



# **Cynulliad Cenedlaethol Cymru The National Assembly for Wales**

## **Y Pwyllgor Amgylchedd a Chynaliadwyedd The Environment and Sustainability Committee**

**Dydd Iau, 29 Mawrth 2012  
Thursday, 29 March 2012**

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These proceedings are reported in the language in which they were spoken in the committee.  
In addition, an English translation of Welsh speeches is included.

**Aelodau'r pwyllgor yn bresennol**  
**Committee members in attendance**

Mick Antoniw	Llafur Labour
Yr Arglwydd/Lord Elis-Thomas	Plaid Cymru (Cadeirydd y Pwyllgor) The Party of Wales (Committee Chair)
Rebecca Evans	Llafur Labour
Russell George	Ceidwadwyr Cymreig Welsh Conservatives
Vaughan Gething	Llafur Labour
Llyr Huws Gruffydd	Plaid Cymru The Party of Wales
Julie James	Llafur Labour
William Powell	Democratiaid Rhyddfrydol Cymru Welsh Liberal Democrats
David Rees	Llafur Labour

**Eraill yn bresennol**  
**Others in attendance**

Yr Athro / Professor Kevin Anderson	Dirprwy Gyfarwyddwr, Canolfan Tyndall Deputy Director, The Tyndall Centre
Dr John Broderick	Cymrawd Ymchwil, Canolfan Tyndall Research Fellow, The Tyndall Centre
Stephen Churchman	Cadeirydd Fforwm Awdurdodau Lleol Di-Niwclear Cymru Chair Nuclear Free Local Authorities Welsh Forum
John Harrison	Rheolwr Amgylchedd, Asiantaeth yr Amgylchedd Cymru Environment Manager, Environment Agency Wales
Dave Jones	Swyddog Technegol – Dŵr Daear a Tir Halogedig, Asiantaeth yr Amgylchedd Cymru Technical Officer – Groundwater and Contaminated Land, Environment Agency Wales

**Swyddogion Cynulliad Cenedlaethol Cymru yn bresennol**  
**National Assembly for Wales officials in attendance**

Alun Davidson	Clerc Clerk
Catherine Hunt	Dirprwy Glerc Deputy Clerk
Nia Seaton	Y Gwasanaeth Ymchwil Research Service
Graham Winter	Y Gwasanaeth Ymchwil Research Service

*Dechreuodd y cyfarfod am 9.39 a.m.  
The meeting began at 9.39 a.m.*

### **Cyflwyniad, Ymddiheuriadau a Dirprwyon Introduction, Apologies and Substitutions**

- [1] **Yr Arglwydd Elis-Thomas:** Bore da a chroeso i'r cyfarfod hwn o'r Pwyllgor Amgylchedd a Chynaliadwyedd. Yr oeddem yn disgwyl derbyn tystiolaeth oddi wrth gwmi Horizon y bore yma, ond oherwydd rhesymau arbennig sy'n cael eu gwneud yn gyhoeddus ar hyn o bryd, ni fydd hynny'n digwydd, ac felly mae trefn agenda'r cyfarfod wedi newid. Byddwn yn ystyried llythyr i'r Gweinidog mewn sesiwn breifat, ond byddwn yn dod yn ôl i gyfarfod cyhoeddus i ystyried cynnig i gydsynio trosglwyddo swyddogaethau Bwrdd Dyfrffyrdd Prydain. Rydym yn disgwyl gwneud hynny mewn rhyw chwarter awr.
- Lord Elis-Thomas:** Good morning and welcome to this meeting of the Environment and Sustainability Committee. We were supposed to receive evidence from Horizon this morning, but for extraordinary reasons that are being made public as we speak, that will not be happening, and therefore the agenda for the meeting has been changed. We will be considering a letter to the Minister in private session, before we return to consider in public a consent motion to transfer the functions of the British Waterways Board. We expect to do that in a quarter of an hour or so from now.

### **Cynnig o dan Reol Sefydlog Rhif 17.42(vi) i Benderfynu Gwahardd y Cyhoedd o'r Cyfarfod ar gyfer Eitem 4 Motion under Standing Order No. 17.42(vi) to Resolve to Exclude the Public from the Meeting for Item 4**

- [2] **Yr Arglwydd Elis-Thomas:** **Lord Elis-Thomas:** I move that  
Cynigiaf fod

*y pwyllgor yn penderfynu gwahardd y cyhoedd o weddill y cyfarfod yn unol â Rheol Sefydlog Rhif 17.42(vi).* *the committee resolves to exclude the public from the remainder of the meeting in accordance with Standing Order No. 17.42(vi).*

- [3] Gwelaf fod y pwyllgor yn gyfûn. I see that the committee is in agreement.

*Derbyniwyd y cynnig.  
Motion agreed.*

*Daeth rhan gyhoeddus y cyfarfod i ben am 9.40 a.m.  
The public part of the meeting ended at 9.40 a.m.*

*Ailymgynullodd y pwyllgor yn gyhoeddus am 9.44 a.m.  
The committee reconvened in public at 9.44 a.m.*

### **Cynnig Cydsyniad ynghylch Gorchymyn Bwrdd Dyfrffyrdd Prydain (Trosglwyddo Swyddogaethau) 2012 Consent Motion for the British Waterways Board (Transfer of Functions) Order**

- [4] **Yr Arglwydd Elis-Thomas:** Mae papur ger ein bron ar gyfer yr eitem hon, felly a oes unrhyw sylwadau neu gynigion?
- Lord Elis-Thomas:** There is a paper before us for this item, so, are there any comments or proposals?

[5] **Julie James:** I would like to ask for a bit more detail. I have the good fortune of sitting on all three of the committees that will be considering this measure, so I am somewhat more familiar with it than perhaps others are. I feel that the committee should have a bit more information about why the Government is choosing this course of action to convert to the canals and rivers trust, as opposed to retaining it in the public sector, as in Scotland, or turning it into some other kind of social enterprise model or something else. I understand the papers before us, but I do not think that they explain sufficiently why this course of action has been chosen. I think that we should ask the Minister for a bit more detail on that point.

[6] **Lord Elis-Thomas:** What you are basically asking for is something more than the explanatory material that we have received so far.

[7] **Julie James:** Yes.

[8] **Lord Elis-Thomas:** What are the views on that? This has been tabled, has it not?

[9] **Mr Davidson:** Yes.

[10] **Lord Elis-Thomas:** So, is it still within the period during which it may be objected to? Where are we now—40 days and 40 nights, or whatever it is?

[11] **Mr Davidson:** The Plenary debate is scheduled for 8 May, and the committee has been asked to report by 25 April, should it have any reporting points. In effect, the committee could report as Julie has suggested, by saying that it needs more information.

[12] **Lord Elis-Thomas:** We could then write to the Minister, from this meeting, asking for that further information, which will hopefully be available in advance of the debate.

[13] I should declare that I have had informal discussions with John Bridgeman and others about this transfer, and especially about the name Glandŵr. Despite the fact that it is also the name of the ancestral home of the Member of Parliament for Dwyfor Meirionnydd, I think that it is a very good name for a new body of this kind. I think the idea was to get something analogous to the National Trust.

[14] **Julie James:** I understand the import of this paper, and I understand what they are going for with the charity or trust, but I do not think that they have explained sufficiently why they have chosen this option and not either of the other two available options. I am content with the explanation of this model; I just feel that there is nothing to say why we have gone down this road.

[15] **Lord Elis-Thomas:** That is very helpful. We shall elicit that.

[16] A oes unrhyw gwestiwn arall? Are there any other questions? I see that there Gwelaf nad oes. Felly, gwnawn ni ohirio'r are none. We will therefore adjourn the cyfarfod tan 10 a.m., pan fyddwn yn meeting until 10 a.m., when we will ailymgynnull ar gyfer tystiolaeth gyhoeddus. reconvene to take evidence in public.

*Gohiriwyd y cyfarfod rhwng 9.48 a.m. a 9.58 a.m.  
The meeting adjourned between 9.48 a.m. and 9.58 a.m.*

**Ymchwlad i Bolisi Ynni a Chynllunio yng Nghymru—Tystiolaeth am Ynni Niwclear**  
**Inquiry into Energy Policy and Planning in Wales—Evidence on Nuclear Power**

[17] **Yr Arglwydd Elis-Thomas:** Bore da i'r Cynghorydd Stephen Churchman o Gyngor Gwynedd. Nid wyf yn aml yn cael y frainc o groesawu cynghorwyr o Wunedd i'r pwyllgor hwn, ond mae'n dda iawn gennyf wneud hynny, yn enwedig gan ei fod yn gynghorydd gyda'r Democratiaid Rhyddfrydol. Rwy'n sicr y caiff groeso yn y pwyllgor hwn. I gychwyn, Stephen, a wnei di ein hatgoffa o'r gymdeithas rwyf yn ei chynrychioli a beth yw swyddogaeth y gymdeithas honno ar hyn o bryd?

**Lord Elis-Thomas:** Good morning to Councillor Stephen Churchman from Gwynedd Council. It is not often that I have the privilege of welcoming councillors from Gwynedd to this committee, but I am very pleased to do so this morning, especially as he is a Liberal Democrat councillor. I am sure that he will be made to feel welcome in this committee. To start, Stephen, will you remind us about the association that you represent and what the function of that association is at present?

[18] **Mr Churchman:** Bore da. I am here representing the Nuclear Free Local Authorities rather than Cyngor Gwynedd. The Nuclear Free Local Authorities seeks to oppose the proliferation of nuclear weapons, nuclear power and so on. We seek an alternative, particularly on the energy side, where we seek the development of alternatives that we feel are far cleaner, safer and easier to deliver and offer greater opportunities than nuclear power.

[19] **Lord Elis-Thomas:** So, you probably welcome the decision, which I think is now public, of Horizon not to go ahead with further developments in the United Kingdom, and its effect on north-west Wales.

[20] **Mr Churchman:** I more than welcome the decision. I am aware that there have been some hiccups in the proposals. Certainly, those companies in Germany have said that they will not be investing further. Is this a very recent announcement?

[21] **Lord Elis-Thomas:** We have not had formal confirmation yet, but Horizon was due to give evidence to this meeting this morning, and my understanding is that a press statement was due at 9.30 a.m., but we will relay it as information to the committee when I receive it.

10.00 a.m.

[22] **Mr Churchman:** I would more than welcome that decision. I believe that there are alternatives.

[23] **David Rees:** May I just clarify your position? Is Gwynedd a member of your association?

[24] **Mr Churchman:** Gwynedd is a member of the NFLA, yes. I am currently chair of the Welsh forum of the NFLA.

[25] **David Rees:** I just wanted to check that, Chair. Obviously, we have a slightly different view today in one sense because, if that news is the case, we are looking at nuclear energy as part of the wider picture rather than specifically relating to north-west Wales. In your view, what energy is available to replace the nuclear energy that is coming offline? Do we currently have the technology to replace it?

[26] **Mr Churchman:** I believe that the technology is available. We have wind power, wave power, combined heat and power, solar power—there are all of these alternatives that

need to be explored further and developed further. In fact, there is enough tidal energy around Wales to meet 20% of our needs. There is certainly the potential.

[27] **David Rees:** I think that the point is that those alternatives need to be explored further. There is potential, as you say, but not proven potential at this point in time. We know that decommissioning is happening, and your own figures indicate that a large number of gigawatts are to be lost over the next five years. In the association's view, what is currently available to fill that void?

[28] **Mr Churchman:** We are seeing the development of wind power gradually across Wales on a microdevelopment scale. It is getting larger and larger. There are two planning applications for wind turbines in the ward that I represent as a councillor, for example. That is not to say that everyone will welcome that, and I accept that. However, there is the other argument. The chief argument against them seems to be the impact on the visual environment with pylons and so on. We still need pylons for nuclear power, so these are the same arguments. This is coming online now. There are alternatives. Let me look in my notes to see what I have on this. I am sorry, but I came today with a prepared statement that would provide a great deal of this information—

[29] **Lord Elis-Thomas:** We have a paper from you, but would you like to make a further oral statement—once David has finished these questions?

[30] **David Rees:** It is okay now, Chair.

[31] **Lord Elis-Thomas:** We would welcome that, of course.

[32] **Mr Churchman:** Okay. Well, as I said, I welcome the opportunity to address the Assembly. We welcome the fact that the committee is undertaking this inquiry at this important juncture in the energy debate in Wales. We strongly encourage the committee to ask the Government and all political parties of the Assembly to lobby for the devolution to the Assembly of powers over energy. This went through Cyngor Gwynedd as an amendment to a motion that I put before the council. We are seeking devolved powers, and until we get the same thing here as they have in Scotland we are going to find it extremely difficult to control our destiny. We were surprised and disappointed by the Welsh Government's change of policy in the middle of the energy inquiry, and we believe that it should have taken the time to hear all of the evidence before changing its opinion on the matter.

[33] There is an overwhelming need for a proactive energy policy to deal with fuel poverty, and the Welsh Government has some good policies in this area, particularly in the Arbed scheme. We need to be imaginative to construct a renewable energy base. By tapping into the abundance of renewable energy potential, Wales could meet its own energy needs and even be an energy exporter. We believe that Welsh councils should be given a more proactive role to promote community-led microgeneration projects, energy insulation and effective climate change mitigation strategies. Microgeneration could provide 10% of Wales's energy needs, obviating the need for Wylfa B. New nuclear power at Wylfa will divert limited resources away from renewable energy and energy efficiency. This is money that we think would be better spent investing in existing properties. Increasing the energy efficiency of properties will reduce the need to produce electricity in the first place, and that would have the benefit of helping to deliver on fuel poverty as well. Given that the UK Government is looking at relaxing its foreign-worker rules, it is clear that many of the specialist jobs proposed for Wylfa B will not be going to local people. Indeed, Isle of Anglesey County Council has developed its own reports on the negative impact of Wylfa B on the local housing stock, the use of the Welsh language on the island and the transport amenities in Anglesey and north Wales. It is not just the energy aspect, but the other socioeconomic impacts that it will have in that part of Wales.

[34] We believe that many councils have developed excellent partnerships in developing local renewable energy networks. A large-scale pylon issue would be needed as much by nuclear as by onshore energy, as I have already said, and that is something that we must not lose sight of. It became a big issue in the Assembly elections last year, when there were strong protests against pylons and wind power because of the visual impact. We must not lose sight of the fact that a new build at Wylfa will also require pylons to distribute electricity away from that area into the grid, in addition to what already exists. The phasing out of nuclear power in Germany is putting pressure on E.ON and RWE to move out of nuclear power in favour of renewables, and there is an opportunity now—although I have not seen the detail on this announcement today—to move into renewables.

[35] With Hinkley Point C and Sizewell C seen as the likeliest new reactors to be developed, it could be as late as 2025-30 before Wylfa B is constructed, if the plan was ever to go ahead. Renewable energy and microgeneration can be in place much more quickly—we could be developing on that now, today. It is also clean, waste-free and a sustainable form of energy, and the Welsh Government has said that thousands of jobs could be available through that programme. We need to consider the impact upon employment in Wales.

[36] The NFLA supports the Government's ambitious targets for domestic energy production and the energy efficiency programme, including plans to produce more electricity from renewables than the nation consumes, within 20 years; to increase recycling rates from 36% to over 70% by 2025; to send just 5% of Welsh waste to landfill; and to phase out free plastic bags. These are all environmental developments that have come from legislation and have been very positive. However, we also support the need to spend £623 million over the next three years on improving energy efficiency. The targets in 'A Low Carbon Revolution' in 2010 were reasonably impressive for microgeneration, and included developing 20,000 microheating projects by 2012, increasing to 100,000 by 2020; and developing 10,000 micro-electricity projects, increasing to 200,000 by 2020. The NFLA believes that the Welsh Government should take a more definitive policy line with the potential new nuclear power stations, and vociferously opposes them on the grounds of health, safety, waste management and diversion of funds from other energy projects.

[37] Sustainable energy is something that we need to be looking at. Several well-respected reports, such as the European Climate Foundation's 'Roadmap 2050' report and the offshore evaluation report, have made it clear that it is technically feasible for Wales to get the overwhelming majority of its electricity from renewables without endangering the reliability of the electricity system, and at costs not substantially higher than other ways of decarbonising the power sector, as long as its interconnection infrastructure with other European grids is improved. In particular, the offshore evaluation reports highlight that, at 29% of the UK's practical offshore resource, the offshore renewables industry could enable the UK to install 169 GW of offshore renewable capacity, thus allowing the country to become a net exporter of electricity by 2050. The development of such a European energy smart grid is one of the key components of the Centre for Alternative Technology's 'Zero Carbon Britain 2030', and the NFLA strongly supports such a development. The NFLA recommends that this imaginative plan should be considered in detail by the National Assembly for Wales's Environment and Sustainability Committee.

[38] With 1,200 km, or 746 miles, of coastline, Wales has some of the highest wind speeds in western Europe. The NFLA believes that Wales has considerable latitude to take advantage of offshore wind. The Welsh Government has set a target of delivering 6 GW of capacity from offshore wind by 2015-16. We welcome the Gwynt y Môr development off the coast at Colwyn Bay. This will lead to the creation of around 1,000 construction jobs and is currently the largest offshore wind project in Europe, with 160 turbines under construction. When fully operational, this will generate 576 MW. It is an essential part of the mix that we need to see.

[39] **Lord Elis-Thomas:** We have some of this detail in the paper. Are there any further points? I am conscious that we have a further 20 minutes for questions.

[40] **Mr Churchman:** I will move on to my key conclusions.

[41] The UK Government and the Welsh Government have the twin objectives of reducing greenhouse gas emissions by 80% by 2050 and eliminating fuel poverty by 2016, but the UK Government's proposed electricity market reforms focus almost exclusively on facilitating the construction of a new low-carbon electricity supply, which is likely to worsen fuel poverty, unlike demand-management schemes, which place greater emphasis on the capital investment. The NFLA believes that the Welsh Government must concentrate more of its policy on such demand-management measures. It would benefit the Welsh Government greatly to have the same level of development and control over its energy policy as has been given in Scotland. This comes back to the point that we need to see devolved powers in this area.

[42] The UK Government has said that there is a need for 59 GW of new generating capacity by 2025, of which 33 GW needs to be renewable. This leaves the industry to decide what type of generating capacity should supply the remaining 26 GW. However, the UK Government has said that as much of this as possible should be nuclear. For Wales, this would mean the development of a new nuclear reactor at Wylfa, in which the devolved Government has no direct decision-making role. The NFLA is opposed to this new build being part of the energy mix. We believe that the money should be used to invest in renewables instead. If instead of planning for a doubling or trebling of electricity demand by 2050 the UK Government planned for a reduction of 25%, as is the case in Germany, this could remove the need for nuclear reactors in England and Wales. Other countries can do it, we should be able to do it too, as the technology is there.

[43] **William Powell:** Good morning, Steve. First, I would like to commend the NFLA for the breadth of the evidence that has been produced. You have emphasised some of it to the committee this morning. In preparation for this meeting, going through all of that material was a real survey of much that we have heard from previous individual witnesses. One thing that has come through consistently from developers on the renewables side is their uneven experience of the permitting and development-control process, as well as their difficulty with some of the statutory bodies such as the Countryside Council for Wales and the Environment Agency. If we are to realise the really ambitious targets that are clearly advocated in your evidence, and that view is shared by many, we need to raise our game in terms of how some of these agencies operate. I believe that you have experience of more than one north Wales planning authority, in your public role. What thoughts do you have as to how we can improve the working of our development control system in Wales, to facilitate some of the ambitious developments that you seek to support? Secondly, does the NFLA have a view on the single environmental body and the contribution that that will have to play in this area?

[44] **Mr Churchman:** I will take the second point first. I believe that having a single environmental body to cover Wales would be far superior to the current situation in that there would be only one body to negotiate with, and there will therefore not be four voices saying completely different things, which is the potential of what we have today.

10.15 a.m.

[45] You could have one agency saying one thing and another saying something completely different. You will have to expect a more complex answer to any inquiry with such an agency, but you will get one voice, rather than differing voices.



[46] Sorry, what was the first point again?

[47] **William Powell:** It was regarding the development control process—the planning system in Wales—and whether, from your own experience or any other observations, you think that there is scope for us to improve the mechanisms for determining energy applications in Wales.

[48] **Mr Churchman:** Until energy is a devolved matter, we will have limited control over the matter, so getting it devolved is the key to developing energy in Wales. It is imperative that we press for further devolved power, particularly in this field.

[49] **William Powell:** Are you aware of any good practice that you could share with the committee on community engagement? You have referred to significant opposition, of which we are all aware across different parts of Wales, to energy schemes coming forward, particularly for onshore wind, so is there good practice that you would point us towards on community engagement and gaining greater support for such initiatives?

[50] **Mr Churchman:** Basically, we have to have a greater public debate on the issue, because there is this great—how shall I say it—fallacy about nuclear power being clean and invisible. For example, if the proposal goes ahead, one of the main routes will go through my ward, and there would be pylons from Wylfa going through my patch, through Bryncir, with a huge switching station there. What is the visual impact of that type of development? The way forward is to say, ‘Here are the alternatives, but these are the downsides to those alternatives, so either we accept those or we switch the power off.’ However, there are alternatives: you do not just have to have onshore wind power; there is offshore wind power as well. So, perhaps we need to consider not necessarily the opposition to onshore wind power, but the scale of the development. It is all in the mix. It is about how you develop and how much offshore and onshore wind power you have. I recall that there was opposition to Gwynt y Môr, of course, so there will always be opposition. Nuclear and coal both have their opposition too. So, it is about having greater engagement and explaining that there are downsides to all these proposals. Well, I say ‘all’ but perhaps I should say that most of them have their downsides. It is a case of which has the biggest impact.

[51] There is no real answer because there will always be someone who is opposed to a scheme, naturally. As I said, two wind turbines are planned in my ward, with the proposals currently on the table at the planning department of Cyngor Gwynedd, and there is significant opposition from the people living close to the proposed sites. Those who live further away would see them, but there is not the opposition from them. So, it all comes down to scale, I think. Other developments have gone through in the county and were perfectly accepted. We do not have large-scale wind developments, but we do have smaller developments, and those ones are generally more acceptable.

[52] **Julie James:** I was interested in the section of your paper on fuel poverty and the need to reduce energy demand and so on, and you mentioned this morning diverting the resources that might have been put into a nuclear power station into that, but I do not really understand how you think that that would work. I wholly support the idea of better insulation for households and all the rest of it, although that amounts to only 30% or so of our carbon footprint. I do not really understand, from your paper or from what you have said this morning, how the funding from something like Wylfa B, which is almost all private sector led, could be used to do an insulation scheme and so on, even though it is much needed. I cannot get my head around how you think the finance for that would work. Could you talk a little more about that?

[53] **Mr Churchman:** I understand where you are coming from, because private money going into a nuclear power station cannot be diverted. I accept that that is generally the case,

but energy companies are making investments in insulation. British Gas, for example, has been doing it for years. Those are the sort of things that we need to tackle more. Any money that the Government would have invested should be invested in this type of scheme. I am not just talking about loft insulation, but about wall insulation and not just for cavity walls. Again in my village, there are three houses owned by a housing association. They are stone-built, 150-year-old properties. They have no cavities, but wall insulation is being added to them to make the walls thicker. That, in itself, will reduce the energy loss to those properties thereby helping to overcome fuel poverty for those who live there now and who will be living there in years to come.

[54] **Julie James:** I understand that. My constituency has an enormous number of houses that do not have cavity walls and so on. The difficulty is how on earth do you get funding for that? The British Gas point is slightly different because that relates to boilers and so on. I understand what you say about the Government diverting the money, but that would be a drop in the ocean compared with what would be required just in my constituency, for example. Do you have any other innovative way of getting the money together because I agree that it would be a great thing to do, but I just do not see how we will fund it at the moment?

[55] **Mr Churchman:** It has to come from public money; that is the only real way forward. You cannot force a private company to invest in housing. At the end of the day, they would be cutting their own throats because it would reduce consumption of the very energy that they are selling, so you could not expect them to do that. Unfortunately, it does have to come from public money.

[56] **Vaughan Gething:** On fuel poverty, have you considered the developing evidence showing that poorer households that receive energy-efficiency measures, normally insulation, do not tend to use less energy afterwards, but the same amount, if not more, because they can then afford to do so? That stems from the fact that lots of poorer households do not fully heat their houses. I am interested in whether you have done any analysis of the net benefit of energy-efficiency measures, in respect of the cost of energy and how householders use that energy, and the net gain with the decrease in energy that is then used.

[57] **Mr Churchman:** I accept that some households will not turn down the heating and will just take the benefit from the heat that would otherwise have gone out of the window, but many can turn it down. So, you are not going to save every penny that goes in and I accept that, but that is why we are saying that you will not make 100% savings on this. However, you will see some savings.

[58] **Vaughan Gething:** So, are you saying that you are making a general point but there is no analysis or figures for what you would expect the level of savings to be?

[59] **Mr Churchman:** I am not aware of any analysis in this country currently, but there are figures from abroad. However, again, it demonstrates that there are some savings to be had, but it does not save every penny. As I said, some households will just leave on the heating to benefit from the additional heating that they can have instead of having a freezing-cold house with all the heat going out through the windows, the roof and the walls; they will just be that bit more comfortable inside. Around 50% will be able to make savings.

[60] **Vaughan Gething:** You think about 50%, but does that figure come from a particular study?

[61] **Mr Churchman:** That is from information that was given to me, but not from this country.

[62] **Vaughan Gething:** So, what is the source for that? It is a serious point for us to take

on board, namely how much money energy efficiency will save us, so I want to know what supports that statement.

[63] **Mr Churchman:** I would need to get more information to back that up for you.

[64] **Lord Elis-Thomas:** If you have any further information on that that you could supply to us, we would be happy to receive it.

[65] **Mr Churchman:** Yes, that is an important point, so if I can get the information, I will.

[66] **Llyr Huws Gruffydd:** Hoffwn symud ymlaen i sôn am wastraff ymbelydrol a niwclear. Byddai gennyf ddi-ddordeb clywed rhai o'ch sylwadau neu'ch gofidiau am storio gwastraff yn yr hirdymor. Gwyddom fod bwriad i ddatblygu safleoedd storio, ond mae'r rheini flynyddoedd lawer i ffwrdd. Felly, mae cwestiwn am storio yn yr hirdymor ac yn y cyfamser. Hoffwn glywed eich sylwadau am rai o'r gofidiau yn lleol ynghylch hynny, i ddechrau.

**Llyr Huws Gruffydd:** I want to move on to talk about radioactive and nuclear waste. I would be interested to hear some of your comments or concerns about the storage of waste in the long term. We know that the aim is to develop storage sites, but those are a long way off—many years. So, there is a question mark about storage for the long term and in the interim. I want to hear your comments about some of the concerns locally in relation to that, for starters.

[67] **Mr Churchman:** My understanding is that the waste material needs to be stored on site for up to 160 years for it to cool down enough to be transported to deep underground repositories, presumably in Cumbria. The Government is having difficulty persuading local authorities there to accept the waste, even now. Again, there have to be concerns regarding the long-term future of this proposal, because of geological faults and so on in the area where the storage is proposed. In the meantime, the material has to be stored on sites in lagoons, and then cooled. It has to be maintained there for about 160 years. That carries huge risks, on health and safety and accident grounds, on the grounds of acts of terrorism, and all sorts of issues. These are the concerns that have been expressed to me, and I share them. How can you maintain something safely on site for 160 years without really knowing what the endgame is? Where is the waste going to go? In 160 years' time, who is going to be prepared to accept the waste when it is safe enough to transport it? It is all very well saying that we have found somewhere now, but in 160 years' time there could be a complete turnaround, and it might be that no-one will want this stuff. It is open-ended. We have no guarantees that this waste will go into the underground repositories that are being considered now.

[68] **Llyr Huws Gruffydd:** Diolch am yr ateb hwnnw. Gwelaf fod cyfeiriad yn eich papur at ddatganiad polisi ynni'r Llywodraeth flaenorol yng Nghymru, a oedd yn galw am ymchwiliad cyhoeddus i'r mater hwnnw. Cymeraf, felly, y byddech yn cefnogi'r cam hwnnw, pe bai'n bosibl dwyn perswâd ar y Llywodraeth bresennol fod angen ei gymryd.

**Llyr Huws Gruffydd:** Thank you for that answer. I see that there is a reference in your paper to the energy policy statement of the previous Welsh Government, which called for a public inquiry into that issue. I take it, therefore, that you would support that step, if the current Government could be persuaded that such a step needed to be taken.

[69] **Mr Churchman:** Yes, I think that we need a public inquiry on this. A public inquiry would open people's eyes to the requirements and the implications. My concern remains that, in the meantime, we have 160 years of storing the stuff, and we do not know whether anyone will accept it, down the road. Today, they may be prepared to do so, but we are not talking about the people who are alive today. We are talking about their great-grandchildren, at least. Their opinions could be completely different, and we could have a legacy that we cannot

overcome. That is the biggest concern that we have: the legacy that we leave future generations, and how we deal with that. How we see dealing with such waste today is not necessarily how future generations will see it. They might not even want or be able to deal with it. We are making assumptions.

[70] **Lord Elis-Thomas:** High-level nuclear waste disposal, of course, is a matter for the United Kingdom Government. There are different policies in Scotland for intermediate-level waste. Would you want to see further devolution of the governance of nuclear waste to Wales?

[71] **Mr Churchman:** Again, I think that we have to see this. If we are to have nuclear power, we should have control over its management from start to finish. That means having control over waste disposal and waste management as well.

[72] **Russell George:** You have said that you think that the UK and EU can get all their electricity needs from renewable energy, but that there would need to be improvements in the grid infrastructure and interconnections with other parts of Europe. So, in itself, how does that mean that there would be no need for investment in nuclear power?

[73] **Mr Churchman:** We have to have a long-term aspiration. There are long-term aspirations for nuclear power among those who believe in it and there has to be a long-term aspiration for those who are opposed to it. I believe that the answer is to have a pan-European grid, so that we are interdependent but also inter-supportive. For example, we could have the north of the grid producing large volumes of electricity and energy from wind power and tidal power, while the southern part of the grid would produce more from solar power. That would also overcome the variations during the year. During the summer months, less wind power would be produced, but that would be offset by the south producing more solar power. So, we need to have greater interconnectivity, and we need to have a look at the bigger picture rather than just looking singularly at our own country. In the meantime, we have to start with what we have, but we have to have a long-term view as well.

10.30 a.m.

[74] **Russell George:** So, are you saying that, if there was not that interconnection across Europe, the UK would not be able to source all of its electricity from nuclear?

[75] **Mr Churchman:** No, I am not saying that. It just means that we would have greater dependence on things like wind power. We can reduce that dependence on wind power by having a pan-European grid.

[76] **Russell George:** So, if we did not have that interconnection with other parts of Europe, do you still believe that we would be able to source all of our electricity from nuclear?

[77] **Mr Churchman:** No, not from nuclear.

[78] **Russell George:** Sorry, from renewables.

[79] **Mr Churchman:** Yes.

[80] **Lord Elis-Thomas:** I have no other questions, but I can now confirm that I have received the RWE Npower announcement of the strategic review of Horizon Nuclear Power. We can incorporate this as an explanation into these proceedings.

[81] **Mr Churchman:** It is good news as far as I am concerned.

[82] **Lord Elis-Thomas:** It may be for you, but not for me. [*Laughter.*]

[83] **Mr Churchman:** I reiterate our thanks for giving us the opportunity to express our opinion today. I hope that we have been able to provide you with information in the paperwork that we have provided.

[84] **Lord Elis-Thomas:** A lot of the evidence that you gave in relation to the devolution of competence, and also of ways in which this committee can look at the broader scene of energy mix, is what we have to engage with.

[85] **Mr Churchman:** I will seek to find the information that I could not supply in answer to Mr Gething. I will see to it that you receive that information.

[86] **Lord Elis-Thomas:** Thank you very much. I suppose that I can, quite dispassionately, wish you good luck in the election. [*Laughter.*]

[87] **Mr Churchman:** Diolch yn fawr.

[88] **Lord Elis-Thomas:** I can say that sitting in this chair, anyway. [*Laughter.*]

[89] Rydym am gael toriad yn awr. We will now have a break.

[90] We need to set up our audio-visual connection for the next part of the meeting.

*Gohiriwyd y cyfarfod rhwng 10.32 a.m. a 10.44 a.m.  
The meeting adjourned between 10.32 a.m. and 10.44 a.m.*

**Ymchwiliad i Bolisi Ynni a Chynllunio yng Nghymru—Tystiolaeth am Nwy  
Anghonfensiynol  
Inquiry into Energy Policy and Planning in Wales—Evidence on Unconventional  
Gas**

[91] **Yr Arglwydd Elis-Thomas:** Hoffwn **Lord Elis-Thomas:** I extend a warm estyn croeso i John Harrison a Dave Jones, welcome to John Harrison and Dave Jones, sydd yma yng Nghaerdydd. Mae Antoinette who are here with us in Cardiff. Antoinette Sandbach wedi ymddiheuro am ei Sandbach apologies for her absence this habsenoldeb ar gyfer y bore i gyd am morning for personal reasons, and we, as a resymau personol digonol, a hoffem, fel committee, would like to wish her well for pwyllgor, ddymuno'n dda iawn iddi ar gyfer the future. y dyfodol.

[92] I also welcome Kevin Anderson and John Broderick, who are giving us evidence via video link. I will begin by asking our video guests to explain and remind the committee what the Tyndall Centre does, what your research entails and how it applies to our particular inquiry into energy and planning. Who would like to begin?

10.45 a.m.

[93] **Professor Anderson:** My name is Kevin Anderson. The Tyndall Centre was established in 2000 by the research councils, and it runs across eight universities in the UK, including Manchester University, where we are today, and one university in Shanghai, Fudan University. It was expressly set up to look at climate change from an interdisciplinary perspective, so we have engineers and scientists, but we also have social scientists and

economists. We look at the whole array of issues around climate change.

[94] With regard to our evidence today, our summary document to you brings together the work from two reports that we have produced over the past 18 months, looking specifically at shale gas in the UK context. The evidence that we submitted to you took from those two reports the information relating to climate change in particular.

[95] **Lord Elis-Thomas:** So, in relation to our particular inquiry, is the development of this form of gas in the United Kingdom a matter you have studied specifically, and particularly from the point of view of planning?

[96] **Professor Anderson:** It is indeed, yes.

[97] **Lord Elis-Thomas:** What are the conclusions you have come to?

[98] **Professor Anderson:** Our broad conclusion on climate change is that, if we are committed to the Copenhagen accord and the other documents and policies we have signed up to in relation to 2degreesC, which I know the Welsh Government is engaged in—indeed, it said it wanted to show leadership on this—we cannot reconcile the use of shale gas within the UK or Wales with meeting our 2degreesC obligations. That is our headline conclusion. These two are not compatible.

[99] **Vaughan Gething:** I am interested in some of the comments that have been made about the issue in Preston, the tremors and the conclusions that have been reached. Shale gas is likely to be found in areas where coal has previously been mined, so I am really interested in how particularly unique the geology is around that area where there have been tremors. The evaluation report suggests that the most likely cause is the shale gas extraction.

[100] **Dr Broderick:** We have not specifically researched the seismicity and those impacts. Our work primarily concerns the greenhouse gas emissions and the possible additional burdens due to shale gas extraction there.

[101] **Professor Anderson:** We would recommend that you speak to the British Geological Survey, which did some work specifically on the tremors in Preston. The conclusion, which Cuadrilla, the operator there, agreed with, was that the tremors were triggered by the drilling, but that these were extremely small-level tremors and that the BGS would not expect to see anything any different across the UK, and that they would not be of a level that would cause any significant impacts locally. That is the view of the BGS. I recommend that you speak to it directly on that.

[102] **Dr Broderick:** Mike Stephenson is the contact we have spoken to there.

[103] **Lord Elis-Thomas:** John Harrison, would you like to give us an Environment Agency Wales view?

[104] **Mr Harrison:** As colleagues in the Tyndall Centre have said, Chair, the BGS and the Department of Energy and Climate Change are currently looking at a study. We have fed information into that, and I believe that that report is due to go out within the next few weeks. At this stage, we are not sure of the conclusions. We will have to wait for that report to be published.

[105] **Lord Elis-Thomas:** We may want to come back to you once we have seen that report. Clearly, we will want to incorporate anything of that kind.

[106] **David Rees:** I have a question for the gentlemen from the Tyndall Centre. Your paper

focuses very heavily on shale gas. Has any work been done on the coal gasification aspects that were being looked at?

[107] **Professor Anderson:** No, we did not look at that in detail here. However, the same argument in relation to climate change would hold with regard to any new unconventional fossil fuel source. The arguments that we made in the evidence we submitted to you, and, indeed, the arguments in the last two reports, would hold for those other unconventional sources.

[108] **Dr Broderick:** There may be additional fugitive emissions from different production methods, and that is something that we have not assessed for coal gasification.

[109] **David Rees:** May I ask about one other point? Did you also consider carbon capture and storage as part of your arguments in your calculation and analysis?

[110] **Professor Anderson:** Yes, we did. This is quite an important dimension. One of the options with shale gas, as with coal, is to try to use carbon capture and storage. However, we must bear in mind that this is not a technology that we have developed anywhere globally on a large scale; there are one or two pilot plants around the planet, but nothing more than that. Secondly, this does not remove all of the carbon dioxide. That is important. Even with CCS, the levels that we would come down to with shale gas or with coal still appear, from our analysis, to be too high to be reconciled with a 2degreesC commitment. So, this is a real issue for the use of fossil fuels in power generation. Even with carbon capture and storage, we cannot get the emissions down to the levels that would be necessary to meet our obligations on 2 degrees centigrade.

[111] **Llyr Huws Gruffydd:** Yn eich barn chi, beth yw'r peryglon o lygru dŵr sy'n gysylltiedig â nwy siâl? **Llyr Huws Gruffydd:** In your opinion, what are the risks of contaminating water associated with shale gas?

[112] **Professor Anderson:** John probably knows more than I do on this, and our colleague Anthony Footitt at the University of East Anglia specialised in this area in our report. There are certainly risks associated with the drilling and the operation afterwards of the production of shale gas for surface and ground water contamination. These risks are, to some extent, remediable if we can put in the appropriate technologies, regulations and monitoring, but it is important that we bear in mind that there are significant risks of contamination, as I said, to surface and ground water. There is also some link back to the discussion earlier in relation to the tremors. One of the possible routes for risk of contamination is that if the casing, the lining of the wells, was fractured during a small tremor and that that happened to coincide with where you had some ground water. That could lead to some contamination. So, these are important issues that need to be developed, and, in the United States, where shale gas has been used quite extensively for about 10 years, the contamination or the potential contamination of surface and ground water have been the principal concern. It is not an issue that either John or I have particularly focused on, but we have some work on that in our report. Has that been submitted, John?

[113] **Dr Broderick:** Not explicitly, but it is available on our website.

[114] **Professor Anderson:** Our reports are available on our website, so you can have a look at the full report, which includes a section on water.

[115] **Dr Broderick:** The only thing to add is that, from a regulatory perspective and the workshops that I have been a part of, I have got the impression that it has been retroactive in the United States, with regulations being brought in in response to failures rather than in advance of industry being scaled up. That is something that we would learn a lesson from in

the UK.

[116] **Mr Harrison:** That is our primary role as Environment Agency Wales, namely to protect ground water aquifers and surface waters. In the wider sense, more permissions are required here before any interventions into any strata than perhaps has been the experience elsewhere, such as the USA. We are still learning from that experience, but it is one of our principal concerns. As we may come on to when I explain our role, we believe that we have the controls in place so that, prior to any works commencing, we have the necessary technical guidance and conditions that could be applied at the planning stage or, if necessary, via our permitting process, to protect ground water. We would object to any operations that were in sensitive zones for ground water, if they should arise. However, at this moment in time, we do not have any such proposals.

[117] **Lord Elis-Thomas:** So, that is in your role as a statutory consultee responding to the local authority application.

[118] **Mr Harrison:** For any bore hole activity under the Water Resources Act 1981, we need to be notified prior to the boring of any holes, and depending on the nature of the exploration or exploitation for shale gas, or any other entrained materials in the ground, we would then consider whether we would need to apply more stringent conditions around the drilling operations to protect ground water and surface waters, as well as other chemicals that could be used on the surface. We would then use our environmental permitting regulations to ensure that we have that level of protection.

[119] **Mick Antoniw:** I was wondering if someone could tell me a little more about precisely what chemicals are involved in the process, because that is perhaps absent, and it seems to me that it is important to know something about that. I have another question that perhaps I would particularly direct to John Harrison of Environment Agency Wales. Presumably, there has been some analysis or risk assessment of the chemicals that are in use, the potential consequences of that usage, and what comes out with the water. Is there any such research or assessment available that would be of assistance to us?

[120] **Mr Harrison:** Yes, I will ask my colleague Dave Jones to answer this—he would understand the technical aspects.

[121] **Mr Jones:** Individual companies may choose to use different chemicals. The information that I can give you today is what the company Quadrilla has used up in Lancashire, because that is the only company that has recently undertaken hydraulic fracturing. Over 99% of the fluid that it used was water and sand, and the remainder was polyacrylamide, friction reducers and hydrochloric acid. For us as an Environment Agency, the environmental permitting regulations and our ground water directives, which have come from things like the water framework directive, set out what are considered to be hazardous substances and non-hazardous substances. Of the list of chemicals that we are aware have been used within Europe, the majority have been classed as non-hazardous substances, and therefore they can be inputted into ground water, subject to a permit, as long as they did not then cause pollution. We would not allow them to use any hazardous substances, fuels, and so on. There was talk that some companies in America had used benzene, and other hazardous substances, and we would not allow that to happen in the UK.

[122] Then, in terms of what comes back up to the surface, those substances would tend to be stored on site in bunded tanks, and then they would require a permit from us if they wished to discharge that back into the environment, to ground or to surface water. That permit would set out standards of water quality. If they could not meet those standards, the likely route is that they would go to a water treatment works to be cleaned up there and disposed of.



[123] **Mick Antoniw:** If there is a paper that perhaps gives more background to this, it might be helpful to us to have that.

[124] **Mr Jones:** We can certainly circulate a lot of the information that we have available.

[125] **Lord Elis-Thomas:** If somebody from the Tyndall Centre has any further information that they would like to draw our attention to, in addition to what has been pointed to on the website, then that would be very helpful.

[126] **Dr Broderick:** The appendix to the document provides a summary of chemicals that have previously been used in the USA; that might act as a possibility space for what could be used over here in future, subject to—

[127] **Lord Elis-Thomas:** Is there a commentary on them as well, and an analysis of their potential use?

[128] **Dr Broderick:** There is an aggregate level of the type of cost statements associated with them, but they are not broken down bit by bit.

[129] **Professor Anderson:** With the produced water, one thing to be careful of is that, depending on where you drill and the form of the rock, you will get different chemicals coming back up from the fracturing process, so you may put in place a regime for treating the water in one area of the country, but it may not necessarily be appropriate for another area of the country. The components of the shale rock are not necessarily homogenous; they do change across the country, and you will get different chemicals coming back up when you have undertaken the fracking process.

[130] **Lord Elis-Thomas:** Is that as a result of the natural geology and some reaction as a result of the chemical process?

[131] **Professor Anderson:** By putting the water down there, you mobilise other chemicals that are naturally in the rock, and, of course, these chemicals can then be released back up to the surface as the water comes back up.

[132] **Dr Broderick:** An important point here relates not just to permitting in advance, but to the monitoring of operations, the flow back to the surface and the possibility of subsequent contamination there. A solely permitting regime is not the same as one that has ongoing regulatory oversight and scrutiny.

11.00 a.m.

[133] **Lord Elis-Thomas:** Rebecca and David are next, and then I will come to William.

[134] **Rebecca Evans:** I would like the panel's views on whether the sheer volume of water you would need for extraction would make an unconventional gas industry unsustainable in Wales in the future, given the potential for increased pressures on water supplies due to climate change.

[135] **Mr Harrison:** If an operation was able to obtain planning permissions, permissions from DECC and meet the Environment Agency Wales requirements of environmental permitting and wish to abstract water locally, it would be subject to the controls that we have in place for water abstraction, and we would object to abstraction from any water source if we felt that it was unsustainable. Therefore, there is a limiting factor there. It is dependent on how much water would be required and the scale of the operations. The experience of colleagues in Lancashire is that, in their operations, they were using the mains supply for their

water for site exploration activities.

[136] **David Rees:** I have a brief question. You mentioned hydrochloric acid; is that not considered a hazardous material in that case?

[137] **Mr Jones:** I will have to check, but I believe that it is classed as a non-hazardous pollutant. It is to do with the concentration at which it is being used. It is not so much the volume that you put in as the concentration, and because it only makes up a very small proportion of the entire amount, the concentration is low enough for it not to be at sufficient levels to cause harm to the environment or to people.

[138] **David Rees:** So, it is not just the material, it is—

[139] **Mr Jones:** It is how much of it they use. It is about the concentration.

[140] **David Rees:** On the water side of things, we have identified aquifers that may be part of the geology. Is there any study that is looking at where the aquifers flow to and where water may emanate from as a consequence of that activity, and are you therefore testing on a wider basis rather than just close to the site?

[141] **Mr Jones:** There are no particular studies. In Wales, we are generally aware of where our aquifers are, depending on the geology. In the case of the big sources that are used as public water supplies, we in the Environment Agency designate those as what are known as source protection zones. We, or consultants that we have employed, will designate an area around an abstraction, and we say that the water within that area feeds that abstraction. If there are pollutants or activities taking place within the area, we will know where those contamination events could occur.

[142] We tailor our policies to say that we will not allow certain activities to take place in the source protection zones. Zone 1 is the most sensitive source protection zone, and that is closest to the abstraction. In such zones, we would not allow activities such as shale gas exploration. Equally, we would object to other industrial processes or even to such things as petrol filling stations where there may be fuel storage tanks, because they would be in the riskiest area. Outside of that, yes, there are still risks to ground water, but we feel that we can manage them by using the Water Resources Act 1991 and environmental permitting regulations.

[143] **Lord Elis-Thomas:** Thank you. William Powell is next, and then Julie. Are there any comments from Manchester on what we have just heard?

[144] **Professor Anderson:** No.

[145] **William Powell:** I would like to ask both groups of witnesses a couple of questions on the planning regime that applies in this area. Is it your view that test drilling and exploration for shale gas should be determined at a local authority level or that it would be more appropriate in the Welsh context, given the nature of this technology, for it to be determined by the Assembly?

[146] **Mr Harrison:** I do not think that we have a view on that. Clearly, we have given our views on the application that has been submitted to the Vale of Glamorgan Council and that is subject to an appeal—there is to be a public hearing next month, I believe. Therefore the agency does not have a particular view on the matter. We will present when and where the democratic process requires us to do that.

[147] **William Powell:** Do your colleagues from the Tyndall Centre have a view on that?

[148] **Professor Anderson:** We have one comeback on that. Where there are local concerns, it may be appropriate for the local planning authority to consider the matter. Of course, in the bigger picture, in relation to climate change, it is not necessarily the direct responsibility of the local planning authority but of the Assembly and therefore, in permitting developments to go ahead or not, the Assembly has to look for some consistency between its position on climate change and its position in relation to energy security and the development of, for example, shale gas in this case. That high-level consistency needs to come from the Assembly. In that regard, I point you towards the commitment that the Welsh Government is signed up to in relation to 2degreesC. That gives a very clear signal as to the framing of the issue that should come from the Assembly.

[149] **William Powell:** Thank you very much for that answer, Professor Anderson. In that connection, would you support the call by the leader of the Vale of Glamorgan Council for greater guidance from the Assembly, perhaps in the form of a technical advice note or similar, in terms of handling applications of this kind?

[150] **Lord Elis-Thomas:** Guidance would come from the Welsh Government, of course.

[151] **Professor Anderson:** I certainly think that there is merit in having some technical guidance from the Assembly, but it is not just technical guidance, it is a mixture of the technical guidance that may talk about the details of the developments and the way in which that needs to be dealt with in Wales and the bigger picture story on climate change. That is an area in which Wales has a real opportunity, with its own climate change commission, to ensure that there is some consistency between the development of different energy sources in Wales and the commitments that the Welsh Government is signed up to.

[152] **William Powell:** Many thanks for that. I have one final question for the Environment Agency on the issue that has come up in connection with this, but also in other parts of the inquiry, around the need for the greater harmonisation of the development control regime on the one hand and the permitting regime on the other. Developers of various technologies and, potentially, also this technology, will be looking for greater clarity in this regard. I would very much value any comments that you may have to make in connection with that, because we have heard this in relation to potential hydro developers and onshore wind, and it could also be a relevant issue in this regard. So, I would appreciate any comments that you may have about a more holistic approach and its desirability.

[153] **Mr Harrison:** The approach that we have always tried to adopt in the Environment Agency is to encourage developers or operators to come to us at a pre-application stage and hold those discussions directly with us or with partners in the planning authority. For complex and high-risk sites, we would support the twin-track approach, so that all issues can be put out at the same time. However, on the question about the regulatory environment for activity in relation to shale gas, it is not too dissimilar to other activities that we have to deal with, so it is normal business for us to work very closely with partners in Wales and elsewhere to ensure that our interests are discussed and that we provide a consistent approach to the developers and to the various democratic processes considering that proposal.

[154] **William Powell:** I am grateful. Thank you.

[155] **Julie James:** Good morning, John; I did not realise that you were the John Harrison that I know so well from elsewhere, so I am sorry for not saying 'hello' earlier.

[156] I would like to discuss the coal gasification point. You have set out your statutory role in the paper that is in front of us, but I would like to understand a little more about the pre-application conversations that you might have, or the sort of parameters that you might

put before a developer in that pre-application process for it to understand whether a situation will or will not be acceptable, and what that discussion might consist of.

[157] **Mr Harrison:** Our primary interest would be to ensure that the developer was fully aware of all of the obligations. As you have said, for the utilisation of coal gasification processes, there are more extensive regulatory controls beyond what would be applicable for shale gas or coal-bed methane. The developer would require an environmental permit, whether the development was onshore or offshore up to 12 miles. The development would most likely, depending on the scale of the operation, fall within the control of major accidents hazards regulations and, therefore, there would be detailed considerations with the joint regulatory authority, which is the Health and Safety Executive. Finally, depending on how much power the developer was proposing to generate, the development would fall within the EU emissions trading scheme. So, all of that would set out the parameters that we would expect, as a minimum, the developer to be able to address and provide the confidence that it was able to deal with. Beyond that, we would provide, depending on the site, the local setting in terms of our knowledge of the hydrological regime and, as David said earlier, whether that involved any sensitive aquifers, which could constrain or limit the operations.

[158] There was a question earlier, which I thought was very incisive, on how much water you need to support these operations, and that needs to be taken into account. So, we would aim to provide the direct regulatory advice, but also to add value to what is already in the public domain: what is on our public registers, what we have concerns about within a locality and where we can see the stresses and strains of the environment within which that proposal is to come forward, in order to provide information that could enable a development to progress and in order for the developer to understand the full costs and the controls that we would expect to be put in place.

[159] **Julie James:** Do you proactively look at sites that might be suitable around Wales for that sort of development, or are you reacting to developers' approaches?

[160] **Mr Harrison:** At the moment, we are being reactive, but, across the agency, which is currently an England-and-Wales body, to provide assurance—because this is a new activity and we have very little experience of the specific activity, but, more widely, we have a great deal of experience in regulating operations that are not too dissimilar—we are undertaking a risk-assessment study to look at the whole life cycle of this operation, which will conclude in 2013. We are also studying fugitive emissions for methane as well as, I am sure, linking with colleagues in the Tyndall Centre, in the Department of Energy and Climate Change and in Welsh Government on the energy policy side to look at the experience elsewhere in Europe, because we appreciate that different positions are adopted by Governments there, as well as looking at the experience in the USA. So, we are trying to expand our knowledge base to ensure that we are adopting best practice wherever we can find it.

[161] **Julie James:** Following that through, are you expecting any exploration of that sort in Wales to wait until after your report, or are you dealing with some now?

[162] **Mr Harrison:** We have had no approaches on coal gasification, but we are aware, as I am sure the committee is aware, that DECC has issued licences for exploration in the Swansea bay area. However, we have had no approaches to date. The only approaches that we had regarding the topic in front of the committee have been those from the developers in the Vale of Glamorgan and we have replied on planning permissions for north Wales and the south Wales coalfield.

[163] **David Rees:** How old is the technology for coal gasification and shale gas? How long has it been going?

[164] **Professor Anderson:** The US, pretty much since 2000, has had considerable experience of producing shale gas. I think that 14% of the total gas supply of the US now comes from shale gas. That is the only place in the world where there has been significant development expressly of shale gas. Having said that, different parts of the technologies involved have been used across the hydrocarbon industry for many years. It is the bringing together of existing technologies that allows the extraction of shale gas economically. So, there is nothing particularly new in that process, or in the parts of the process, but we have not done it before for shale gas in particular. We now have 10 to 12 years' experience of significant production levels in the US, although it is important to bear in mind that the US context, particularly with its low population density, is very different from that of the UK and, as I pointed out earlier, it also has a different regulatory environment.

[165] **David Rees:** What about coal gasification?

[166] **Professor Anderson:** I do not know the detail on that. The processes are ones that we have had for a long time. We have been gassing coal for many years, and, indeed, producing oil from coal. However, the issue is when these things become economically viable. That usually occurs when other technologies are brought in, so it is often a synthesis of existing technologies.

11.15 a.m.

[167] **Mr Harrison:** I would not disagree with anything that my colleague has said. The change that has brought forward more proposals is the technological improvement in drilling. Vertical drilling was done for years. It is the development of horizontal drilling technology that has enabled the fracking process to be exploited more widely. That is our understanding of the change and why this area has become more prominent over the last few years.

[168] **David Rees:** So, no long-term impact assessments have been done on anything in these areas, have they?

[169] **Mr Harrison:** Studies have been undertaken in the US, but none in the UK.

[170] **Professor Anderson:** We have been horizontally drilling in the North sea for around 20 to 30 years.

[171] **Lord Elis-Thomas:** I see that there are no further questions. We are grateful to Professor Kevin Anderson and John Broderick from the Tyndall Centre and also to John Harrison and Dave Jones from the Environment Agency Wales, as we are still able to call it.

11.16 a.m.

### **Papurau i'w Nodi Papers to Note**

[172] **Yr Arglwydd Elis-Thomas:** Mae gennym gofnodion cyfarfod 15 Mawrth a phapurau yn ymwneud â'r Pwyllgor Deisebau, sydd wedi cael eu geirio yn y modd cytunom yn flaenorol.

**Lord Elis-Thomas:** We have the minutes of the meeting on 15 March and papers relating to the Petitions Committee, which have been phrased in the manner that we agreed previously.

[173] Dyddiad y cyfarfod nesaf yw dydd Mercher 25 Ebrill. Byddwn yn trafod adroddiad drafft ar ein hymchwiliad i bolisi ynni a chynllunio yng Nghymru.

The date of the next meeting is Wednesday 25 April. We will discuss the draft report on our inquiry into energy policy and planning in Wales.

[174] Cyn cau'r cyfarfod, rwy'n ymddiheuro os oedd fy meddwl mewn man arall yn ystod y bore ar ôl datganiad RWE Npower, a oedd yn cyd-daro â'r pwyllgor hwn mewn modd bach yn ddramatig, efallai. Ar ôl ymgynghori gyda'n cynghorwyr arbennig yma, rwy'n awgrymu ein bod yn gyrru rhai cwestiynau pellach at RWE Npower, a Kevin McCullough yn arbennig, yn gofyn am ymateb pellach o ran y rhesymau sydd wedi cael eu gosod. Ar ôl darllen y datganiad i'r wasg yn fanylach, mae'n ddeg i ddweud ei bod yn mynegi'r farn bod ynni niwclear yn rhan angenrheidiol o'r cymysgedd ynni ar gyfer Cymru, a bod y prosiect ar Ynys Môn wedi'i ddatblygu i'r graddau y byddai modd, yn ei barn, iddo fynd yn ei flaen, ond mai rhesymau buddsoddi a rhesymau eraill o fewn y cwmni a'r sefyllfa yn yr Almaen sydd wedi achosi i hyn ddigwydd. Efallai y byddai'n briodol i ni ofyn, o safbwynt ein hymchwiliad i rôl y diwydiant ynni, y math o gwestiynau y byddwn wedi gofyn i Horizon pe byddent gyda ni o hyd, fel petai. Byddai'r cwestiynau hynny yn gallu cael eu gofyn er mwyn i ni gael ateb ysgrifenedig mwy llawn, at bwrpas ein tystiolaeth, na'r atebion anffurfiol a gesglais y bore yma. Diolch yn fawr i chi.

Before closing the meeting, I apologise if my mind was elsewhere during the morning after the RWE Npower statement, which coincided with this committee in a rather dramatic way, perhaps. After consulting with our special advisors here, I suggest that we send some further questions to RWE Npower, and Kevin McCullough in particular, asking for a further response in relation to the reasons that have been set out. After reading the press release in more detail, it is fair to say that it expresses the view that nuclear power is a necessary part of the energy mix for Wales, and that the project on Anglesey has been developed to the extent that it could, in its opinion, proceed, but that investment reasons and other reasons within the company and the situation in Germany has caused this to happen. It may be appropriate to ask, in terms of our inquiry into the role of the energy industry, the kinds of questions that we would have asked Horizon, if it was still with us, so to speak. Those questions could be asked so that we can get a more detailed written response, for the purposes of our evidence, than the informal responses I collected this morning. Thank you to you all.

*Daeth y cyfarfod i ben am 11.18 a.m.  
The meeting ended at 11.18 a.m.*