



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

**Y Pwyllgor Cynaliadwyedd  
The Sustainability Committee**

**Dydd Iau, 7 Chwefror 2008  
Thursday, 7 February 2008**

**Cynnwys**  
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Cofnodir y trafodion hyn yn yr iaith y llefarwyd hwy ynndi yn y pwyllgor. Yn ogystal,  
cynhwysir cyfieithiad Saesneg o gyfraniadau yn y Gymraeg.

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**

Lorraine Barrett	Llafur Labour
Mick Bates	Democratiaid Rhyddfrydol Cymru (Cadeirydd y Pwyllgor) Welsh Liberal Democrats (Committee Chair)
Alun Davies	Llafur Labour
Irene James	Llafur (yn dirprwyo ar ran Karen Sinclair) Labour (substituting for Karen Sinclair)
Alun Ffred Jones	Plaid Cymru The Party of Wales
Darren Millar	Ceidwadwyr Cymreig Welsh Conservatives
Brynle Williams	Ceidwadwyr Cymreig Welsh Conservatives
Leanne Wood	Plaid Cymru The Party of Wales

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

Mike Batt	Rheolwr Cymru, Yr Ymddiriedolaeth Garbon yng Nghymru Manager for Wales, The Carbon Trust in Wales
Lorraine Frater	Rheolwr Ymchwil, Canolfan Perthnasoedd Busnes, Atebolrwydd, Cynaliadwyedd a Chymdeithas, Prifysgol Caerdydd Research Manager, Centre for Business Relationships, Accountability, Sustainability and Society, Cardiff University
Roger Wade	Cynghorwr Gwastraff a PARCH, Asiantaeth yr Amgylchedd Cymru Waste and PARCH Adviser, Environment Agency Wales
Peter Wilkinson	Arbenigwr Technegol Gwastraff a PARCH, Asiantaeth yr Amgylchedd Cymru Waste and PARCH Technical Specialist, Environment Agency Wales
Ruth Wood	Ymchwilydd Cyswllt, Canolfan Tyndall Research Associate, Tyndall Centre

**Swyddogion Gwasanaeth Seneddol y Cynulliad yn bresennol**  
**Assembly Parliamentary Service officials in attendance**

Joanne Clinton	Dirprwy Glerc Deputy Clerk
Dr Virginia Hawkins	Clerc Clerk

*Dechreuodd y cyfarfod am 9.07 a.m.  
The meeting began at 9.07 a.m.*

**Cyflwyniad, Ymddiheuriadau, Dirprwyon a Datgan Buddiannau  
Introduction, Apologies, Substitutions and Declarations of Interest**

[1] **Mick Bates:** Good morning everyone and welcome to this morning's meeting of the Sustainability Committee. I will begin with the usual housekeeping announcements.

[2] In the event of a fire alarm, you should leave the room by the marked fire exits and follow the instructions of ushers and staff. There is no fire alarm test forecast for today. Please make sure that all mobile phones, pagers and BlackBerrys are switched off, as they interfere with the broadcasting equipment. The National Assembly for Wales operates through the media of both the Welsh and English languages. Headphones are provided, through which instantaneous translations may be received. For those who are hard of hearing, headsets may also be used to amplify the sound. Interpretation is available on channel 1 and the verbatim feed is on channel 0. Please do not touch any of the buttons on the microphones, but ensure that the red light is showing before you speak.

[3] I draw Members' attention to the letter that we have received from the Deputy First Minister and Minister for the Economy and Transport regarding issues that were not covered at the last meeting. Darren, would you please note that? There has also been a statement about the coal technical advice note, which will now be subject to a further and more precise consultation. You will remember that we received a petition on that.

[4] I have received apologies this morning from both Karen and Lesley. I see from the name plate for Irene James that we may have a substitute coming to the meeting.

9.09 a.m.

**Ymchwiliad i Ostwng Carbon yng Nghymru—Sesiwn Dystiolaeth ar Ostwng  
Carbon gan Ddiwydiant a Chyrff Cyhoeddus  
Inquiry into Carbon Reduction in Wales—Evidence Session on Carbon  
Reduction by Industries and Public Bodies**

[5] **Mick Bates:** We continue our inquiry into carbon reduction in Wales and begin this morning with our evidence session on carbon reduction by industries and public bodies. I have great pleasure in welcoming Ruth Wood, a research associate from the Tyndall Centre, and Lorraine Frater, the research manager from the centre for business relationships, accountability, sustainability and society at Cardiff University, which is better known as BRASS. I invite you to give a brief overview of the papers that you provided, and thank you for them. They were excellent papers, which included some very interesting information about carbon reduction. From the Tyndall Centre, there was also a sense of urgency about what we have to do. So, please take three minutes to give us an overview, and I invite Ruth to speak first.

9.10 a.m.

[6] **Ms Wood:** Thank you. I am going to present some work that many of you will have seen presented at a UK level by my colleague, Kevin Andersen, but I have redone his analysis for Wales, looking at a carbon budget for Wales between 2000 and 2050. The rationale for budgeting is that the underlying goal behind the UK's 60 per cent and 80 per cent reduction targets is to stabilise greenhouse gases in the atmosphere at 450 parts per million carbon dioxide equivalent, which hopefully equates to no more than a 2 degrees centigrade increase

in global mean surface temperatures—the level at which climate change is manageable. It avoids the risk of dangerous climate change. In knowing that, you can work backwards and find out a carbon dioxide equivalent budget that can be spent between now and 2050 that would lead to that concentration in the atmosphere.

[7] I have allocated that down to Wales to give Wales a carbon budget that can be spent between 2000 and 2050. That budget should include emissions from Wales, particularly aviation and shipping associated with Wales. It does not matter how you reduce emissions from those sectors, as long as you stick to that budget and do not go over it.

[8] You can see from figures 1 and 2 that there is limited flexibility in the response to climate change; the sooner we make emissions reductions, the easier that it will be in the long run. I have outlined what the impact of a 3 per cent reduction, year on year, from 2011 would be, which is the top solid line, and then I have done a possible emissions pathway that sticks to your budget, which is the dotted line beneath it. The difference in the areas under those curves represents the overshoot of carbon emissions above your budget if a 3 per cent per annum reduction was adhered to.

[9] As it is a budget, if you can make large reductions sooner, you will not have to make such drastic reductions later. So, you can spend how you want, but it is easier to make reductions earlier than to leave it to the last minute and have to make drastic reductions to get under that budget.

[10] **Mick Bates:** Thank you, Ruth. I now invite Lorraine to give an overview of her paper, and we will take Members' questions afterwards.

[11] **Lorraine Barrett:** It is not often that you get two Lorraines.

[12] **Ms Frater:** As the majority of the BRASS research centre work addressing the relevant topic of carbon reduction is from a behavioural, technical or economic perspective, the focus of the evidence that we have presented is from this viewpoint. Therefore, we do not seek to present evidence on the technical and economic issues relating to carbon reduction, but on the work that we have undertaken in the areas relating to how organisations can change their behaviour, be they industrial or public organisations, and, therefore, how they can also impact on consumers.

[13] A key theme to the research that we have undertaken is consumer behaviour and organisational change, and how these can be achieved via regulation, social marketing and responsible management. Our work on consumer behaviour and organisational change can often provide evidence on why certain policies and strategies may succeed, or not, as the case may be. Our approach is not to look at organisations and consumers as two distinct groups, but at how they interact with one another, particularly in terms of consumers, employees and managers within organisations, and the interplay between these roles. Because of the interception of these roles, we believe that the industry and public bodies can influence the actions of consumers, and vice versa, particularly in terms of energy use in homes and personal transport, which account for the majority of consumer carbon emissions.

[14] However, policies and strategies must acknowledge that people, as consumers, directors of companies, investors and employees, respond to climate change very differently, and strategies need to recognise different behavioural segments and the different types of motivators and barriers to which they are subjected.

[15] The BRASS centre is currently involved in research with the Futures Foundation, which looks at what consumers expect brands and businesses to do about climate change, what consumers want to do and how businesses should communicate the issues and their

solutions to these consumers. In our submission, we have highlighted three areas that are of particular concern for Wales: the food industry, housing and transport. A great deal of the work that we are looking at now has to do with how, particularly in terms of the hydrogen economy, planning for hydrogen stations can fail due to a lack of political buy-in at a local level, which is an issue in Scotland. Planning can also fail due to resistance from local residents, because policies were not communicated to them. So, much of our work is on those aspects—how you communicate issues and how to look at carbon reduction from an organisational behaviour perspective.

[16] **Mick Bates:** Thank you. I noted reference to a study called '*Bad Habits/Hard Choices*' in your paper. There is a lesson for us all in that; people's awareness of what should be done about climate change is high, but their actions do not match that.

[17] **Ms Frater:** A great deal of the work that is being conducted at the moment is on how this is happening.

[18] **Mick Bates:** There is a lesson there for individuals and for Governments.

[19] **Ms Frater:** Yes.

[20] **Mick Bates:** Thank you for your excellent papers and your overview. Members will now ask questions, first to the Tyndall Centre and then BRASS.

[21] **Leanne Wood:** Ruth, in your paper, you talk about the UK targets as being 80 per cent when the Climate Change Bill commits the UK to only 60 per cent, so why do you say 80 per cent?

[22] **Ms Wood:** That target is currently under debate. In a speech a few weeks ago, Gordon Brown said that he is now looking at reductions of 80 per cent. It is for the climate change committee to decide on the overall target and then on a series of five-year carbon budgets, up to 2050, for the UK to meet. The target of 60 per cent was originally based on older science, which suggested that atmospheric stabilisations at 550 ppm would be safe for avoiding dangerous climate change. However, in the past few years, that has been revised down to 450 ppm. Therefore, the levels of reduction that we need are increasing as the science improves. I do not wish to pre-empt the work of the climate change committee, but I suspect that if it is holding to the target of 2 degrees centigrade, it will have to suggest that it increases the target to 80 per cent.

[23] **Leanne Wood:** Thank you. The Welsh Assembly Government recognises its key leadership role in tackling climate change, but how can it best demonstrate that leadership?

[24] **Ms Wood:** One of the most important things is for it to set an example to businesses and individuals in Wales by demonstrating that buildings and public services are committing to carbon reductions. It needs to use publicity to tell people why we are doing this, why it is important for Wales, and what the impact of climate change would be. So, there is the leadership element, and then there is the communication side of things—as well as putting in place infrastructure changes that will enable people to change their behaviour patterns to live more sustainably.

[25] **Mick Bates:** The word 'leadership' occurs often in discussions on this. Lorraine is next.

[26] **Lorraine Barrett:** Ruth, you mentioned cumulative emissions earlier and in your paper. Please expand on the role that cumulative emissions play in determining the reductions that are necessary.

[27] **Ms Wood:** It helps if you see cumulative emissions as being similar to money. For example, having £50,000 to spend over a 50-year period equates to your achieving x. It is similar with emissions. Once carbon dioxide and greenhouse gases are in the atmosphere, they tend to stay there for a long time and continue to have a warming impact. Therefore, every year, you build up the concentration in the atmosphere. So, if you set carbon budgets, the latest modelling suggests that you can keep atmospheric levels beneath 450 ppm.

[28] **Lorraine Barrett:** That makes it clearer for me.

[29] **Mick Bates:** It is like a bank.

[30] **Lorraine Barrett:** Yes. Most assessments of carbon emissions build in some inertia, such as emission stabilisers—as you say, from 2005 to 2011. What early wins could the Welsh Assembly Government achieve to reduce emissions from industry and the public sector before the start of substantial, year-on-year emission reductions to 2011?

9.20 a.m.

[31] **Ms Wood:** There are many improvements that could be made to public sector buildings. In terms of energy efficiency, changes could be made to their fuel use and heating sources, with more alternative energies used. On transport, public sector bodies could change their fleet vehicles over to low-emission vehicles. Demand management is one of the earliest wins that you can get. However, I would leave it to other colleagues to suggest additional measures.

[32] **Mick Bates:** Returning to your answer about the cumulative impact of carbon emissions, I take it that those figures account for the removal of carbon by natural processes. Therefore, how much carbon is removed through photosynthesis?

[33] **Ms Wood:** I would not be able to give you an exact figure. However, the models that predict the amount of emissions permissible to stick within your target will incorporate several feedbacks in the carbon cycle. The ones included in these figures are based on the Hadley Centre's carbon feedback. There are also several other factors that will affect the impact of greenhouse gases on temperature and on the 450 ppm target, which are also taken out of that budget, based on several assumptions. The figures that I have used are reported in the Intergovernmental Panel on Climate Change 2007 report, so they are the most up-to-date figures published on a worldwide level.

[34] **Mick Bates:** Have you factored that reduction into your figures, year on year?

[35] **Ms Wood:** That is not factored into my figures. That is factored into the carbon budget total for the world before you start to make the allocation.

[36] **Mick Bates:** However, if we were, for example, to plant many more trees, does that have a massive impact or not?

[37] **Ms Wood:** That would come into your land use and land use change emissions, which are incorporated in the budget. Planting trees is not necessarily a good way of reducing carbon. At temperate places around the earth, the energy absorbed by the trees can equate to the carbon dioxide saved. Therefore, if you are going to plant trees, plant them in the rainforest, rather than in Wales, or, if you are going to plant them in Wales, use the wood, and then you essentially sequester it by taking it out of the system and using it as a building material. However, planting forests, per se, is not necessarily the best way to reduce carbon emissions.

[38] **Mick Bates:** That is an interesting point.

[39] **Brynle Williams:** On that point—and I had not thought about this previously—would a reduction in arable land help? We have, thankfully, stopped reclaiming much of the uplands—the natural carbon sink—would that apply again if we came lower down the hill? I understand that the more we plough, the more carbon we release, so we need to look more to a totally grassland economy. Well, you cannot do it totally, but would it have a marked effect?

[40] **Ms Wood:** I am not sure of the percentage. However, the percentage from land use and land use change in Wales's total carbon emissions is not that high compared with other sectors. There may be important uses for that arable land, which may help climate change a bit more. I would not want to predict, but colleagues at Aberystwyth University have looked at that.

[41] **Mick Bates:** We will be looking at carbon reduction from land use as our next piece of scrutiny. Could you return to your question, on emissions from aviation, Brynle?

[42] **Brynle Williams:** How important is the inclusion of emissions from international aviation and shipping? We do not have much control over that.

[43] **Ms Wood:** It is very important. A carbon budget is a budget for everything—your emissions from aviation and shipping must also go into that budget. The environment does not notice where your carbon dioxide has come from; it is just carbon dioxide. So, aviation is an important aspect to keep in the budget, because it is growing so fast as a sector. At the moment, it amounts to quite a small percentage of the total of carbon dioxide emissions, but it is growing rapidly, and unless the emissions from that sector are curtailed, it could eat up your entire carbon budget by 2050.

[44] **Brynle Williams:** I have a further question, which I think is relevant—last week, we saw the first cargo ship of modern times to use a sail. Is it just a novelty, or is that something that we should consider in order to reduce carbon emissions?

[45] **Ms Wood:** Emissions from shipping are quite an interesting topic. Research by my colleagues has shown that estimates of shipping emissions are probably far lower than the reality. So, anything that can reduce shipping emissions is a bonus. I assume that that ship looked like a big kite—

[46] **Brynle Williams:** That is right—it was a big kite, or sail. I was just wondering whether it was a publicity stunt, or whether there was any real merit involved.

[47] **Ms Wood:** We will see when the fuel consumption figures are reported at the end of its journey.

[48] **Alun Ffred Jones:** You could attach such a sail to your car, Brynle.

[49] **Brynle Williams:** That would be very beneficial, indeed.

[50] **Mick Bates:** Lorraine has the right idea—we would be back in the galleys, pulling on oars. [*Laughter.*]

[51] It is an interesting subject. You made a comment, Ruth, about the increase in carbon emissions from shipping and aviation possibly accounting for the whole carbon budget.



[52] **Ms Wood:** If aviation continues to increase as much as it has—and since 1970, the increase has been overwhelming—then it could eat up all of your budget. There is much that could be done now to improve the efficiency of planes, and to increase the load factor of passengers. So, it can be improved, but it is certainly a sector that needs attention and cannot just be ignored as a problem that is too difficult to tackle.

[53] **Alun Davies:** I accept what you are saying, although you say that would be the case by 2050, not in five or 10 years' time, given the increase in aviation. Would it be unfair to say that, for some people, aviation is a sort of totem pole, and that they do not look at the reality? If you look at the sectors that are growing—you point out in your paper that Wales is the only UK country to see a growth in emissions over the last few years, but that was not generated by an increase in aviation. It was generated largely, I assume, by industrial processes, and I use that term to include the whole spectrum of industrial growth in Wales. Therefore, you could argue that increased emissions are a result of a growing economy. Is aviation therefore a whipping boy, when the real issues that we have to address are domestic and industrial use on the ground?

[54] **Ms Wood:** I certainly think that we need to address all sectors, but aviation is a different case because it is growing so much. Hopefully, aviation will enter the EU emissions trading scheme, and if the caps are tight enough, then that will have some impact, although modelling suggests that it would be pretty minimal. Aviation is also a problem because there is currently no alternative to the fuel that is used, kerosene. There is no technology that can come in and replace that at present. If the right drivers were there, then I am sure that the industry would rise to that challenge, but aviation sticks out because, in the UK, where all the other sectors are improving, aviation is getting worse. It is the one sector that has been left unchecked.

[55] **Alun Davies:** In your paper, you single out energy production and say that, as a sector, energy is something that we should address here at the Assembly. You give some pointers as to how you believe that we should be addressing that. I am particularly interested in one statement that you made, about aviation and shipping. You say that

[56] 'Once emissions from these sectors have been successfully targeted, the emissions associated with wider consumption can be considered.'

9.30 a.m.

[57] I am interested to know why we cannot consider those wider consumption issues today. We understand that aviation and shipping are both subject to much wider international agreement and are, therefore, almost by definition, more difficult. Why can we not address the easier issues of wider emission consumption straight away?

[58] **Ms Wood:** If you can do everything, yes—

[59] **Alun Davies:** I am not saying, 'do everything', but I am saying that we should do the easiest things first.

[60] **Ms Wood:** Consumption is not an easy thing to tackle. You are talking about changing people's behaviour, which is a difficult topic to tackle. One of the main reason why I said that we should look at consumption, or that we should bear it in mind and not dismiss it completely, is that if you are trying to change people's shopping-basket habits, for example, what and how many goods people buy, you have to enter into long-term work on behavioural change. There are no quick wins or models that will tell you what you are going to get, and there are no available data on individual products to enable people to choose between, for example, bananas from Ecuador or the Caribbean based on the difference between the carbon

footprints of both. There are also issues of fair trade and how you support other people's economies. So, it is not a simple thing to look at, whereas you can make quicker wins by focusing on things for which you are directly responsible, rather than trying to look outside of Wales's borders.

[61] **Alun Davies:** I understand your point about nothing being simple, but I do not understand why we have to wait until international agreement is reached on, for argument's sake, aviation until, according to your submission, we can start work on those things. I am not suggesting that it is easy, but my confusion relates to why we need to wait if the situation, as you put it, means that we are looking for 80 per cent cuts in the next few decades. Why sit back for five years or so until there is a European agreement?

[62] **Ms Wood:** My point on that relates to considering the baseline of your emissions. There are different ways of apportioning carbon dioxide and greenhouse gasses to a country. For example, there are the producer-based emissions, which, essentially, are what Kyoto is based on, and which include emissions from all industries direct at source. Then there are end-user emissions, which involve allocating all emissions associated with energy production and transportation to the end user of that energy. There is a further method of apportioning that involves allocating emissions from the consumption habits of UK people from UK services to the end user, and then there is the method that involves taking into account emissions relating to everything that is imported into the UK.

[63] National agreements at the moment are based on emissions within the UK border. Nations are treated separately. China's emissions are due, in part, to the fact that we are demanding all of its goods, but according to current international-level agreements, China is responsible for the emissions even though they are caused by our demand for the goods. So, when I mentioned extending international aviation and shipping, I meant extending your carbon baseline to incorporate everything in Wales first and to keep monitoring that, along with working on the consumer change issues that you can work on now. However, they will be much harder to measure and I would say that the approaches available at the moment will not give you quick wins, because the data are not available and the detail is not precise enough to enable you to see what is going on. However, in a few years' time, that will be much easier to monitor.

[64] **Alun Davies:** In your submission, you highlighted tools, such as the Centre for Sustainable Energy's local and regional carbon management matrix. Given the position that we are in and the overall background that you have outlined for us, will these tools have the impact that we require, if they are used by public bodies in Wales?

[65] **Ms Wood:** It is a huge task. There is a certain amount of leadership involved. I would not like to try to model what can be done by different sectors; it is not a simple job to try to model that impact.

[66] **Alun Davies:** So, what impact do you think they will have?

[67] **Ms Wood:** If, for example, the public sector reduced all its emissions, that would account for a percentage reduction in overall emissions. If domestic housing were focused on, you could assume that you might get an x percentage reduction. You could build it up from the different sectors according to the powers that you have. Undoubtedly, you are going to be reliant on collaboration with other administrations, the general public and industry to achieve emission reductions. It is not a simple task, but the leadership role is very important.

[68] **Alun Davies:** How would you define that leadership role? You have referred to leadership on many occasions. It is very easy to refer to that and we all do it at times. What would it look like?

[69] **Ms Wood:** I would see it as nailing your colours to the mast and saying, ‘This is what our target is for; this is what we believe’, and following that up with statements and policies that are consistent with that goal rather than having one department—and I use the UK Government as an example—saying, ‘We are going to reach 60 per cent emissions reduction’ and another saying, ‘We are going to expand Heathrow’. There needs to be a consistent message backed up by action that the public can see.

[70] **Alun Davies:** From your work, do you believe that the Welsh Assembly Government is demonstrating that leadership role at present?

[71] **Ms Wood:** I would not be able to tell you, I am afraid.

[72] **Mick Bates:** That was very non-political.

[73] **Alun Ffred Jones:** This question is addressed to Ruth mainly, but I would be interested to hear Lorraine’s response too. You state in your submission that industry and the public sector account for 50 per cent of Wales’s end-user emissions, and you go on to say,

[74] ‘emissions from these sectors are comparatively easier to achieve in the shorter term’.

[75] This is following what Alun was asking. What are the most important means of reducing emissions from industry and the public sector? Can you give us a few tips?

[76] **Ms Wood:** When I made that statement, I was referring to the fact that static sources in general are easier to target than moving ones. There is technology available that can supply buildings with zero carbon electricity and low-carbon or zero carbon forms of heating. So, you can make those switches for buildings, not easily but comparatively more easily than you can change the fuel for a passenger car. Travel is going to be a very difficult sector to reduce emissions in, because people’s mobility is so important for economic growth and development. At present, vehicle kilometers are going up and there are not the step changes in efficiency in the technology available that there perhaps should be to get the emissions from that sector down.

[77] **Alun Ffred Jones:** So, are you saying that we should concentrate on buildings?

[78] **Ms Wood:** I would not want to suggest concentrating on a specific area because there are a number of steps that you can take across each of the sectors. From my own experience, I would perhaps think that emission reductions from transport are going to be harder in the short term but the infrastructure needs to be set up soon to enable reductions in the future, whereas for buildings in the public sector and industry, for example, technology and demand-management techniques are available now for implementation.

[79] **Alun Ffred Jones:** You go on to say that the public sector may wish to lead by example and reduce its emissions by 100 per cent. Are you sticking to that?

[80] **Ms Wood:** Why not?

[81] **Alun Ffred Jones:** So, it should reduce its emissions by 100 per cent?

[82] **Ms Wood:** Why not?

[83] **Alun Ffred Jones:** So, we should stop moving? A lot of the public sector’s work involves people moving around helping other people.

[84] **Ms Wood:** You can switch your buildings to being sourced with renewable electricity and heated by renewable fuels, and the vehicle fleet used in that business could run on biofuel, electricity or hydrogen. There are options available.

9.40 a.m.

[85] **Alun Ffred Jones:** Does Lorraine concur with that?

[86] **Ms Frater:** If we consider the commercial side of industry first, there are certain things that we can do and that are actually being done. The main thing is that businesses have expert assistance available to them. In Wales, we have the environment business service. The work that we have undertaken on how this assists companies to become better at using energy, dealing with waste, and so on, has proven that there is not a cohesive system at present. So, they are getting conflicting information from different providers. I know that work is being done in Wales already to bring this together. Once businesses can call up a one-stop service to ask for assistance, they will not receive conflicting or poor information. That, in a sense, can then start to help companies to move towards being more efficient in terms of how they produce products. This is not a simple issue; you have to change how these companies think and the availability of technology that already exists. In a sense, this involves investing in being innovative in terms of how you can deal with making your production processes more efficient and less wasteful in terms of energy production and solid waste.

[87] **Alun Ffred Jones:** Did you refer to a specific body that helps businesses in Wales?

[88] **Ms Frater:** There is an environment business service in Wales, which is funded by various sources. A lot of it revolves around waste at the moment, but it effectively can extend out to energy, water use, and so on.

[89] **Alun Ffred Jones:** Is that a private body?

[90] **Ms Frater:** It is partly funded by the Assembly Government, and the Wales Environment Trust and similar organisations are involved; they go out to businesses to offer them advice. It can be publicly or privately funded. It is about getting organisations to have a more cohesive approach to providing the correct information. When we talk to companies, they say, 'Well, we either get poor information or we only get a percentage of the information; they are not always able to give us all the necessary information that we require'. So, there is a move in Wales already to try to co-ordinate this service, which is a major aspect in itself to be improved upon all the time.

[91] **Mick Bates:** We will be taking evidence later this morning from the Carbon Trust.

[92] **Ms Frater:** It is involved in that service.

[93] **Mick Bates:** The Energy Saving Trust has recently taken on board the responsibility for advice on transport. The point that you made about the advisory service is interesting. Would it be better if all energy advisory services had one helpline?

[94] **Ms Frater:** Yes. At the moment, one organisation will often not have all the expertise that a company needs, and it therefore will not know that another service provider has that information. It is about co-ordinating this so that companies get the best possible advice available and so that you can start to deal with some of the potential problems.

[95] You were talking about leadership earlier. This is one role that the public sector can take on in terms of having what is classified as green champions, namely people who direct

the environmental issues within their organisations. However, we have found that, in the commercial sector in particular, when you have green champions in businesses, they will only succeed when they are supported by the institutional framework. So, you are then trying to secure a cultural change within these organisations. A lot of the time, you get individuals within these organisations who are proactive and are having an impact. So, I think that there can be changes within organisations, and it is about spreading best practice. That is where the public sector can lead, in a sense, by developing best practice that can then be fed down to industry.

[96] I think that the commercial side of industry can find easier ways of dealing with it in that respect, but that is in the short term as opposed to the long term. On the transport side of it and the work that we have been doing looking on the hydrogen economy, some research conducted has found that there is a lot of mistrust about hydrogen. People are still thinking about the Hindenburg disaster, and they think, 'It will explode'. So, the minute you have these kinds of problems, you have a longer-term approach to take. It is about educating people and bringing them around to the idea, and it is about the language that you use. There are things that can be done in the short term, but, for hydrogen, you have to start building an infrastructure as well.

[97] **Brynle Williams:** I am intrigued by this. We have to look at making a cultural change, and on how we can do that. Behind us here, we have the facilities for videoconferencing, which we do not make enough use of. I do not know whether you agree. Modern-day technology can surely create a terrific reduction in the amount of personal travel.

[98] Another cultural change that you touched on is food, and the fact that 80 per cent of the transport on the road today is carrying food, which comes down to the fact that we are demanding more exotic products from abroad, and we do not use seasonal food enough. However, as a farmer, what I find the worst thing is seeing animals transported 300 or 400 miles, only to go another 500 or 600 miles before they reach the housewife in the UK. We need to make the cultural change of going back to localisation. We are doing it here, but do you not agree that there is a vast scope for saving energy, carbon and what have you?

[99] **Ms Frater:** Our work has been growing from looking at what the individual consumer does to what organisations do, and now we are looking at sustainable communities. So, that work is about the relocalisation of needs so that we reduce our carbon footprint. We are looking at how to bring back sustainable communities, and creating case studies. This work is just beginning. This is about food being produced within a zone of 20 km, and about providing people in local communities with the skills to start to provide those services to their communities. That is an important cultural change and it is work that is now just beginning. Again, I doubt whether that will happen quickly; given that it is a cultural change, you are talking about the long term. That work is now under way, and case studies will be created.

[100] **Mick Bates:** We have to move on, because I am aware that you have to leave quite shortly.

[101] **Darren Millar:** Coming back to the issue of dealing with carbon-dioxide emissions from the static estate, which you said was easier to deal with than some other things, you mentioned trying to get down to totally zero emissions, effectively, from the public estate. How long do you think it would take us in Wales to achieve that, realistically? If we installed microgenerators and made things more efficient, and so on, how long would it take us to roll that out across the public sector?

[102] **Ms Wood:** I would not like to say. I do not know how big the estate is, or the challenges that individual buildings would face. You would have to speak to engineers.

[103] **Darren Millar:** On the other static sources of carbon-dioxide emissions, outside the public sector, we have heard from Lorraine about some of the organisations that are there to help business, but, realistically, should we not be looking—and your paper does not say anything about this, Ruth—at the planning processes, and targeting the potential new emitters of carbon dioxide, alongside the focus that there has to be on reducing carbon-dioxide emissions from industry? Why is it that you have not touched on the planning issues and the ability, through the planning process, to ensure that emissions are low, or mitigated, by new businesses wanting to establish themselves in Wales?

9.50 a.m.

[104] **Ms Wood:** I have deliberately not stated how I think different administrations should deliver things, because I am afraid that my expertise relates only to English local authorities, and I do not want to make assumptions about what happens in Wales. If you are looking at building standards and ensuring that new public transport infrastructure is included in all new building applications for businesses and homes—in what are termed ‘eco cities’—the less carbon that it emitted by these new buildings and industries, the better, as it means that you do not have to offset the increases quite so much from the existing stock.

[105] **Darren Millar:** But we want you to tell us. We want you to give us some direction, because we are looking to make recommendations to the Minister—and further afield—on how these problems can be addressed. I would encourage you to give us more information and to look at it from the Welsh viewpoint after the meeting, because we would really value your input on how we can deal with these issues through the powers and the legislative framework that we have in Wales. The planning process is a huge part of the framework powers that we have, and we will receive more powers from the UK Planning Bill that will enable us to unlock potentially huge carbon reductions in the future. I do not know what you think about that, Lorraine.

[106] **Ms Frater:** Part of our work was to look at the eco-footprinting of development in Cardiff. We discovered a lack of joined-up thinking within certain departments, which meant that there was sometimes conflicting evidence. When developments were being planned, the demands of one sector would differ from those of another, which was a problem. There has to be a joined-up approach, as well as a long-term approach to planning. When we develop, we should develop with accessibility in mind. There should be walking and cycling routes, and relevant waste facilities in close proximity. At the moment, we are developing in a vacuum. We are creating developments in places that are accessible only by car. Anything that is delivered to those developments has to be delivered by car. That lack of joined-up thinking is creating a bigger problem. That is one change needed in the planning process.

[107] Some areas in which I have been involved have looked at developing a checklist, through their development agencies, of the ideal things that a development should take into consideration, and those things include location and interconnectivity. That could be developed specifically for Welsh development.

[108] **Mick Bates:** You made reference in your paper to the local and regional carbon management matrix. You mentioned that Easington District Council had done a lot of work on that. Is that a practical tool that we could recommend to local authorities in Wales?

[109] **Ms Wood:** It gives good examples of what can be achieved by local authorities. However, other useful information is available through the Carbon Trust’s local authority carbon management scheme, which provides assistance and support for local authorities in managing their own estate, and scores them on what they are doing in the wider sphere. A great deal of evidence is also available, such as ‘Planning for Climate Change’, which was produced by, I think, the Royal Town Planning Institute. There is a lot of literature available

that is aimed specifically at assisting local authorities to respond to climate change. I would have to assume that Welsh local authorities have similar powers to those in England.

[110] **Mick Bates:** I think that our Minister would like more powers.

[111] **Alun Davies:** In relation to what you discussed earlier, do you believe that further powers are necessary for the Welsh Assembly Government to make the sort of progress on carbon reduction that we have been discussing this morning?

[112] **Ms Frater:** That is not an area that we have dealt with. My background is in law, so I personally believe that the more powers one can have, the better. In Wales, you probably have better opportunities to develop new opportunities, given the size of the country, and I think that there are opportunities to create stronger strategies. Iceland, for example, which has a population of 300,000, is aiming to be zero carbon by 2050. It is all about thinking about the long term and looking at it from an investment and planning perspective. I am not really in a position to go into much depth on planning, but that is a key element. So, how can the Welsh Assembly Government use any planning powers that it has to try to co-ordinate this? If you are looking at trying to become a zero-carbon administration, you should look at how you could use planning to your advantage.

[113] **Alun Davies:** I was very taken with some of the figures that you provided in the paper that you submitted to us. I think that you said that individual consumers accounted for around 42 per cent of carbon emissions and, of those emissions, 60 per cent arose from energy use in the home and personal transport. I would broadly recognise those figures. We spoke earlier about consumer behaviour, and we heard how difficult it can be to allocate carbon uses in any realistic way. You say that,

[114] ‘consumer behaviour may be potentially influenced by the actions of industry and public bodies’.

[115] Could you describe to us which actions you mean in that statement?

[116] **Ms Frater:** When we have spoken to consumers, they have told us that there is a problem for them in that there is a high amount of knowledge about climate change and carbon reduction, but they do not think that it impacts on them at the moment; they think that it impacts on what will happen in the future. A distinction is also made between them and their actions. From the information that we have had, they do not see their actions as making any kind of difference. However, what was more significant was that they were not willing to act until industry and public bodies were acting. They did not think that it was a role purely for them to be dealing with. What they were looking for was what industry would do. Some of them actually said, ‘If industry stopped producing products that were high carbon producers, we would not require them’. In that sense, what they were saying was, ‘If industry does not produce something for us, we will not then need to purchase it’.

[117] **Alun Davies:** That is obvious, is it not? If a product is not available, you do not buy it. Could you give us any more tangible examples of actions that the public sector and industry can take to mould public behaviour?

[118] **Ms Frater:** Consumers are looking to public bodies to take the lead; they are looking to be told what to do. They do not see themselves as being the ones to come up with solutions, but public bodies. They want public bodies and industry to turn around and say, ‘This is what we have to do’. One of the big things was that consumers expected there to be some sort of carbon labelling on products by 2012—that was the estimate. It is about information: industry providing information to the public about the extent of the carbon that a product will produce. That is a main area for industry to deal with this, namely to produce products that are less

energy-consuming—for example, if they were to start a labelling system to provide consumers with the information about how energy-efficient a product is. Those are some of the key areas where industry can start to take a lead.

10.00 a.m.

[119] **Alun Davies:** I have run a business and worked in industry for many years, and the thing that always struck me, particularly when paying the bills, was the way in which industry operates: if you can save 1 per cent on the bottom line, you save it. So, the biggest driver is cost reductions.

[120] **Ms Frater:** That goes back to the business environment—it is not a case of going to businesses and saying, ‘This will make you environmentally friendly’, but of saying, ‘Operating in this way will make you more cost-effective’. In a sense, that is where innovation plays a part, in that the industry then leads the way in reducing products and using processes that are more energy-efficient.

[121] **Darren Millar:** I am trying to draw a parallel in my mind with other things that have impacted on the behaviour of businesses and public bodies, and the only example that I can think of—I would like to know whether you think that this is an appropriate model, given that carrots are probably better than sticks—is the way in which health and safety is taken seriously by industry and public bodies. The same is true, to a large extent, about individuals, but perhaps less so. That was mainly done through enforcement, which is a stick approach. Do you think that that is an approach that we may need to use to get things moving in the right direction?

[122] **Ms Frater:** A lot of the stuff that we have looked at in terms of the food industry has shown that command and control is not always the most efficient means of achieving some things. From an environmental perspective, in particular, if you look at the environmental enforcement aspects of it, our penalties are currently very low; companies in the past have often estimated that it is cheaper to breach the law than it is to abide by it. So, command and control is not always the best way. In terms of health and safety in the food industry, it was about consumer perception of the industry’s goods and whether or not it was a safe product and if it had been recalled, and so on. There was an element of the consumer’s vision of whether a product was safe—whether it was an acceptable product was much more of a driver for the food industry to start operating its own initiatives. This is an area in which it can happen in terms of climate change, particularly within the food industry, because it will be susceptible to any changes that may occur in another country that can impact on the food supply chain. It is about making industry much more aware or changing its perception about how its product may be perceived by the consumer, rather than necessarily using command and control.

[123] **Darren Millar:** Is Alun Davies not correct in saying that the consumer will operate in the same way that a business does, and that it will come down to the bottom line? So, for example, there are two tins of beans, one sourced from a country many miles away and one sourced in the UK; if the UK one is three times as expensive, the consumer will pick the cheaper one each time, regardless of labelling. I accept that there will always be a minority who will choose the most expensive option.

[124] **Ms Frater:** Some people will buy products for different reasons—we cannot always say that the consumer will buy in one way. Some consumers will always choose the cheapest option but some consumers make ethical considerations about what they want to purchase. Command and control is not always the best way; I agree that you must set down that type of infrastructure, but you must look at other ways of ensuring that, in the long-term, an organisation will undertake those types of activities. Sometimes it is based on the bottom line,



but many multinational companies go beyond what the legal responsibilities require, because they see it as a good marketing opportunity. The public will want a certain standard and will want to know that a product is fair and that its production does not have an environmental impact. That desire is growing; there is a much larger percentage of the public who are interested in that than was the case before.

[125] **Darren Millar:** Is it not the case, however, that industry and the public sector are not moving quickly enough to address this problem? Therefore, is it not the case that the only way to do this is to use the policing approach that was adopted when health and safety became a serious matter in the workplace? I appreciate that you mentioned earlier the idea of having green champions within organisations. The health and safety officer in an organisation is often ridiculed by other members of staff and is someone who upsets other people. Frankly, I suspect that green champions may well be in the same boat, at times, because it is difficult to get people to take this issue seriously. We all accept that it is a serious issue, and we have received a great deal of evidence demonstrating the fact that there is a need for immediate action, but we are still trying to reach the baseline on this in Wales with regard to our emissions and our devolved responsibilities. Therefore, a much bigger lever needs to be pulled. I appreciate that there must be carrots, but is the carrot here not saving the future of the planet? It is not necessarily something that will be immediately beneficial without any kind of cost to business, industry or the public sector. There is going to be a cost in the short term.

[126] **Ms Frater:** Yes there is. If you look at it from a command-and-control perspective, you are looking at a bigger cost on the public sector, because you must have the ability to enforce that command and control. Talking from a waste perspective, because that is where I am much more familiar with companies, we have a command-and-control approach in that companies have a duty of care. Having conducted waste surveys, we know that, unfortunately, most companies in Wales are breaching that duty of care. That happens every single day, everywhere, and we do not have a command-and-control system that can enforce the standards. Therefore, we end up having to deal just with large polluters.

[127] Command-and-control systems need to be backed up with efficient enforcement policies. Sometimes people breach these systems, not because they have an evil intention to do so, but because they do not know any better. I am a lawyer, so of course I agree with the command-and-control system, but you need to back that up with a certain amount of knowledge, education and information, because you must try to get to the people who are breaching the systems unintentionally because they are simply not aware. At this moment, environmental legislation is nearly on a par with health and safety legislation. It is very complicated, sometimes overburdensome, and companies cannot always keep up with it and their responsibilities under it. Therefore, if you look only at command-and-control systems, we would not be assisting companies to achieve their best. We need that element too; we need to try to provide them with some sort of support.

[128] **Mick Bates:** That is a point that we can take up next week when the Confederation of British Industry, Marks and Spencer, UPM Shotton and other big company representatives will give evidence.

[129] **Leanne Wood:** Lorraine, you mention in your evidence several potential areas where we could encourage carbon reductions: support for innovation, housing policy, planning and so on. Which of these would have the biggest immediate impact in terms of generating cost-effective carbon reductions?

[130] **Ms Frater:** Transport would require a long-term approach. I do not need to tell you that the transport infrastructure in Wales is not always the best. On housing, there is room for development through improved planning, improved guidelines—

[131] **Leanne Wood:** On new build, presumably?

10.10 a.m.

[132] **Ms Frater:** Yes, on new build. I know that Wales has a large stock of old buildings, which is probably more problematic, but, in a sense, they are using the home energy efficiency scheme to try to provide grants to start to upgrade old buildings. Therefore, there are means through that, and I believe that they can start to make some sort of inroads to it, because housing is currently one of the major areas of concern.

[133] **Leanne Wood:** Are there any others?

[134] **Mick Bates:** I believe that you have to leave at 10.15 a.m., do you not, Lorraine?

[135] **Ms Frater:** Yes.

[136] **Mick Bates:** Therefore, we will have a few further questions; Leanne is first, then Lorraine.

[137] **Leanne Wood:** Okay, I will not pursue that then. You mentioned the financial rewards and penalties on public bodies. To what extent could we do that on a Wales-only basis at present?

[138] **Ms Frater:** Which part was this? Unfortunately, I did not write the paper.

[139] **Leanne Wood:** If the energy efficiency of commercial premises and public sector organisations were improved, then we could give financial rewards and penalties, applied when assessing the carbon budgeting performance of organisations. Therefore, to what extent could we do that on a Wales-only basis?

[140] **Ms Frater:** I would need to get back to you on that, because someone else produced this paper. I am happy to get back to you on that point.

[141] **Leanne Wood:** Fine, that is great.

[142] **Lorraine Barrett:** What timescale do you consider to be realistic for introducing those requirements? I believe that my question relates to what Leanne asked, so you might need to get back to us.

[143] **Ms Frater:** Yes, I am happy to get back to you on that, too.

[144] **Alun Davies:** I have a comment, rather than a question, as you have to leave. We have been involved in this inquiry now for some time. We find that people are good at describing the problem, but less good at describing solutions. Perhaps you would be able to drop us a note after this meeting on actions that could be taken by the Welsh Assembly Government to achieve some of the objectives that you have laid down. We are constantly being told that the earth is facing terrible crises and consequences, but when we ask what the solutions are, all sorts of different things are thrown at us, but nothing, or very little, is tangible, and very little that can make a real difference over the next few years.

[145] **Ms Frater:** That is a fair comment.

[146] **Mick Bates:** With that comment, I thank you, Lorraine and Ruth, for your evidence, and for the answers to the questions; we look forward to further communication. If you have

any other evidence that you would like to send us from the Tyndall Centre, Ruth, please do so, particularly about the impact of aviation. We need a better understanding of the increase in aviation, and how that will impact on our ability to meet the Government's intention to reduce carbon emissions by 3 per cent. That would be very interesting. Thank you.

[147] We are now joined by Peter Wilkinson and Roger Wade from the Environment Agency, and by Mike Batt from the Carbon Trust. I welcome you all to this meeting of the Sustainability Committee. You are all familiar faces—you have been to us before, when we started this inquiry into how Wales can reduce its carbon emissions. This part of our inquiry is focused particularly on industry and public bodies. Thank you for your papers. I note with particular interest the Environment Agency's efforts to reduce its own footprint. There has been a successful venture on travel, where you have used bio-diesel, with 22 per cent of the fuel mix coming from waste cooking oil. That is to be commended. We have just heard about leadership, so I look forward to your evidence and answers. Similarly, with regard to the Carbon Trust, I note with interest that you have two examples in your paper—Swansea leisure centre and the North Wales Police headquarters—where significant progress appears to have been made, and they will perhaps be exemplars that we can look at. I will give you both a minute to outline your main points before we move to Members' questions.

[148] **Mr Wade:** Good morning, bore da. Thank you for the opportunity to talk to you again. I will just point out the major updates since our first paper. There are changes afoot with a new directive review for the European Union emissions trading scheme, and that could have a significant impact on industrial emissions in Wales. We have had a look at the major emitters in Wales, and there is a table in the paper about them—we are looking at how we might talk to those individual companies about reducing emissions. Although we have not specifically included this in the paper, we are also looking at whether or not the pollution prevention and control legislation, which is being reviewed, might allow us to go back and promote best-available techniques for energy within major industries. We have also had some further thoughts on indicators in Wales. We have been asked to produce a paper for the climate change commission on indicators and baseline data, which we hope to produce by the end of March. In the paper for today, we have expanded the section on our own internal environmental management. So, those are the key issues for us today.

[149] **Mick Bates:** Thank you for that outline. Mike, would you like to give an overview of your paper?

[150] **Mr Batt:** Good morning. Thank you for the opportunity to come here today. Following on from the last time that we gave evidence here, the Carbon Trust is working with business and the public sector to reduce carbon emissions and help develop technologies to move towards a zero-carbon economy. Since the last paper, we have moved forward in delivery within Wales, and so far this year the figures show that we have had over 95,000 tonnes of carbon reduction measures implemented, and over 150,000 tonnes of further opportunities identified. So, we are still working with the business and the public sector, moving those things forward.

[151] It is great to be here today to present evidence, and it is nice to sit next to the Environment Agency, too. Obviously, we have a lot of overlapping interests and synergies—we have worked in partnership in the past, and we will continue to do so in the future.

[152] **Leanne Wood:** Regarding the EU emissions trading scheme, you say that the low price of carbon on the market, and the ability of the electricity supply industry to pass on the costs to consumers, both act against long-term investment in energy efficiency measures. How could the Welsh Assembly Government influence Whitehall and Westminster to change the framework that allows the electricity supply industry to pass on those costs to consumers?

[153] **Mr Wilkinson:** You really need to influence the Department for Business, Enterprise and Regulatory Reform and the Office of Gas and Electric Markets. There is a dilemma about setting up market conditions for an industry such as the electricity supply industry, but at the same time controlling it in order to make the move to lower carbon and renewable sources. You are in a position to influence this, because the EU ETS is operated jointly by the devolved administrations and Whitehall, and, perhaps jointly with the Scottish Government and the Northern Ireland Executive, you need to put pressure on DBERR and Ofgem to look at the long term. They tend to take a short-term, market view of this, rather than a longer-term view.

[154] **Mr Wade:** There was a recent article by Ofgem that stated that it was finding obstacles within the Government to becoming a more environmentally friendly organisation. It is worth comparing Ofgem with Ofwat, the Water Services Regulation Authority. Ofwat has a clear role in looking at the environmental consequences of water, but the energy equivalent is not part of Ofgem's key roles and responsibilities. If that can be made part of its role, it would help significantly to assess the carbon issues associated with the generating industry.

10.20 a.m.

[155] **Mick Bates:** That is a very useful point. I do not think that we have power over the Office of Gas and Electric Markets yet. That may turn out to be one of our recommendations.

[156] **Lorraine Barrett:** What influence could the Welsh Assembly Government exert to encourage the European Commission to tighten carbon allocations for phase 3 of the emissions trading scheme?

[157] **Mr Wade:** It may be a good time to do that, because the directive is currently being reviewed and one of the key issues and the first point being made for the EU ETS post-2012 is that the targets for individual countries and sectors should be tied to the emissions that the EU ETS, or rather the EU, has set, namely the 28 to 32 per cent reduction by 2020. So, if that goes ahead, it looks as though there will be significant reductions, or at least economic incentives towards reductions, because the trouble is that the EU ETS is a fiscal measure and not a hard, regulatory measure—it states that there will be financial penalties if you do not achieve the target. However, that directive is currently under review and I would have thought that the Welsh Assembly Government could make a case that what is being suggested in the review of the directive needs to be supported.

[158] **Mr Wilkinson:** Two other items are being looked at in this review. One is moving away from what is called the 'grandfathering technique'—you get an allocation according to how much you have released in the past—to a benchmark technique, whereby it is decided how much the best cement works produce, for example, and that then becomes the allocation for all cement works.

[159] Setting the caps not by each member state, but by the EU itself, is also being considered. That is being considered because many member states have been far too timid in setting the caps. That could be quite a significant change, so you may want to consider whether you want to encourage it to do that or not. I think that it would be a good thing, but that is another area where influence could be exerted.

[160] **Mr Wade:** To add to that, we have done the sums in Wales and, if the financial incentives were to work, over the next four years of the EU ETS you would only have a 1 per cent reduction for the major industries in Wales, which is not very large. However, if, after that, in 2013, they got their allocations based on how good they were—in other words, if they are benchmarked—then perhaps there would be a case now for looking at benchmarking these

major industries and trying to persuade them that it would be good for them to reduce their energy consumption on the basis of being ready for the third phase of the EU ETS.

[161] It is obviously only a matter of using influence, but it would seem to be logical to try to do that with the industries. For example, you could tell them to get ready for it because not only would they take hits, but instead of all the allocations being free, in phase 3, there would be at least a 20 per cent auction of the allocations, and probably even more, so they would have to pay for them. In today's newspaper, I saw that there was some concern from generating companies about whether this would go ahead, given that they would have to pay for the polluting audits. So this is becoming a big issue—they will have to buy the permits and they will probably be based on where they are in comparison to everyone else.

[162] **Mick Bates:** Did I understand correctly that all these efforts would only reduce carbon from our industry by 1 per cent?

[163] **Mr Wade:** The trouble is that the EU ETS sets caps for a country. Unfortunately, that is not for Wales, but for the UK. It is looking at the whole of the EU and although there is around a 7 per cent reduction across the EU for phase 2, 2008 to 2012, when you look at what that means for the major industries in Wales, it is only 1 per cent. We have done the sums. So, that is not the area. The EU ETS, even if the finances work the way that we hope they will, is not going to put an awful lot of pressure on reducing carbon dioxide emissions from the major industrialists.

[164] **Darren Millar:** Why does it only work out as 1 per cent, given that we have a high proportion of industrial businesses that are high emitters in Wales, and which therefore come under the scheme?

[165] **Mr Wilkinson:** It is a consequence of a number of factors. One is the grandfathering. The big emitters in the past get more allowances now, which is a bit perverse, but that is the way it works. In some cases, such as that of the steelworks at Port Talbot, there is a recognition that it is not all that easy to reduce carbon dioxide with current technology, so there is no point in giving very tight allocations that there is no chance of being met. If you look at the table, you see that a lot of the carbon dioxide comes from generating capacity, and the generators are just going to pass the cost on. They will generate according to demand and they are not influenced to any significant effect by the EU ETS at present. They may be in the future but, at present, the renewable obligations scheme probably influences them more than the EU ETS.

[166] **Darren Millar:** So, you are suggesting that energy demand needs to be the focus rather than the emissions trading scheme in the shorter term in Wales. That is what you say in your paper, is it not?

[167] **Mr Wilkinson:** There tends to be too much focus on heroic projects to replace generation rather than on reducing demand so that you do not need as much generation.

[168] **Mick Bates:** What do you mean by 'heroic projects'?

[169] **Mr Wilkinson:** Well, we are proposing, for instance, a fleet of nuclear power stations, a Severn barrage and extensive offshore windfarms, all of which may help but which are going to command a large amount of resources and money. Will we have all those resources available in time? If you do not control the demand, there will be a tendency for all the new renewables just to go on simply satisfying the increase in demand. The UK has a target of 15 per cent under the proposed renewables directive. You could meet that target and still not reduce carbon dioxide emissions, because you would simply use that target to meet the increase in demand.

[170] **Mr Batt:** The focus of the Carbon Trust in working with business and the public sector in Wales is to reduce the need for the energy first. Corus and the steelworks were mentioned, and we know that, through working in partnership, some of those sites have set themselves a target of a 20 per cent reduction in their energy bill. Whether that directly relates to carbon dioxide emissions for the industry remains to be seen, but they have made moves forward. In the last financial year, the Port Talbot site reduced emissions by 35,000 tonnes through investment and the utilisation of the equipment and it is also making further investment. We work on ensuring that the measures that we recommend in partnership with these businesses make business and environmental sense. So, you are reducing your carbon emissions and there is also an advantage to your business, as it makes you more competitive. There is job security in the area and people in the area are paying taxes, so it feeds into the whole of the Welsh economy. To be honest, if that tonne of steel has to be made, I would rather it were made in Wales efficiently than made elsewhere less efficiently and with the emission of more carbon dioxide, because this is a global, not just local, problem.

[171] **Mick Bates:** To what extent does sequestration help us? There is no technology yet that really satisfies pumping the emissions somewhere else. Is this going to help in Wales or not?

[172] **Mr Wilkinson:** I think that it will be difficult for Wales because, so far, no suitable sites for storage have been identified in and around Wales. If you have to transport the carbon dioxide to the sites that have been identified off the east coast of England, in the North sea, you are adding considerably to the cost and to the energy consumption. Carbon capture storage is very energy intensive. For instance, let us consider what would happen if Aberthaw power station were to employ it, which technically is not possible at the moment. It is currently about 35 per cent efficient—in other words, of the 100 units of energy that go into the station in the form of coal, 35 per cent comes out as electricity. If it had to employ a carbon capture and storage system, that could drop to 25 per cent. So, I think that you have to be careful about looking for magic bullets; although they have their place, they must be accompanied by other activity, particularly a reduction in demand.

10.30 a.m.

[173] **Alun Ffred Jones:** Why is it so energy intensive? Do you have to use the energy to drive the carbon dioxide underground?

[174] **Mr Wilkinson:** There are several reasons why it is energy intensive. The main issue is the compression of the carbon dioxide, moving it through the pipe work and then burying it wherever you are putting it, which uses a lot of energy and pressure. The extraction of the carbon dioxide from the waste gas, which involves washing it with organic amines, is quite energy intensive. The flue gas desulphurisation system that Aberthaw has commissioned, which removes some of the sulphur from the waste gas, requires an extra 2 per cent, so it reduces the efficiency of the station by 2 per cent. So, there is a price for everything.

[175] **Mr Wade:** I wish to say a few things about sequestration. Carbon capture and storage, whether or not we think it is particularly applicable to Wales, will be a huge requirement worldwide. If we are going to solve the world's problem, that must be one of the key processes to be used in China and India. If we are looking for technological opportunities and want to get involved in that technology, even having only one small facility for carbon capture and storage in Wales—in the north, probably—might be very good for that. That is what we are talking about here—the opportunity for technology development rather than it really being a measure for reducing carbon dioxide in Wales.

[176] There are other methods of carbon capture that are being considered, however. One in

the United States uses algae that come from volcanoes and are, therefore, capable of dealing with very high temperatures. The algae capture quite a significant proportion of the carbon dioxide and are then used to produce biofuels. So, there may be other technologies. Unfortunately, you algae need light, and we sometimes do not have many hours of daylight when you need a lot of energy. So, there is always a down side. They reckon that a minimum of 50 per cent is needed. It is better if you can do that and produce a by-product that you can then use as a fuel. There may be other ways of doing it, so we do not want to forget this opportunity, but it is difficult to see the capture and storage of carbon as being a significant issue in Wales. What is probably more important in sequestration is maintaining the carbon stocks that are in the soils and protecting those. There are huge issues associated with deforestation and changing the land, which can cause huge carbon emissions. We want to make sure that we are protecting the uplands in Wales, which have a huge store of carbon. That is probably as important as the industrial side.

[177] **Mick Bates:** We will be taking up that issue in another inquiry. Those were very interesting comments.

[178] **Mr Batt:** Sequestration is one of the things that really is sexy right now and everyone is investigating it. As Peter said, if you put 100 units of energy into a power station in the form of fuel, you get 35 units out in the form of electricity. The key issue is that people in the UK do not want energy; they only want what that energy does for them. If we become more efficient, we will not need to burn that fuel or make that electricity. If industry can reduce its consumption by 10 per cent, there will be a fantastic reduction in the amount of energy that is produced. Domestically, every kilowatt of energy that you save at home gives a three-fold benefit to the climate inasmuch as coal or gas does not have to be burnt to produce the energy. We should reduce our consumption to what is feasibly the lowest level, and it is only then, after you have taken every other measure, that you should look at sequestration and offsetting. Let us reduce the need for the energy in the first place.

[179] **Brynle Williams:** I am interested in what you said about how Port Talbot has reduced its energy cost by 35 per cent. Do we have that sort of scope again, because 35 per cent is a big chunk?

[180] **Mr Batt:** It is 35,000 tonnes.

[181] **Brynle Williams:** Sorry, 35,000 tonnes. Is there room for that sort of saving again on the part of a major contributor? I take your point that saving is the issue. This is one of the things that can be done now, and, if industry has demonstrated this, could a saving similar to the 35,000 tonnes in Port Talbot be achieved again?

[182] **Mr Batt:** Many measures are achievable in the steel industry in Wales and throughout the UK, with the measures at Port Talbot being just one example. Yes, there are levels that can be achieved, but, without reviewing the report, I could not give you an exact figure and I would not want to lie to you. It highlights that we are not in it for the short hit, and we are not going to turn up and say, 'Do that; you have saved carbon, thank you very much', and then move away. We are interested in carbon management and energy efficiency in a long-term relationship with businesses. We emphasise the no-cost and low-cost measures—the no-cost measures to be taken right now and the low-cost measures to be taken within this financial year—that can lead to immediate carbon savings and changes to your carbon footprint and your corporate and social responsibilities, and have an impact financially on your business.

[183] We then also look for the long-term capital expenditure measures: what can we plan for your business, which makes sense for your business and the environment, and which we can do together over the next three, four, or five years to make a difference. That is the

situation that we are in with many major businesses around Wales and the rest of the UK. So, yes, there is more to be done, but, quite naturally, it takes time.

[184] **Darren Millar:** You have all been quite negative about carbon capture and storage as the current technology stands, but surely the cost in terms of efficiency from introducing this to power plants will be much less than the cost of stopping emissions from other sources through other measures. Secondly, Mike, you talk about energy efficiency as being the primary thing that we need to look for first, and I agree with you, but the problem is that if I turn off a light at home, it does not have any impact on the amount of energy generated by my local power station, wherever it might be, because it does not know that I have switched the light off and it cannot respond to the demand for my electricity by reducing its supply immediately. It is a very slow process in terms of reducing the supply. Is it not the same in industry—if processes are changed, they may use less electricity and therefore have to pay less, but the generators will continue to generate the same amount of electricity as they do at present? There is no evidence at the moment to suggest that supply is matched by demand. In fact, it is quite the reverse, as it is totally mismatched, and that partly is why there is so much surplus electricity in the grid most of the time.

[185] Perhaps you could deal with the point about carbon capture and storage first.

[186] **Mr Wilkinson:** I used the example of a 10 per cent reduction in efficiency to show that it is not easy. If carbon capture and storage is going to work, you have to look at where the sites are and where it can be safely stored, because if it has to stay there for thousands of years, it has to be stored safely. The British Geological Survey has so far concluded that the best site is just off the east coast of England, so, ideally, that is where you would build your new coal-fired power stations, as this would mean the shortest possible pipeline. It will work only where you have good point sources that are released in fairly large amounts.

[187] It will not be a universal answer. Some people think that as much as a seventh could be saved in this way, but I think that that is optimistic. It certainly should be employed, but you should not assume that it will be the answer. You will have to look at where it could be employed and at what cost—it will cost a lot and will increase the price of electricity quite considerably.

10.40 a.m.

[188] **Mick Bates:** We are moving away from the subject of land use. We will go into the detail of power production in our next session.

[189] **Mr Batt:** I will talk a little about sequestration first and then move on to power generation, because I worked in that field for 20 years. I am not negative about sequestration, but I am more positive about energy efficiency being the first thing that you do. The Carbon Trust is not a one-trick pony; we help companies identify ways in which they can reduce their carbon impact now and in the future. We also help with investments, innovations, and research and development to move technologies forward from the drawing board to being realistic technologies. One good example is the marine energy challenge, and we have a facility in the Orkneys. People come to us and say, 'We will produce x amount of electricity from a tidal or wave-generation device', and we say, 'Go on then, put it in the sea and prove it'. Some run away, some stay, and others we never hear of again. However, there have been successful companies, such as Wave Dragon, which is a Welsh company.

[190] We will run the smart metering campaigns. We have tested those and are currently recruiting companies for a pilot project in Bridgend. The pilot aims to show how the smart meter can be installed in order for you to monitor your energy use and to do something about it, and then target your reductions. Unless you measure it, you cannot know what you are



fighting.

[191] On electricity generation, unless you have big capacitor banks, electricity cannot be stored; it has to be generated at the time of demand. Supply and demand, therefore, is important. It is not like a grain or a commodity that you can store and wait for the market to change, unless you store coal or gas. Turning your lights off at home will have a minimal impact. However, that reflects the change in mindset that is happening across the country. If industry reduces the amount of energy that it uses, and if our domestic use also reduces, then, as the electricity cannot be stored, they will have to generate less. There has to be a balance in the National Grid, but they will generate only the amount that is needed plus a small margin. If we reduce the amount that is needed, they will have to generate less.

[192] **Darren Millar:** The evidence that we have taken so far on residential emissions has suggested that it is difficult for the energy generators to match supply with demand, because it does not have the best information available. They have suggested smart meters, as you have just indicated, which would feed information not only to the consumer, but to the generators, so that they can better match the supply and demand profile across the year and therefore not produce energy that will be wasted and will increase carbon dioxide levels needlessly. Are you suggesting that smart meters would be a good tool to introduce to industry and business, with this two-way feed to the generators to provide information about usage levels?

[193] **Mr Batt:** Smart or intelligent metering would inform users of their energy consumption, then you can monitor, target and reduce that. If you reduce your energy consumption, it will be reflected throughout the network. The classic example that everyone mentions is FA Cup final day at half-time; another example would be last Saturday, when I am sure everyone enjoyed watching the match. At half-time, a number of kettles are switched on, and the electricity supply has to increase in order to meet that demand. If you turn your kettle on, and it does not work, everyone will complain about it and it will trip out. If you turn that on its head and everyone turns off equipment, energy generation will have to reduce. People may think that their turning on their kettle at half-time does not make a difference, but it does, as does turning off lights and not leaving appliances on standby.

[194] **Darren Millar:** I accept that it makes a difference; the problem is that the electricity generators cannot accurately predict the demand at any one time during the day. The demand profile, or the information, is not there. The evidence that we have received suggests that if there were intelligent or smart meters that gave the two-way feed—information for the consumer and the electricity generators—supply and demand could be better matched and precious resources used to produce electricity would not be wasted.

[195] **Mick Bates:** The point has been made; we do not need a reply. To remind you, the Government is recommending the use of smart meters in the Energy Bill, so we look forward to more on that.

[196] **Alun Davies:** I was fascinated by a statement that was made a few minutes ago. You mentioned industry reducing consumption by 10 per cent. I have worked in many different arms of industry, and I have run a business, and so I must say that if any industry that I had worked in could reduce consumption by 10 per cent, it would already be doing it. Where do you get that sort of statement from?

[197] **Mr Batt:** We get it through studies and from working with businesses ourselves. Businesses are generally very good at what they do and at what they are experts in, and we cannot tell them how to run their businesses, but what we have is expertise, or access to expertise, to provide them with advice regarding energy consumption and carbon emissions. If you are making steel, you are not necessarily an energy expert. If you are a solicitor running an office, you are not necessarily an energy expert either, but you may be really good

at what you do. What we can do is provide the expertise and get the right person talking to whoever is responsible for these actions at a company that has commitment and buy-in, to highlight the measures that the company can take and the benefits to the business, all presented in such a way as to make environmental and financial sense to that business to take those measures forward. It is working through a lot of businesses in Wales and across the UK.

[198] **Mick Bates:** It is a good question to ask the big businesses next week.

[199] **Alun Davies:** I would like to pursue it, if I may. You mentioned steel as an example and said that people making steel—Tata, for example—are not experts in the use of energy. They are, however, experts at process engineering in their own industry. In every industrial sector that I have worked in, people would be looking at the most efficient use of all resources, including raw materials, in every element of the process, be it manufacture, construction, or generation. I would anticipate a constant evaluation of the efficiency of any and every industrial process, and that the consumption of energy within each discrete process would be a fundamental part of that. The managers and engineers who are responsible for that process would be constantly looking at efficiencies and efficiency gains to be made through every element of the process. I find it inconceivable that any manager, particularly in today's economic climate, would be carrying a spare 10 per cent happily.

[200] **Mr Batt:** I fully understand that sentiment. I am not talking about any specific industry right now, but people working in industry do look at their processes, for efficiency gains in how they understand their process and how it works. To go back to the grandfathering situation with emissions, the process might be 20 years old and a person may have been in the job for five years, looking at the energy costs. In some circumstances, we have found this attitude: 'How much was my energy bill last year?', '£x million'; 'How much is it this year?', 'The same'. 'We must be doing fine if we are as efficient as we were last year'. We would want to strip that right down to, 'How much do you actually need for your process?'. We would look at the services being provided.

[201] We also found that some multinational businesses did not pay their energy bills locally; their bills were sent to the central office in London, New York or wherever. As long as their bill did not show a huge increase as part of the budget, nothing was seen to be wrong. You would be surprised how many companies came to the Carbon Trust and did not know the answer when we asked them, 'How much is your energy bill?'.

[202] **Mick Bates:** I am sure that your house, Alun, is very efficient. Are there no savings to be made there? [*Laughter.*]

[203] **Alun Davies:** I would be shocked if that were entirely true of most of the multinationals, I must say. I will move on from that. On the paper from the Environment Agency, you say in paragraph 3.3, 'The Changing Regulatory Context', that,

[204] 'it would be helpful if all Government policies could be assessed for their CO2 impact prior to implementation'.

[205] What do you mean by that? What policy areas are you referring to?

[206] 10.50 a.m.

[207] **Mr Wade:** I think that there was some discussion on this in your previous session. If you are talking about economic policies or spatial policies, you can get a carbon assessment of the associated policies. After our last session, I sent you a couple of examples of assessments of carbon associated with particular policies. One of them was a housing policy, but it could also be done for economic investment and industrial-type policies. So, what you

are really doing is saying that if you make the impact of carbon a key factor of any policy, that will make a sustainability factor inherent to that particular policy. So, it is about how you assess what policies will do.

[208] **Alun Davies:** What sort of impact would you say—

[209] **Mick Bates:** One moment, Alun. I think that Peter wanted to come in.

[210] **Mr Wilkinson:** One example of when it could be done is the pricing policy employed by Ofgem. It is not required to do it at the moment, but, if it were required to look at the carbon impact of its pricing policy and if it had a requirement to modify its policy accordingly, that would make a difference.

[211] On your point about companies not making savings when it is obvious to do so, in the past when I had a proper job as a pollution inspector, I used to go to the steelworks at Port Talbot, and I was well aware that the managers and engineers there knew where they could make savings in energy consumption and carbon dioxide, but what stopped them was the lack of capital investment. There was no confidence in the steel industry to borrow the money to do it and they did not have the cash themselves. So, they were not doing many of the things that they could do. They recently announced one investment to capture the gas from the steelworks and use that as a fuel, but that was because they had been taken over and had access to new capital. So, in many cases, it is a lack of access to capital that prevents them from making these moves, but then you probably know that from your own experience in industry.

[212] **Alun Davies:** I appreciate that point. On the impact that the Environment Agency believes is achievable through carbon-dioxide appraisals, I accept the point that was made earlier about a silver bullet, but do you see that as being a significant shift of policy for the Assembly Government, which could have a real impact on the environmental consequences of its range of policies and responsibilities?

[213] **Mr Wade:** I know that there have been some discussions within the Welsh Assembly Government on this issue, but I do not know what the results are. You can look at everything in carbon terms, even construction. One thing that the Environment Agency has done recently is produce a carbon calculator for all of its construction projects. It is amazing that just using a different type of concrete can make a huge difference to the amount of carbon that you use. So, it is about getting a mindset of needing to look at everything that you do in light of what it means for carbon. If how something impacts on carbon can become a general view, for everything from policies to construction, that would be a big step towards having a lower-carbon economy, because you have to know what you are doing and what your decisions will result in.

[214] **Alun Davies:** I agree with that, but on the wider implications of that, you make a point in your submission that if we create a regulatory environment in Wales or the United Kingdom, it is much more challenging for industry than the current environment, and what will happen is that industry will move. We can meet our emissions targets quite easily, because many of these industries will simply say that it is no longer cost-effective for them to work or exist within this regulatory environment, so they will move to a country in which the regulatory environment is 'looser', let us say, which will enable them to produce their product, whatever that may be, and emit greater carbon without needing to make investments. It might reduce carbon, but industries might move, lock, stock and barrel.

[215] **Mr Wade:** We say that it would be silly to move industries to countries that are less efficient and less effective, which is the point that Mike made earlier. This is where benchmarking comes in. If an industry is efficient in world terms, you want to keep it in your

country; only if it is hugely inefficient will there be a question mark over its future. The point is that it is not just a matter of having the industry in a particular place, if that is a real need; it is how efficient the industry is. That is where I suggest there may be some scope for indicators, to benchmark a steel company, for example, against world production for steel. If it is doing well, you need to keep it where it is. That is the issue.

[216] **Alun Davies:** The employees might argue that it is important to keep the company here even if it is not doing so well.

[217] **Mr Batt:** Absolutely. If it is not doing so well, it should contact the Carbon Trust to help it to reduce carbon emissions.

[218] **Mick Bates:** I think that we had better move on from that.

[219] **Alun Ffred Jones:** You all talk a great deal about changing people's mindset, and no-one is going to argue with that, but you have also highlighted the fact that using less energy is really what we should be aiming at. What more can be done to encourage the uptake of energy efficiency measures by industry and public bodies? Do you have a few simple suggestions?

[220] **Mr Wilkinson:** It is difficult to think of specific things that the Assembly could do on its own. Planning is one area. There needs to be smarter planning, and we must look at the unintended consequences of planning decisions. For example, developers might build x thousand homes somewhere without thinking about the fact that people would then have to commute further to reach their points of employment. With things such as the EU emissions trading scheme, the Assembly is part of a greater decision-making process, so it is then difficult for it to take individual action. Planning is the main area in which the Assembly could make some significant differences, by looking more closely at the effects of planning decisions.

[221] The Assembly can also act as an exemplar. In some cases, this can be symbolic or iconic. To return to one of my favourite bêtes noires, the Assembly Government subsidises a flight from Cardiff to north Wales. Okay, it does not really create a great deal of carbon dioxide, but what sort of signal does that give to people? Is the advantage that you gain from it—whatever that may be—worth the signal that it gives to the public? If you are going to be a leader, you must be a consistent leader in everything that you do, and not do anything that would lead someone to say, 'Well, if the Assembly does that, why should I do anything?'

[222] **Alun Ffred Jones:** Do not make me feel guilty, please. [*Laughter.*]

[223] **Mr Batt:** The Welsh Assembly Government is now going through a carbon-management process with the Carbon Trust, as are many local authorities. Cardiff has signed up to work in partnership to reduce its emissions by 60 per cent over the next 10 years, and Flintshire and Conwy are doing the same. We are setting an example through the public bodies in Wales. We are also considering the master plan and long-term strategies for the development of the buildings over which the Welsh Assembly Government has influence, and the development of industrial parks, to make them as efficient as possible. You can set an example in that way, and through your procurement strategies, particularly because the public sector is a huge part of the Welsh economy. You should ask your suppliers what they are doing. You have that influence, so the ramifications will ripple through society. So, the first thing is to set an example and physically to take those measures to reduce emissions, which will also make public services more cost-effective.

[224] **Alun Ffred Jones:** A previous presenter suggested that a one-stop-shop was needed with industry so that all advice on energy-efficiency measures would emanate from one

source. I presume that you would say that you are that source.

[225] **Mr Batt:** No. We do not know everything, and anyone who claims that they do is totally wrong.

[226] **Alun Ffred Jones:** Could something be done to provide that sort of service?

11.00 a.m.

[227] **Mr Batt:** On behalf of the Welsh Assembly Government, we have developed the Welsh energy portal. All publicly funded bodies in Wales that are involved in the energy sector have registered on that site—the Energy Saving Trust, ourselves, the Environment Agency, energy agencies around Wales, and so on. If people go on to the website—the energy portal—there are a few simple questions to answer first, such as, ‘Are you interested in business, the community, the public sector, or are you a householder; are you interested in legal help, financial help, or whatever?’, it will list the agencies around Wales that can help you. You can then make your choice as to who to select. That has been live over the last two and a half years. Anyone can go in and say, ‘I need some help from publicly funded bodies in Wales, where can I get it?’, and it is freely available.

[228] **Alun Ffred Jones:** Everyone bangs on about energy efficiency, saving energy, switching off the lights as you leave the room, and so on. A new car park has been built over the road to the Assembly, and the lights are on all day and all night, even when it is sunny; it is amazing. We talk about these matters, and yet there is a practical example over the road. It is a new build, so they are surely aware of what they are doing, and yet the lights are on; I presume that they are on every day. It is amazing.

[229] **Mick Bates:** It sounds as if you have a mission, Alun.

[230] **Alun Ffred Jones:** I do not have a mission—I am just amazed.

[231] **Mick Bates:** We are officially out of time, but I have three questions left, from Brynle, Irene and Lorraine.

[232] **Brynle Williams:** How could the Assembly more effectively promote the benefits of combined heat and power?

[233] **Mr Wilkinson:** CHP is an important issue. It is probably one of the best ways that we have of saving energy. Unfortunately, many of the policies and regulations do not support CHP. I will give you an example with the EU ETS. If a power station is CHP, it does not reduce the carbon dioxide emissions of that power station; what it reduces are the carbon dioxide emissions of its customers, who are taking the heat and the steam. Therefore, it gets an allocation, but it cannot get the savings that it has given to the customers—there is not the mechanism for it, to the same extent. Also, because of the pricing structure, many power stations are not all that keen on doing it—they do not want to tie themselves to contracts that last 20 years, which is what you need. There was an example with the paperworks in Shotton, which had a CHP arrangement with a Gaz de France power station, which it cut off at short notice because it developed its own internal device; Gaz de France is now marooned—all that it can do is make and sell electricity, even though it would like to be CHP.

[234] At present in Wales, you do not have those powers to any great extent, but you should bring as much influence as possible to bear on the Department for Business, Enterprise and Regulatory Reform, across the UK, but particularly in Wales. One of the other problems is a historical one. In the old Central Electricity Generating Board days, they went for big power stations, in fairly isolated places, so there were no nearby customers. Aberthaw, for instance,

has a lot of waste heat, which it uses to warm the River Severn at present, but there are no customers around to which it could supply. These big power stations produce too much waste heat. If you look at how Denmark has managed it, it has about seven coal-fired power stations, all less than 500 MW and all built near urban centres, so their waste heat can be used in district heating and supporting local industry.

[235] **Leanne Wood:** Where did you say that was?

[236] **Mr Wilkinson:** It is in Denmark. Therefore, we have got the structures wrong for CHP in this country. Ideally, any future power stations should be built in cities—have a small one near the Heath hospital, supply the hospital and district heating; you would have to deal with the protest groups, because they would not want a power station in the middle of the city.

[237] **Brynle Williams:** This is what we were discussing earlier; we need a cultural change. I have seen this in Denmark—which you mentioned—about 40 years ago. They have small plants in rural towns close to developments; it is then used for community housing for senior citizens, using straw and waste timber, and so on. However, it is impossible here, as soon as one mentions any form of a CHP plant linked close to a domestic development, there are objections.

[238] **Mr Wade:** Excuse me for repeating what I said last time, but in the Shetland example of waste-to-energy, people were so pleased with the plant that the local authority in Orkney had a stricture from local residents for not having a similar plant. That is partly because they are charging less for the energy, and everybody benefits from this wonderful waste energy. So, culturally, it is possible to change people's thinking, and perhaps it is about getting people to realise that they can have cheaper energy with CHP or waste-to-energy—that is the kind of incentive that people might need.

[239] **Mick Bates:** That financial incentive is important. However, we had better move on.

[240] **Irene James:** Local authorities in England have targets for carbon dioxide emissions. Do you think that they could be beneficial in Wales in reducing carbon emissions from the public sector?

[241] **Mr Wade:** I was a little uneasy about including that reference, because I was trying to find out exactly what the practice was in Wales. However, I have just seen this work on carbon dioxide, and I think that the targets are important. Basically, unless there are targets and key performance indicators, people can talk about their goals but there is no comeback if they do not reach them. So, I would say that targets are important, and there is evidence here to show how they can work.

[242] **Mr Batt:** Targets are definitely important. All the local authorities in Wales signed up some 18 months or two years ago to an 8 per cent reduction, I believe.

[243] **Mick Bates:** Yes—is that the Nottingham agreement?

[244] **Mr Batt:** I think so. Then we have Cardiff, and the guys in north Wales—Flintshire and Conwy—signing up to the 60 per cent target. Targets are extremely important, but the most important thing, first of all, is the baseline—what are you actually emitting now? Some authorities still have a way to go on that. Once you know what you are emitting, you can set a realistic target. Otherwise, 20 per cent is 20 per cent of something undefined.

[245] **Irene James:** So, you basically think that the targets are not for the current stage, but for the next one down the line.

[246] **Mr Batt:** Some local authorities have already done this work, and we are working through it with others. However, we need the baseline first, and then, yes, targets are definitely important after that, and you should go for those targets as aggressively as possible.

[247] **Lorraine Barrett:** I have a question for the Carbon Trust, looking at legislative drivers that could be used to drive a more rapid carbon-emission reduction in the public sector in Wales. I will just make the point, Mike, that you have mentioned working with the Welsh Assembly Government on its buildings, and other public buildings. However, as far as this Senedd building, and the Pierhead, and the Assembly office is concerned, they are run by the Assembly Commission, and the Carbon Trust is working with the commission on those buildings. So, I just wondered about legislative drivers for more rapid carbon-emission reduction. Do you think that we need more powers to achieve a cost-effective reduction?

[248] **Mr Batt:** It depends which area is being marketed. The last time that I was here, Mr Millar asked whether you needed more powers to influence small and medium-sized enterprises. My answer was that the pressure, from the EU ETS and the other environmental commitments, rests upon the major businesses, and the SMEs feed into that. They will get pressure to improve their environmental performance from the major businesses that they supply. We are doing a lot with SMEs, and we could do a little more. About 60 per cent of the money that the Carbon Trust spends in Wales goes on SMEs. However, there is enough legislation about SMEs already. The carbon reduction commitment will come in as well, and that will help to drive it down. As far as setting targets is concerned, we need to influence businesses, but I do not see any increase in powers or influence for the Welsh Assembly Government at the moment.

[249] **Mick Bates:** So, the influence lies with Westminster. I note that, in the submission from the Environment Agency, one of the technical fixes suggests using biogas instead of gas from fossil fuels. As I understand it, that would not be subject to ROCs, which would be important to encourage the development of biogas. Is that correct?

[250] **Mr Wilkinson:** I thought that it was subject to ROCs, but I will have to check on that.

[251] **Mick Bates:** It is an interesting point—people have told me—

[252] **Mr Batt:** By ROCs, do you mean the renewables obligation certificates?

[253] **Mick Bates:** Sorry—yes. Do you think that biogas qualifies for the renewable obligation certificate?

11.10 a.m.

[254] **Mr Wilkinson:** We will have to check and let you know; I think that that is the best way of doing it.

[255] **Mick Bates:** Does it depend on the source of the biogas?

[256] **Mr Wilkinson:** Yes. If the biogas comes from something that was previously a fossil fuel, it is not a true renewable.

[257] **Mick Bates:** What if it came from a landfill site?

[258] **Mr Wilkinson:** That would be a mixture.

[259] **Mick Bates:** Therefore, not applicable for renewables obligation certificates.

[260] **Mr Wilkinson:** Probably not. They have reduced the ROC on landfill gas, but if it came from agricultural products, such as cow manure and so on, then I would not expect that to be subject to ROCs.

[261] **Mick Bates:** So, an anaerobic digester that produced methane would get the ROC.

[262] **Mr Wilkinson:** Depending on the feed that was going into it. I would have to look at that in more detail.

[263] **Mick Bates:** Yes; send us a note on that.

[264] **Brynle Williams:** On that, you said that it depended on what was going into it; in my constituency in north Wales, there is a plant on a farm where they also want to use food waste to react with that. Regrettably, one group told me last week that food waste is not compatible and that including it was a waste of time and, yet, the company that is installing it says that using food waste is an ideal marriage in order to increase its calorific value. It is a job trying to find out whom is right.

[265] **Mr Wilkinson:** I am not an expert in that area, so I would not like to speculate.

[266] **Mr Batt:** Anaerobic digesters need a consistent feed stock and if that is blended before it is introduced to the process, there is no reason why you could not use food waste.

[267] **Mick Bates:** Thank you. I would be grateful if you could provide us with a note on that.

[268] I end by thanking the three of you for your evidence and answers. We look forward to that further information to clarify the business on ROCs, biogas and anaerobic digestion.

[269] We will meet next on Thursday, 21 February, when we will consider the draft reports of the transport and residential sub-topics of our inquiry and we will take evidence from the Confederation of British Industry Wales, British Telecom, Marks and Spencer, UPM Shotton and Pen Farm. So, we will be able to talk to businesses and big industries on how they are reducing their carbon use. Thank you all for your attendance and have a good recess.

*Daeth y cyfarfod i ben am 11.12 a.m.  
The meeting ended at 11.12 a.m.*