permit conditions. Again, the whole of the generating, transport and then treatment and final disposal is all covered by a permitting system that we will review and check. There is not a general release of those radioactive materials; the radioactive materials are within the fluid.

Q36 Ms Ritchie: And then on potential treatment approaches for fracking water, both you and the Secretary of State have already referred to the fact that the operator must dispose of the fluid safely. In that respect, what assessment has been made of the cost and

benefits, both financial and environmental, of treating fracking water—for example by desalination processes—to allow it to be recycled for general usage? I suppose I am going back to my original question about purification.

Dr Leinster: What we would be looking for is: how would you use that process water—because it is essentially a process water—back in the process to reduce the use of fresh water within the process? That is what you are trying to minimise: the use of fresh water. There will be various techniques that operators will come to us with on the recycling of the water, but primarily to deal with whether or not they can still use it within the process.

Q37 Ms Ritchie: So in many ways this is a controlling aspect on the use of water and the amount of water that can be used.

Dr Leinster: Yes.

Q38 Chair: Just a couple of points, if I may. The alternative to pumping the water back down the well is transporting it by lorry. Has anybody calculated the number of lorry movements and what impact this would have in a tourist area and a farming area—the environmental damage of those and the loss of the amenity to tourism and the damage to the countryside?

Elizabeth Truss: My understanding is that is something that would be determined during the planning process. The operator would be required to outline their operational plans, so the Environment Agency would look at the plans with respect to the fluids and the environmental impact on the local environment—for example on air quality—of activities. It would be the planning authority that would look at vehicle movements, in the same way it would look at vehicle movements for other waste-disposal activities or other onshore oil and gas activities.

Q39 Chair: What opportunities will there be for the local residents to object?

Elizabeth Truss: The local residents can object through the planning process if they feel that there are too many vehicle movements or the wrong sort of vehicle, in the way that they do at present, but they can also object if they are not happy with the environmental plans as set out through the Environment Agency's consultation process. Clearly, what we want to see is a minimisation of the environmental impact, whether that is directly in the well itself or whether it is the wider environmental impact caused by excessive amounts of vehicle movements.

Q40 Chair: What chances are there of the permit being amended in the light of objections?

Dr Leinster: As the Secretary of State says, the transport aspects would be considered during the planning application, and certainly there are environmental impact assessments that have been carried out as part of these planning applications. The environmental impact assessment is part of the planning process that the local planning authority is considering, and that information is available and the public are able to comment on that.

In terms of the opportunity for the public to comment on what we are doing, the opportunity there is that once the application is received, we consult on the application; we then, as I said, look and determine the application, taking into account comments from others; and then we write a draft permit and that draft permit then goes out for consultation. At that stage, the public will have the opportunity to comment on the environmental controls that have been proposed and we have said are okay. There is an opportunity for the public at that stage, and then we consider those comments when we are finalising the permit.

Q41 Chair: I do not want to contradict what was said earlier, but I understand that North Yorkshire County Council has recently granted permission for an injection well at Ebberston Moor that would allow the waste water to be pumped back down an existing well to get rid of it. I presume this is one of the first of its kind. What reassurance will there be that the water is not contaminated—just following on from Ms Ritchie’s comments there—before it is pumped back down and, also, that it will not contaminate groundwater that it might have to pass through when it is pumped back?

Dr Leinster: Again, it will all go through exactly the same process. If it is being injected, it would be being injected down a well and the integrity of that well will have been checked to make sure that you cannot get leakages from the well out into the groundwater. That is part of the HSE approach and our joint approach when we are looking at well integrity. For any material to be allowed to go down, we will need to make sure that we are content that the water is of a sufficient quality for us to allow it to be used in that way.

Elizabeth Truss: But this is not a fracking operation, in my understanding.

Dr Leinster: No, it is not.

Elizabeth Truss: So this would apply under the existing onshore oil and gas regulations. The purpose of that water is not the same as the purpose of the fracking water that we were just discussing; it would have, presumably, a different chemical make-up.

Mark Ellis-Jones: Yes. If I could just come in there, there is an important distinction to make between what is known as produced water and what we have been talking about, which is flow-back fluid. Produced water is naturally occurring water that you will find in a hydrocarbon-forming geology, and as you bring up oil or gas you get this stuff, if you like, called produced water. There is very specific mention of that in the groundwater directive regulations that allow for the re-injection of that produced water back to the strata that it came from or to a similar geological strata. Whereas we were talking previously about flow-back water and the fact that when that has been injected, you have fracked and that has come to the surface, you can re-use that, but then as soon as you stop re-using that it becomes a waste and needs to be tankered off site and disposed of—the produced water you can re-inject for disposal, and that is very common in onshore oil field practice.

Elizabeth Truss: I think we should just be clear that is not the water with the 1% component that we were talking about earlier.

Mark Ellis-Jones: No. That is just water.

Elizabeth Truss: It is water.

Dr Leinster: It is water that was in the ground, which is then going back to the ground from where it came.

Elizabeth Truss: It would not have had that treatment, because it is not a fracking operation.

Chair: You might say that, but I think the public just want reassurance.

Dr Leinster: Yes. No, absolutely.

Q42 Chair: On the Bowland shale—Kirby Misperton—there is a concern that they are going to deep-well frack without permission, but presumably that could be ruled out.

Elizabeth Truss: No, that would—

Dr Leinster: Yes. They cannot.

Q43 Chair: Just to put our minds at rest, could you say what the strength of the radioactive substances that Ms Ritchie referred to are? Do we know what the strengths are?

Elizabeth Truss: This is just naturally occurring radioactive substances.

Mark Ellis-Jones: It is very low. It is about one becquerel.

Q44 Richard Drax: Welcome, Secretary of State. Just quickly before I ask my question on water resources, I have one question on a subject we have been debating. How do we know—or not—that contamination has taken place? Let us assume the worst. It is underground—hundreds of metres underground. How do we know it has taken place and who is going to check, as the drilling goes on and then even moves on, that there has not been some contamination after it has gone?

Elizabeth Truss: This is entirely the Environment Agency's responsibility, to make sure it is properly monitored so that we understand if anything has happened. Clearly, the first part of the process is to make sure that there is well integrity so it is as difficult as possible for that to happen, but it is constantly monitored by the Environment Agency.

Q45 Chair: Just before Dr Leinster answers, the problem is you told us just earlier, Secretary of State, that it is taken on trust—I cannot remember whether it was yourself or Dr Leinster—and you are relying on the company in Lancashire to monitor. They are not going to want to cause a national outcry by finding that something is going on that should not be.

Elizabeth Truss: Chairman, there are two different issues. One is the seismicity. That is the DECC process, where they are monitoring the seismicity. What Mr Drax is talking about is checking that there is not leakage from the well, which is something the Environment Agency is responsible for and monitors.

Q46 Richard Drax: So, Dr Leinster, you will be checking what is under there by bringing it up and physically looking at it and putting it through tests.

Dr Leinster: Yes. As part of the permit, we will require a monitoring and analysis programme that will set out for a variety of parameters what the company needs to check on both if there was a potential issue with surface water—

Richard Drax: I understand that. Forgive me interrupting. Will you check or will the companies check? That is my question.

Dr Leinster: Both.

Q47 Richard Drax: And will you do it regularly—both while they are doing it and when they have gone?

Dr Leinster: Yes, we will.

Q48 Richard Drax: Thank you. On to water resources, if I may. The figure was used of 7 million to 15 million litres on a fracking operation, which is an awful lot of water. Who is responsible for assessing the impact on water resources?

Elizabeth Truss: The Environment Agency is responsible for that. Just to put it in context, let us say there are 400 wells across the country; our prediction is that the abstraction of water required for those wells would be 0.1% of the total water available. It is a relatively limited amount of water, and water is only needed at certain points in the process for fracking. It is the responsibility of the Environment Agency to manage the various demands on water and only to issue abstraction licences where that is right and where there is available water. I know there is a strong interest in this Committee about abstraction licences and water resources. Clearly, we are going through an abstraction reform process, but from now it is the Environment Agency's responsibility to make sure that that is properly managed. I do not know, Dr Leinster, if you want to explain a bit more about that.

Dr Leinster: Any person who wants to extract more than 20 cubic metres of water per day from either a groundwater or a surface water source has to apply to us for a licence, and we will then determine the licence. For these activities, though, we expect that most of the water will be supplied by the local water company, or the water utility to the company. What we know is that the UK onshore oil and gas operators have now got a memorandum of understanding with Water UK, which represents the water companies, for fracking in particular. The oil and gas companies will go to their local water company and find out whether or not there is sufficient water for the water company to supply them. In most cases, as we understand it, that will be available.

Q49 Richard Drax: So, the small amount of water that you have described, Secretary of State, is so small it is not going to affect other uses like agriculture and even—

dare I say?—household water supplies. It is so small it is insignificant when it comes to other uses.

Elizabeth Truss: What I would say is it will vary across the country, and that will be the specific issue. What the Environment Agency will do is look at it on a local basis and see whether there is enough water available in each local area. They will not issue licences unless they are sure that that is the case. There are different levels of water requirements across the country.

Dr Leinster: If, as we suspect, these companies will primarily be going to the water companies, then it will be the water companies providing water from within their existing allocation to those companies.

Q50 Richard Drax: Dr Leinster, you have already mentioned the recycling of water and that it is desirable that most water is recycled. How realistic is it that most water will be recycled?

Dr Leinster: This is something that we are going to have to look at as the industry develops. We have got experience from other countries, and in other countries it is possible. As you say, that is what we are hoping is going to happen. We will assess that as we go through this process, but we have not yet seen high-pressure-water fracking activities in practice.

Q51 Richard Drax: I am just thinking of the consequences. So, it is all touchy-feely: “Here we go; let us just see how it works.” If it is not as good as you think it is, I am assuming, for example, we would have an awful lot more lorry movements to get water off site than you would if you could shove it down the hole.

Elizabeth Truss: That would be known in advance. There would be a plan in advance about the number of lorry movements and the plans for dealing with that, so it would not be a surprise. It would have to go through the proper planning process.

Dr Leinster: This will be part of the permit application. They will submit to us how they intend to deal with their fracking fluid.

Q52 Richard Drax: Right. You are saying they will definitely know after they have gone through all their various tests that they will be able to shove the water back down the hole if it is possible.

Dr Leinster: Yes.

Elizabeth Truss: Yes. And it will be a condition of their permit, so if they were found not to be doing it, then the Environment Agency would be able to take enforcement action against them.

Richard Drax: Forgive me, but I am not as knowledgeable as you are on this subject; nor, I suspect, are the public.

Mark Ellis-Jones: Most things have been said, but just to say it is more likely that we will see proposals from the industry on recycling water as we move away from exploration, or certainly the early stages of exploration, and move into either appraisal or early production, because it will become more cost-effective the more wells there are and the more fracking operations there are. There is potentially a third option from buying it from a utility; they could also potentially sink a groundwater borehole and abstract water from the groundwater direct. That would also minimise truck movements.

Q53 Chair: Does the Environment Agency have a view if an abstraction licence was refused in an area of water stress—if there was a fracking application? I thought it was possibly more one for the Environment Agency.

Dr Leinster: If somebody applies to us for an abstraction licence, we go through the process. If it is in a water-stressed area, we will consider it, but we might refuse it, yes.

Elizabeth Truss: Can I just comment also that there can be things like timing restrictions placed on abstraction. There are various things the Environment Agency can do to make sure that everybody can have access to the water they need.

Q54 Chair: Just worst-case scenario, Secretary of State: say there was water aplenty but then the licence is issued by the Environment Agency and within a period of months after the licence was issued there was a drought. What happens in those circumstances where the water company has bona fide made the water available but now there is not enough water to go around all those who wish to use it? It could be farmers; it could be jam manufacturers—whatever.

Dr Leinster: There is a well-documented process that we go through during drought conditions that then progressively puts restrictions on users.

Elizabeth Truss: I know I have had some farmers in my constituency who had their licences revoked.

Chair: Forgive me. Would this put restrictions on the fracking company as well?

Elizabeth Truss: Yes.

Dr Leinster: Yes.

Elizabeth Truss: It would be the same. It would be the same process as a farmer's licence being revoked.

Q55 Jim Fitzpatrick: I will turn, if I may, to air quality and atmospheric emissions, but, first of all, there are those who argue that the development of a shale gas industry will increase climate change emissions and delay the development of renewable energy. Is that a fair fear? How would you respond to that, Secretary of State?

Elizabeth Truss: My view is we need a variety of different sources of energy. Shale gas is part of the solution. There are parts of energy production that it is more environmentally friendly than—it has fewer greenhouse gases than. We need to make sure we are

developing nuclear and renewables as well as shale gas. There are two issues: first of all, the fact that we need long-term security of supply; we need affordable energy; and also, we want to reduce greenhouse gas emissions. It is part of the solution. It is not the only solution, but it is part of the solution. As I have said, I work closely with my colleagues at the Department of Energy and Climate Change. It is ultimately their responsibility to make sure that we have a good supply of energy that deals with the climate change issues we face. My specific responsibility is the impact on the environment—so, the impact on local air quality, the impact on the water supply and the impact on waste policy. That is my responsibility to deal with, but I am confident the Department of Energy and Climate Change is delivering energy policy with that objective.

Q56 Jim Fitzpatrick: What does Defra consider to be an acceptable level of methane emissions? How does the Environment Agency regulate and monitor that?

Elizabeth Truss: During the production stage, we would not expect methane emissions; we would expect the methane to be going into supply. There is the exploration stage, where we would expect there to be some flaring. We would expect the methane to be flared, because carbon dioxide is a less potent greenhouse gas than methane. We would expect that flaring to take place. That would not be an open flare; it would be a covered flare. I do not know, Dr Leinster, if you want to just explain a bit more about that.

Dr Leinster: The Secretary of State has covered most of it. Just to re-emphasise that bit, there is this difference between what is going to happen during the exploration phase and the production phase, but we would expect no fugitive emissions of methane and careful control of the main sources of the gas that is coming back up to the surface.

Elizabeth Truss: It is worth commenting as well that in the plan we have been talking about—the permitting process that the Environment Agency carries out—local air quality is one of the considerations, so they would be required to say what flaring would be done and the impact on local air quality be looked at to make sure the environmental impact was minimised.

Q57 Jim Fitzpatrick: Can I just ask about Defra's role in ensuring that local air quality is not adversely affected by fracking, and the role of the Environment Agency in influencing local authorities about local air quality plans? How does that work?

Elizabeth Truss: It is through the permitting process that exactly the amount of flaring that is allowed is determined. That is part of the conditions of the permit that is allocated. Paul, maybe you could talk to the wider air quality.

Dr Leinster: Yes. When we consider a permit, we look at the contribution that that particular activity that we are permitting will have on overall air quality. In the vast majority of cases, the contribution will be small of all the activities that we permit. In some places it will be an important consideration, and then we work closely with the local authority to make sure that agency-regulated activities are not contributing to a breach of air-quality objectives—very close working when we work with both the planning and the environmental health officers within local councils.

Q58 Jim Fitzpatrick: And you do that directly with the local authorities, not through DCLG; it is a Defra and Environment Agency responsibility.

Dr Leinster: Yes, and it is done on a site-by-site basis, so we do it with the officers who are engaged with that local community.

Q59 Jim Fitzpatrick: Can I just ask a general question, Chair, while I have the floor? Secretary of State, you said earlier that you are driven by the science and that this will be evidence-based decision making in respect of this particular policy. For the media—the written media in particular—scare stories are much better at selling newspapers than people saying, “This is quite a safe process”. Do you think the potential of fracking in the UK is getting a fair press from the media and the written media or do you think it is being distorted?

Elizabeth Truss: I have not conducted a full analysis. I have been doing the job for a certain number of months, but I have not looked at it from the longer perspective. It is inevitable when there is a new technology that it does raise some concerns and it is my job to address those concerns, specifically the concerns with respect to the environment. We have talked about the direct public engagement locally. That is very important. Lessons have been learnt from previous cases about the importance of getting that message out wider. Would I like the media to spend more time reporting science? Yes, I would. It is a good thing and I think the public have an appetite for getting more information and better information. Would I encourage the media to write more articles explaining the details of this process? Absolutely; I would like that to be the case.

Q60 Ms Ritchie: Secretary of State, I would like to concentrate on habitats and biodiversity and the concentration of the impacts on local places in terms of those habitats and species. Does the current regulatory framework give Defra and its agencies a sufficiently strong voice in protecting local habitats and landscapes?

Elizabeth Truss: As I commented in the case of Wytch Farm, we already know that it is a similar impact on the surface as for the onshore oil and gas industry; as we have outlined, there is limited impact on air quality; and we think that provided the risks are managed well, there will not be an impact on water quality. I gave the example of Wytch Farm; that is in an area of outstanding natural beauty. It is possible for those operations to co-exist. If there is an area of special biodiversity protection and SSSI, then Natural England has a role in looking at the impact of any development on biodiversity, and that is a role for that organisation. There is nothing particularly unusual about a fracking operation as opposed to an onshore oil and gas operation in that respect; it still goes through the same checks and balances. I will slightly correct myself: it is the local planning authority that has to take into account the guidance from Natural England and consult Natural England in that respect. That is part of the planning process.

Q61 Ms Ritchie: What communication takes place between Defra and Natural England about such fracking activity and about the impacts of that on the local biodiversity?

Elizabeth Truss: I have met with the Chief Executive and Chairman of Natural England to talk about biodiversity: how we can improve what we are doing, and how Natural England protects biodiversity and also improves it. There are all kinds of things that can affect biodiversity, whether it is a road-building or a housing development or a fracking site or onshore oil and gas. My interest is in making sure we have got a good framework across the country so we are protecting biodiversity and we are looking at areas where there are particular species and making sure they have the right protection. I do not think there is a qualitatively different case for shale gas exploration.

Q62 Ms Ritchie: What safeguards are in place for such sensitive habitats, sites of special scientific interest or the highly valued landscapes of areas of outstanding natural beauty?

Elizabeth Truss: With respect to the SSSIs, through the planning system there are very specific safeguards; local councils have to take account of the advice of Natural England, emanating from the Habitats Directive, which lays that out. That is part of the overall planning system.

Q63 Ms Ritchie: Who will ensure that in the long-term remediation of sites used for fracking operations the landscapes and habitats are restored to their former condition? Who will have responsibility and who will ensure that that happens?

Elizabeth Truss: Ultimately, making sure that those protections are in place is the responsibility of Natural England, and the local authority have to make sure that is the case within the planning process.

Q64 Ms Ritchie: Secretary of State, you have made reference to the various energy sources, such as nuclear, renewables and fracking. Do you think, in terms of fracking operations, that that would bring us off track or we would be able to reach EU emissions targets?

Elizabeth Truss: It can contribute to our objectives on emissions targets, because it is a relatively clean way of producing energy. It is all relative, but it is a relatively clean way.

Q65 Chair: On the question of the countryside, what state will the sites be returned to? They probably will not be returned to the absolute pristine condition they were in before.

Dr Leinster: That would be a planning matter. Within the planning consent, there would be a site remediation plan that the operators had to commit to as part of their planning.

Q66 Chair: And that would be for public consultation and public view.

Elizabeth Truss: Yes. It is the same as any other; whether it is a waste operation, whether it is an onshore oil and gas operation, it is exactly the same way that the planning process works. The specific area of interest from a direct Defra point of view and from an

Environment Agency point of view is the fracking operation itself and the impact that fracking operation has on the environment.

Dr Leinster: Between us, we and the HSE will have requirements on the closing off of the well. Those environmental controls are important from our point of view. We and the HSE will make sure that there is a well closure plan in place.

Q67 Chair: How many well heads will there be at one fracking site for shale gas fracking?

Mark Ellis-Jones: It can vary.

Chair: I think the public would like to know. Are you talking about one, a dozen, or how many?

Mark Ellis-Jones: That would be for an operator to come forward in terms of their—

Chair: I am sorry; this is very woolly. We are in a situation where the Government is wanting to go full speed ahead and we all know from local knowledge how difficult it is to influence planning decisions. There is one deep-well fracking site at Ebberston Moor. How many well heads will there be?

Mark Ellis-Jones: For the site at Ebberston Moor, as far as we understand it there is no fracking planned to take place.

Chair: Well, then the Kirby Misperton site—Bowland shale.

Mark Ellis-Jones: At the Third Energy site, as far as we are aware, there are no fracking proposals.

Chair: The two at Lancashire, then.

Mark Ellis-Jones: In Lancashire there are four wells per site proposed, so that would be four well heads. The Institute of Directors produced a report looking at where the shale gas industry may progress to in terms of production sites. They estimated that they could have 10 well heads per well pad. For example, in the United States you saw a pattern of well pads and a single well, which is not an efficient use of land. The Institute of Directors were working with the industry and they felt that because of the depth of the Bowland shale you could have a single well pad with 10 wells and 10 laterals, so a much more efficient use of space. Ultimately, those are projections, and it will be for the operators to come forward with proposals, but that gives you an idea of what we might expect.

Elizabeth Truss: These will all be part of what is put forward to the local planning authority.

Mark Ellis-Jones: Yes. The existing planning and permitting process in Lancashire, for example, is for four wells per site. If the company wanted to drill more wells or expand production, they would need to go back to planning; they would need to come back to the Environment Agency to renew their permit. So, there are checks and balances in place for

that. The planning and permitting regime only gives permission for what is applied for; if there is a variation from that, they have to come back and ask again.

Q68 Chair: Do we have a ballpark figure for how many jobs might be created with the two Lancashire sites and whether they are permanent or temporary?

Elizabeth Truss: I do not have that number, no.

Q69 Chair: What is the level of seismic activity that would trigger a review of the evidence base for the decision that had been granted that it was still safe to frack? Do we have that information?

Elizabeth Truss: I do not have that information. It is part of DECC's responsibility to assess seismic activity. As I have said, the evidence is—and this was confirmed in the Royal Society's report and the Royal Academy of Engineering's report—that it is safe and that it does not generate excess seismic activity; however, it is a matter for DECC and it is something that they have put in place monitoring for.

Q70 Chair: I have spoken to some of the farming community about this. You spoke about financial bonds that had to be put in place, but if a company went bust and defaulted on the fracking contract, can we have a reassurance that the farmer—the landowner—will not be held responsible for any contamination or the end of life of that fracking operation?

Elizabeth Truss: It is my understanding that would be in place. There is a check initially on the financial robustness of the operator, which the Environment Agency carries out, but, particularly with reference to waste disposal, there is essentially a bond in place.

Dr Leinster: Yes.

Q71 Chair: Do we know what the costs of decommissioning a well head would be? Would that fall to DECC?

Dr Leinster: I do not have that information.

Elizabeth Truss: That would be a responsibility of the Environment Agency; it is the Environment Agency's responsibility to oversee that.

Q72 Chair: Should this not be in the application and the licensing? It is quite a big cost, I imagine. I certainly would like to know, and if you have not got the figures today, the Committee would like them.

Dr Leinster: We can provide that.

Elizabeth Truss: My understanding is that would be on a case-by-case basis.

Dr Leinster: It is case by case.

Elizabeth Truss: It would be on a case-by-case basis; it would be in the application, with a view to making sure the bond was sufficient to cover that cost should something happen.

Q73 Chair: But do we have a ballpark figure? You presumably have looked at the experience of British Columbia and the earlier experience in Lancashire as to what the decommissioning costs would be and the possibility of a company defaulting.

Elizabeth Truss: I have not seen the decommissioning.

Chair: Okay. It is probably quite a big factor.

Elizabeth Truss: Yes. Certainly we can look at that and write to you on that subject.

Chair: That would be very helpful. Secretary of State, Mr Ellis-Jones and Dr Leinster, thank you very much indeed for participating and answering our questions so patiently. It has been a pleasure and we look forward to seeing you again very soon. Thank you very much indeed.