



HOUSE OF LORDS

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Witnesses: Matt Phillips and David Brewer

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Members present

Lord Carter of Coles (Chairman)
Earl of Caithness
Lord Cameron of Dillington
Earl of Courtown
Lord Giddens
Lord Lewis of Newnham
Lord Maclennan of Rogart
Baroness Parminter
Lord Renton of Mount Harry
Lord Whitty

Examination of Witnesses

Matt Phillips, Head of UK Programme and Head of European Coal Strategy, European Climate Foundation, and **David Brewer**, Director General, Confederation of UK Coal Producers (CoalPro)

Q104 The Chairman: Mr Brewer and Mr Phillips, you are indeed welcome. Thank you very much for coming to see us today. We are looking forward to hearing your evidence. If I may, I will just deal with the formalities. You should have in front of you a list of interests that have been declared by Committee Members. This is a formal evidence-taking session of the Committee. We are taking shorthand notes. They will go on the public record on the parliamentary website. We will send you a copy of the transcript and you can revise it in terms of minor errors. The session is on the record, is being webcast live and will go subsequently on the parliamentary website. Perhaps we could suggest you might each like to start, although you do not have to, by speaking for three minutes. If we can restrict you to three minutes, we can allow time for the questions and, if you will forgive me, I might have to metaphorically ring a bell if it goes beyond that. I do not know who would like to start first. Mr Phillips, would you like to go first?

Matt Phillips: Yes. I am more than happy primarily to answer questions, but I will just lay out a little bit of landscape from our point of view. We have been looking very closely at the coal issue specifically in the European Union since ECF came into being right at the beginning of 2008 and I have been involved in that for all that time. We have observed something quite significant that has not been widely understood, I think, which is there was planned in the early 2000s a very large wave of new coal plant proposals in the European Union, despite the existence of the carbon price in the EU. Since is that most of these projects have not been advanced, aside from plants that were already under construction or right at the point of being fully permitted in around the end of 2007/beginning of 2008.

In fact, of 112 announced projects, only two, maybe three, have nominally reached construction stage. One of those, the Alston, walked off the building site a couple of weeks ago; so even those might not ever get finally built. Something happened. That big wave of new coal that was planned in the EU has not come about. Nevertheless, there is still something of a pipeline of new coal proposed in the EU, it is just that many of those projects have been very severely delayed and that amounts to a mid-20s number of new coal plants.

There has been a modest amount of coal plant closure over that time and a general underlying trend of coal being displaced by other options in the generation mix of the EU, but perhaps not as much as one might have expected. Coal still represents about a quarter of EU electricity generation across the piece. There was a big air pollution directive, the large combustion plants directive, but that will only result in about 20 gigawatts or so of coal plant closure across the European Union. Big decision-making will be taking place in the EU from the utilities on the industrial emissions directive, which succeeds the large combustion plants directive. Utilities will be deciding in 2013 whether to keep their plants open or schedule them for closure under the IED.

The story of European coal is one of a big wave that has not happened—a lingering intention from a number of utilities and Governments still to pursue coal despite the carbon price. There has been a very substantive change in what is being built in Europe, which is related to gas and renewables. In that respect, Europe is undergoing a low-carbon transition, but big questions remain as to why coal is still on the agenda—what happened to CCS; what about the coal plant plans of European countries applying to join the European Union; what are the implications and what are their policies; and, therefore, what is EU neighbourhood policy doing about the issues related to coal in the EU neighbourhood, particularly the Western Balkans, Turkey and Ukraine? That is a sort of map of the work we are looking at.

The Chairman: That is very helpful and I think we get to some of those in the questions. Thank you very much. Mr Brewer, it is your turn.

David Brewer: What I would like to say is that certainly the introduction of carbon pricing through the EU ETS scheme fundamentally changed the landscape for coal. It meant that expansion in coal generation facilities was no longer going to take place, at least not at the same scale as it had been, but there has been a fundamental change in this last year, not necessarily in terms of intention but in terms of coal burn.

Lord Renton of Mount Harry: In terms of what?

David Brewer: Coal burn, or coal usage. The EU ETS price is low, at about €7 to €8 a tonne, because of the recession, which has reduced carbon emissions from industry in Europe. The gas price is very high—it is scandalously high. The fuel cost of generation from gas in this country is more than double that of coal. The consequence is there has been a very sharp increase in coal burn in the UK. For example, in our country coal burn is up by 40% so far this year, from 28 million tonnes to 39 million tonnes in the first nine months of this year, and there is no reason why that surge will not continue. The same has happened in Germany; added, of course, in Germany by their decision to close down their nuclear plant.

So both in the UK and in Germany there has been a very big increase in coal burn in this year. This may be something of an Indian summer, we shall see, but this is a combination of the low-carbon price and the very high gas price.

Q105 The Chairman: Excellent, thank you. I think we will come to some of those issues. Going on from that, and perhaps we can take in order Mr Phillips and then Mr Brewer, I have two questions that you have partly dealt with: the outlook for coal in the UK and in the EU—Mr Brewer, you just touched on the huge rise in consumption—and, secondly, the implications for the coal industry in respect of the IED and the large combustion plant directive. But first, the general outlook for coal as you see it.

Matt Phillips: I think I would draw a distinction between generation and capacity and there are two different dynamics related to those. David is absolutely right, coal burn has increased and that is a factor that relates to the short-term dynamics in the market. There is a short-run issue between the relative costs of burning coal against gas and that is within a context of existing capacity. Let us just look for a minute at the installed capacity issue and that is a matter of investment decisions. It is the investment decisions of utilities about whether to go behind coal or whether to go behind alternatives.

In that context, what has clearly happened is that five years ago there were a lot of utilities that were having perfectly sensible people sitting around saying, “Coal is economic. We should be announcing to our investors and to all and sundry that we are planning to build new coal plants and we should get in train an investment programme to get building on new coal”. What has subsequently happened is that those have melted away for a number of reasons relating to the risk profiles of coal investment, which have proven to be not what utilities were expecting five years ago. They had not taken account of the economic risk profile of coal, the policy risk profile and the political risks of advancing new coal. That has changed. Those circumstances have quite dramatically changed. That is around new capacity.

Broadly speaking, a lot of utilities have moved away from their big programmes of multiple coal plants in lots of different countries. At one stage, E.ON had plans for a big train of new coal plants across several different countries and now that has been contracting right back to one or countries where there are still E.ON projects and, broadly, utilities such as E.ON are shifting to look at Turkey, the Balkans, Russia and other places to build new coal.

When you look forward at the industrial emissions directive, that is now going to open up questions about the economics of the existing coal fleet going forward for utilities. I think the best analysis I have seen so far is by Bloomberg New Energy Finance who have identified that there is about 207 gigawatts of coal capacity in the European Union and, of that, about 60%, which is about 124 gigawatts, is not compliant with the industrial emissions directive. Approximately 20 gigawatts of that is already scheduled for closure under the large combustion plants directive. The UK is very exposed on that directive. That is where a lot of the UK capacity is closing, because of that directive, and countries like Germany face a bigger closure programme as a result of the industrial emissions directive.

Utilities will now face the decisions about whether to close their existing coal fleet or invest in retrofitting those plants in 2013. Therefore, what Europe does in terms of its overall direction of travel on policy is going to be extremely important, next year quite specifically but going beyond, because if Europe wants to meet the longer-term emissions reductions targets it is going to have to constrain coal generation probably faster than existing policies will ensure. You can see how existing policies are insufficient when you look at what has happened this year in terms of increasing coal burn despite having a carbon cap.

The existing policy suite will not necessarily enable Europe to meet its decarbonisation targets as things stand just at the moment. Therefore, what happens around the choices over the industrial emissions directive is extremely important for climate reasons. Of course, in addition they are important for wider air-pollution considerations. You will know

that Europe is looking at next year being the year of air pollution and I think the wider role of pollution from existing coal plants will come back on to the agenda next year.

Q106 Lord Lewis of Newnham: I do not know whether it is appropriate now or when Mr Brewer has spoken, but we are using this word “coal” as though it was a singular operation. In fact, it covers a whole variety of different commodities. If you take, for instance, the particular factors of the large combustion plant directive, surely this is going to depend upon the coal that is being utilised, whether it is anthracite or whether it is brown coal or something of this nature. Is there any large variation within the actual—

Matt Phillips: There are two important distinctions. You are absolutely right. There is hard coal and there is lignite and that is broadly it. The situation is that hard coal is a tradable commodity. It has a price that is in some ways tied to international markets. We heard in the run up to 2008 coal is cheap, but, as fossil fuel prices and commodity prices rose very rapidly in 2007/2008, coal prices also rose with global fossil fuel prices. Hard coal is heavily influenced by what is happening more broadly on fossil fuel prices because hard coal is tradable.

Lignite, because of its nature—it has much lower calorific value, it has had much more water in it—you cannot move it around anything like as easily. Lignite is not a substantive issue in the UK, of course, but as you go further east and southeast in Europe, lignite is a much more substantive issue. The remaining new coal plant proposals in the European Union are largely lignite plants rather than hard coal plants. It is bad for climate because those plants are much more polluting. It is bad for wider air pollution because they also more polluting on all the other contenders. However, because lignite is not tradable, its price is what it costs to mine it and use it locally.

The plants to burn lignite cost more than conventional hard coal plants because they have to be very tailored to the particular conditions of that particular pile of lignite in that particular

location. So they are much more tailored in situ plants. The broad recognition is that burning lignite is cheaper than burning hard coal but, of course, because the carbon impact is higher, a carbon price should have a much greater impact on a lignite plant than even a hard coal plant, let alone a gas plant. The dynamics are indeed substantively different between lignite and hard coal and if we were having this conversation in the Czech Republic or Poland there would be a very much more intense discussion around that lignite and hard coal issue.

Lord Lewis of Newnham: The emissions you get are significantly different. You have sulphur coal, you have the whole problem over sulphur dioxide emissions, which would not occur with your anthracite coal to the same extent. The implication to me would be that the cost of dealing with the actual emissions is going to be different depending upon the actual source of coal.

Matt Phillips: Yes, it is tailored to the individual plant conditions and other factors: the age of the plant; the market it is selling electricity into, because the market is quite dramatically changing as renewables come on much more than they have done in the past. There are all sorts of other situational factors and, in the context of the industrial emissions directive, those will be factors that will have to be considered by utilities in deciding whether to opt their coal plants in or opt them out of the industrial emissions directive.

Q107 The Chairman: I think we should let Mr Brewer in now. I can see he has some things he would like to share with us.

David Brewer: The position is now fundamentally different between the rest of Europe and the UK. The large combustion plants directive, we know what the position under that is going to be. We know what closures there will be. There will be 8 gigawatts of coal-fired plant close in the UK, of which 5 gigawatts will close by March next year. That is about two years early and one reason why it is two years early is because it is so cheap to run coal now that they have been running coal, making lots of money, and they have used up their hours

under the derogation in the large combustion plant directive. The large combustion plant directive will lead to some plant closures in Europe as well.

The industrial emissions directive that follows is somewhat different and the implications between Europe and the UK will now be radically different. That has nothing to do with the EU ETS. It has everything to do with the UK Government's carbon pricing policy and carbon price support because it means coal in the UK will become increasingly uneconomic compared to gas despite the fossil fuel price differential. The rising trend of carbon price support in the UK will gradually drive coal burn down and will result in gas burn increasing.

In Europe, it is completely different because there is not any such thing as carbon price support. There is the EU emissions trading scheme, which has a low price at the moment. Now, there are various measures proposed by DG Environment to try and increase the carbon price. They will not work because all this will do—

The Chairman: Shall we hang on to that point, because we are coming to the ETS in a moment. I know Lord Caithness has some questions. Can we take that ETS piece when we come to that, Mr Brewer?

David Brewer: In Europe, if the present differential between carbon price and the high gas price continues then I would suspect that, for most plant within Europe, it would be worth their while investing to meet the requirements of the industrial emissions directive. All such plant in Germany effectively already meets those requirements. In this country, they do not. What generators are doing throughout Europe, throughout the world, is looking at lower cost means of meeting the requirements, in particular, under the industrial emissions directive for reduced emissions of NO_x.

The IED does not substantially change the requirements in terms of sulphur. It does change things dramatically in terms of NO_x and only one plant in the UK has made the decision thus far to invest to meet the requirements of the IED. Carbon price support may well mean that

no other plant will do so and we face the closure of the whole of the existing fleet, more or less. This is the fleet that, as of today, is generating over 40% of this country's electricity.

The Chairman: That is a sobering thought. Perhaps we should then look at investment.

Q108 Lord Renton of Mount Harry: I am no expert on this and I confess I am quite confused. I would very much like to know, given the background that you have both put before us, what you think is likely to happen next. What are the risks that coal investors face? Will it be worthwhile risking getting out more hard coal or not? I feel you must both have slightly different views about this as to whether this would be a good idea or not.

David Brewer: What?

Lord Renton of Mount Harry: More coal.

David Brewer: I represent the Confederation of UK Coal Producers.

Lord Renton of Mount Harry: I understand that, yes.

David Brewer: I am interested in producing more coal from this country.

Lord Renton of Mount Harry: But only from this country?

David Brewer: Yes. I could not care very much what happens elsewhere. If we can produce coal and make money at it, then that is fine by me. It is difficult to make money at the moment because one reason why coal burn is so high is not only are gas prices high but the international coal price is low. That peak that was reached has fallen right back. The international price is low and our eyes are watering.

The Chairman: Yes. That is shale gas displacing east coast US coal.

David Brewer: Coal in the United States; that is right.

Matt Phillips: I do not know what a low coal price is. Is about \$90 a tonne. It is hard to describe that as a low price. I do not think it has fallen right back. It has not fallen back to the levels it was in the mid-2000s.

Lord Renton of Mount Harry: That is about £60 to £65.

Matt Phillips: Yes. At its peak it was \$120. It is lower, but I do not think it is necessarily accurate to call it a low price, although I dare say producers might be feeling that difference more acutely than others. I want to just come back on one thing and then answer your question about risks and what might happen. One thing is David's comment that the UK is exposed because it has a carbon floor price. It is not unique for countries across the European Union to have introduced policies to constrain coal. The Dutch have introduced a coal tax. The Danes and the Finns have introduced policies to rule out coal.

Q109 Lord Renton of Mount Harry: Could I just ask you: why have the Dutch done this?

Matt Phillips: Why have the Dutch done this? There is a combination of factors. A lot of people advocated that they should put a tax on coal because they have too much coal on their system and they will have a problem meeting their own carbon targets and their own contribution to the European targets if they do not do something in the face of a low carbon price. They have opted to put a tax on coal as one of their ways of constraining coal burn. Denmark we all know is terribly green, but it has a very high electricity burn from coal, more than 50%. The Danes have announced they will phase out all use of coal in Denmark, as have the Finns.

You can go across other parts of Europe where they have introduced national level policies to do one thing or another related to coal, sometimes favouring it and sometimes preventing it. There are all sorts of motives as to why the carbon floor price might be there and you can speculate on them, but the underlying issue is that the UK is not unique in doing something to address the issue of coal's contribution to climate change through policies additional to the ETS.

The question you had is: what are the risks and what will people do? That package of risks I just talked about is policy risk. These were all policies that, five years ago, utilities did not

imagine would be there when they were saying, “Coal is terribly cheap and economic and we will go ahead with it and it is a low-risk investment”. The UK is now legislating to introduce an emissions performance standard. It is the same standard as is going to be introduced in the US at a kind of pan-United States level. Those are all policies that turned up, so policy risk has proven to be much greater. As you look ahead, take the long view: what has happened with climate change policy in the lifespan of existing coal plants? It has moved from not existing to existing. There is a general trend of more policy coming in to constrain climate change and if the ETS is not delivering what is necessary to meet the target at a national level and eventually at the EU level, I think you can probably anticipate there will be boot-strapping other policies like the carbon-floor price, which will have a greater effect on coal than any other. In other words, an investment in coal now carries a much higher policy risk than probably other kinds of investment would in low carbon, for instance. That is one package of risks that I would submit would probably be quite substantial. You could add to those political risks. New coal plant proposals around Europe have been opposed systematically, one by one, and you can see that everywhere. Even two weeks ago there were protests in Warsaw over new lignite plants. This has happened almost everywhere. The UK example would be Kingsnorth and what the NGOs and other voices did to say, “Well, a new generation of coal exposes the UK to high carbon liabilities”. The public resistance and political opposition to coal has been much greater than utilities expected. That has not gone away, but probably the overwhelming risks are economic and so within the package of economic risks there are quite a few reasons why it also does not make sense to keep coal capacity open forever.

There is an incompatibility risk to the electricity market. The electricity market is changing. Yesterday’s market involved base load and low following capacity. Tomorrow’s market looks very different. It involves large amounts of renewables dispatched on to the electricity grid.

On short run terms they are more or less free, and it is capacity that is capable of being flexible of forming the gap between what renewables supply and what the demand is at that particular moment. It requires flexible capabilities on the market. Old coal plants do not very well fit that profile of highly flexible resources capable of forming the gap between renewables and the demand at that particular moment. While old coal might fit a sort of mid-merit order for a period of time, new coal plant investment or investment in retrofitting means you are playing your capacity into a market where it is becoming more or less incompatible with the requirements of flexibility on the grid.

Things are dramatically changing in terms of the market. The capital investment costs around coal are continuing to rise relative to gas. Coal looks much more like nuclear and nuclear. It is all about the capital costs and how much it costs to build the thing and then the running costs are quite low. Coal has a not dissimilar profile but, especially when you compare it to gas, gas plants are cheap to build and expensive to run. Coal plants are expensive to build and, relative to gas, cheap to run, but relative to renewables more expensive to run. You have a lot of capital involved.

The Chairman: Mr Brewer might like to offer any comments and then we should go to Lord Whitty's question. I do not know if you want to come in there.

David Brewer: The international coal price is now at about \$90 a tonne. In the mid-2000s it was at about \$60 a tonne. So it is higher than it was and, in our terms, it is higher in real terms than it was. Compared to any other commodity, it is probably lower. If you were to take a basket of commodities and index that, the coal price is probably fairly low. It is certainly much lower than the gas price and that is why coal burning is very high, not just in the UK but throughout Europe. The coal price is relatively low.

If there is no change in the basic parameters between the carbon price and the gas price and the coal price, if all those parameters stay broadly the same, then in Europe the prospects

for coal are better than they were because most plants, I think, will invest to meet the requirements of the industrial emissions directive and so they will continue. New plants—because of the high capital cost, because of the political risk, because of the economic risk, because of the regulatory risk—will be much more difficult to justify and may not get built. That results in higher carbon emissions because old plant is relatively inefficient and new plant is much more efficient, and the difference in carbon emissions is of the order of 25%. That is what Germany has done. Germany has invested in relatively efficient coal-fired power plants, relatively new coal-fired power plants, including lignite-fired power plants. Therefore, its emissions per unit of electricity generated from coal are much lower than ours. It is interesting to know that, for example, in the enormous amount of coal-fired generation capacity being built in China and India, this is state of the art. It is highly efficient. It meets pollution requirements, such as under the LCPD and the IED. It is our plant that is ancient and old-fashioned and third world, not theirs.

The Chairman: That is a good moment to move to Lord Whitty's question, thank you.

Q110 Lord Whitty: All Governments in the EU theoretically are signed up to escalating carbon reduction targets, with varying degrees of enthusiasm in reality—but they nevertheless signed up to them. However, they also have to meet the EU targets to make their contribution there. Why is it, given the economic risks and this apparent consensus on reducing carbon that people are continuing to invest in coal in Europe and, indeed, government agencies and the European Central Bank are continuing to invest in coal? Understanding some of the economics and the fact that you can meet the non-carbon pollution targets nevertheless the overriding commitment to carbon reductions seems to be missing here and missing among some public authorities as well as private ones.

David Brewer: There are people who say that the answer to this is in changing the EU ETS scheme and making sure that the carbon price is much higher than it is now, and that is what

the UK Government and some other Governments are endeavouring to do through carbon price support and other carbon taxing measures. That might have been the intention going back a few years but the world has changed. We are in deep economic difficulties in Europe and increasing the price of electricity is becoming much less palatable to people and to Governments. There is a geopolitical element as well. Unless you go from here on the carbon price immediately to here it does nothing for zero or low carbon sources. If you get on a gradual track all it does is drive you from coal to gas. That results in lower carbon, but all it does, if you are in Poland or the Czech Republic or Bulgaria or Romania, is to drive you more into the hands of Gazprom, and you are not going to have it. That is why these countries will not permit tinkering with the existing arrangements of phase 3 of the EU ETS. They may or may not have enough to represent a blocking minority within Europe but one thing is now clear, from our own knowledge and contacts, is that if not overtly then covertly they are being aided and abetted by Germany.

Lord Whitty: Is that primarily, as you suggest, because of fear of falling into the hands of Gazprom, which must be quite an important issue particularly in the ex-Eastern European states. Or is it because coal for social reasons, which are aggravated by the recession, that the coalmining areas would be severely hit and there is not so much alternative employment in the alternative technologies?

David Brewer: There is probably more employment in the alternative technologies, which all that tells me is how expensive they are. But I do not think that is the reason. Hard coal production in Germany and in Spain will be eliminated by 2018 and subsidies are eliminated under the State Aid regimes. In Poland there has been a huge reduction in coalmining employment and, if you like, there is less to get them to zero than they have already had within the last 20 years. No, I think the real reasons are geopolitical.

Matt Phillips: Can I come back on your original question, which was about why, despite the carbon price, coal is being pursued and appears to still have some sort of economic resonance. The reality is that Governments in Europe are subsidising coal, they are subsidising coal in a whole range of different ways. For instance, through a complicated deal the Polish Government wanted to be able to have new coal plants, not have to pay the carbon price up until 2020, and to be able to recycle the money they would have made into a subsidy for their construction. Actually, they failed to achieve that, so now the Polish Government have announced that they are going to introduce a new government fund directly to subsidise eight new coal plants in terms of their construction.

The Spanish subsidise the mining of Spanish coal, and then they subsidise again the burning of that coal in Spanish coal plants. There are lots of freebies in terms of free water, free planning controls. In Romania, one of the new coal plants at Galati is in a free trade zone. So it will pay no taxes to operate there and will burn Ukrainian coal. So no surprise that Enel wants to build that coal plant.

Essentially what is happening is that Governments who want new coal are finding ways around the ETS by subsidising them to come forward. That underlies my underlying point, that coal is ultimately not economic.

Lord Whitty: Can I just take you up on that: there are subsidies of various sorts for renewables and for nuclear as well around the world. The recent IEA report said coal was being subsidised more than those but in Europe is that also the case if you—

Matt Phillips: We have never actually done a financial calculation, it is very situational. So the countries remaining in the EU, which are still planning new coal plants, the ones at the head of that today, are Poland and Romania. Is Germany building new coal plants and is the coal plant fleet compliant with the IED? On the latter point, no, it is not. There is a huge amount, in particular, of the old East German coal plants owned by Vattenfall and E.ON in

Brandenburg, about 9 or 10 gigawatts of them, which are not compliant with the IED, which are existing coal plants. So Germany will have to face that issue. I just wanted to correct that point.

But, more broadly, back in 2005 Germany did indeed have nine coal plants under construction and a further 35 coal plants were proposed. None of those 35 has reached the end of permittee and gone under construction. Two of those that were under construction are still in the courts, in fact. So Germany is in a vexed position. It has now locked itself into a certain amount of new coal and to meet its own targets on carbon emissions it will have to do something about the existing coal plant proposals, and it has ruled out CCS. So German coal policy is a total mess. Germany will face a climate conflict with its existing infrastructure unless it develops a policy capable of dealing with it.

Lord Renton of Mount Harry: Why has it ruled out CCS?

Matt Phillips: Local opposition primarily. Remember it is a slightly different situation in that it does not have such easy access to the offshore injection and storage options as the UK and the Netherlands do. Because it is primarily underground, as an uncertain new technology, a lot of local opposition in CDU, farmer states, were opposed to CCS, so they have never agreed a CCS programme, which has any tangible chance of succeeding.

Lord Cameron of Dillington: Mr Brewer said a moment ago that Germany was phasing out all its coal production by 2018.

David Brewer: Hard coal production, not lignite.

Lord Cameron of Dillington: Not lignite? I was wondering if it is going ahead and building power stations it would render—it is going to use lignite?

David Brewer: Yes.

Q111 Lord Lewis of Newnham: You have touched on this point a moment ago, which are on the carbon capture and storage situation. This was projected as going to be the

salvation for the production of both gas and coal as a potential source in here. To my mind, it has been singularly unsuccessful. There have been, to my knowledge, no real successful stories, certainly in this country, and I am not sure what the situation is in Europe. However, I do not get the impression, for something like the reasons you are saying, that in Germany it has been virtually shoved aside primarily because of the lack of storage facilities that are coming through with it. What is the situation on carbon capture? At the moment, the main backing, if any backing is occurring, is not occurring via the coal industry. Why is the coal industry not investing in something like this, or do you take the view that each one is an individual and you are not going to get a general solution to this particular problem?

Matt Phillips: There are two dynamics there as regards the public plans to commercialise CCS, but what about where the private interests have gone in terms of securing CCS. So Europe did have a programme, and technically still does, which was designed to commercialise CCS. That involved a number of projects around Europe. What has happened is that Governments were not seriously backing that range of projects. The German ones fell down, as did a number of the other projects. Frankly, I do not think that Poland is serious about developing CCS. Belchatow is a useful demonstration project but the country is not serious about developing an overall CCS programme that is capable of dealing with all the new plants they think they are going to build.

As you start going down at the Member State level, it melts away from a coherent EU programme, and I think therefore the EU has struggled to get that moving.

The UK's programme was put in a very flawed position. It opted, in John Hutton's era, for one shape of project and has suffered from that ever since, which is a sort of Kingsnorth-shaped project, with post-combustion capture and then storage.

A more rational programme, which was built from the bottom up, would have looked at CCS in the round, not just as something that comes out of the coal box. It is something

about industry, potentially gas, and also potentially the role of coal. So it makes a lot more rational sense to locate it in industrial clusters where you can get lots of by-products from heat, lots of by-products from the CCS generation, and also located well with the chemical industry and other users of by-products from CCS and co-users of the infrastructure.

I think this is therefore where Europe is going, because there has not been a big wave of new coal plants Europe does not need CCS for coal. What it does need is CCS for gas and for industry. Therefore, on CCS policy, if it is going to make any rational sense, Europe needs to go in those directions. If coal wants to play a part in that, then it is going to have to look at those co-location opportunities for coal in Europe to form part of that.

Then we elevate to the global picture, what does it mean if Europe does not have a big reason to commercialise CCS for coal but it does for these other reasons? That is probably quite a good thing. The Chinese like to gasify quite well but we do have a big problem because the world's Governments, the IEA and others have said we must have CCS and that is plan A. At the moment, plan A is not coming about. If you look at the latest IEA analysis and projections of what needs to happen to make coal anything like compliant with a two degree world, it requires vast amounts of coal CCS that does not look like it is coming down the path. They need to get a much more accelerated CCS programme, which means abandoning ideas like carbon capture ready, which have not worked, and getting straight on to CCS deployment only; or they have to shift off coal quick, which means accelerating things that are not coal even more rapidly.

Q112 Lord Giddens: I just wonder if I can ask you to summarise at this point what Europe should do in an optimal fashion to pursue the goal, which seems to me, as someone who spends his life studying climate change to reduce greenhouse gas emissions, absolutely necessary. What would be the optimum strategy with regard to coal in an energy mix? I found this discussion very interesting in respect of the point, for example, you made about

differences in efficiency in coal stations and the fact that you put up a suboptimal policy, which you were trying to use as a carbon reduction strategy that might backfire. What, at this point, should the EU do in terms of future planning, trying to reconcile these things? Bearing in mind that we also need economic renewal, you need growth patterns in Europe, you need investment, you need to get out of recession, which is going to have a higher level of energy use over the past four years or so. Could you tell us what is in your mind about that, given that the ETS seems, by in large, a failure?

Matt Phillips: I think HSBC has rejected the notion that in 2020 15% of the global economy will be local carbon energy. Positioning yourself well as Europe to be in that market early, delivering goods and services on low carbon early into that global market means accelerating the innovation and accelerating the commercialisation and deployment of low carbon technologies. If you look back at the UK, BIS has done a very useful analysis of the benefits the UK receives from low carbon goods and services and is a huge net exporter to China on those goods, and it brings a lot of billions of pounds into the UK economy.

Lord Giddens: Except the Chinese are undermined by European solar or energy industry.

Matt Phillips: What happened was Germany and others pioneered it and had the first generation of manufacturing but China came in with newer plants and newer manufacturing, which could then start scaling it up globally, which was also cheaper.

Lord Giddens: And much cheaper, which is also going on at the moment.

Matt Phillips: But that is part of a healthy global economy as well. Europe is still getting big benefits from solar and is still at the innovation end of that cycle, and is also deploying—

Lord Giddens: I do not want to stop you, but we need to get on to what should happen to coal specifically in this mix.

Matt Phillips: In this context, Europe has to do something about coal so, first, it has to stop subsidising it and, secondly, it has to either advance CCS from the outset and therefore be a

part in commercialising, advancing and innovating around that industry, or just move on and put CCS into the gas industry camp and concentrate on it in that context. It cannot build coal plants that will be liabilities both for the European economy and for its industrial future. That will cause all sorts of problems.

In that regard, we just need to divide it between the new plant investment and these questions about existing plants and what they have to do. To be compliant with meeting carbon targets, they are going to have to reduce the generation from coal. Climate emissions purposes is where ECF is coming from, and they are falling back on air pollution legislation rather than on an actual climate agenda, and that seems just wrong. It is not clear to the markets and it is not clear to investors. It is mucking around with air pollution rather than having a clear direction of travel with the carbon price, which everyone can rely on and understand and which will be consistent and clear, which we would all like across Europe.

In the absence of that, they are going to have to do some things that correct the flavour of the carbon price to deal with coal generation. To constrain it, they will either have to do some things David alluded to, which is have a big battle over what the carbon price will be in Europe, and they keep inventing new ways of having that discussion, or they are going to have to introduce an emissions performance standard or some such, which forces the closure of existing coal on a timetable. That has, after all, been done before using emissions levels on sulphur dioxide, nitrous oxides, which is what the Large Combustion Plants Directive is. So it seems to me that there just needs to be this recognition that existing coal is going to have to be constrained and they are going to have to advance CCS if they want a future role for coal in Europe.

The final point was about the private sector's role related to this. Globally coal is booming. Coal is growing and growing and growing. It is growing, as the IEA will tell us, and projects in a way that is consistent with a six degree world, not a two degree one. That means a lot of

money is ending up in the hands of people who produce and sell coal and process it and so on. At the moment, the coal sector has relied on utilities to commercialise CCS, and, frankly, utilities do not have to do coal. They can use gas, they can do renewables, they can do other things. In Europe, for instance, coal is quite likely to be on the way out, but the issue is how quickly it goes out. If coal is to have a future, the coal sector is going to have to grapple with it, invest in commercialising CCS and, essentially, pay for it so that the utilities do it.

Q113 Lord Lewis of Newnham: But you did suggest that in point of fact the application of CCS was not unique just to the coal industry, that there were other industrial concerns—

Matt Phillips: If the coal industry does not do it, it is relying on the gas sector doing it. The gas sector is quite strategic and it does have big balance sheets.

Lord Lewis of Newnham: But there are industries like cement, which is 6% of the CO₂ produced in this country, and the chemical industry. Why is there not some general interaction between these various groups?

Matt Phillips: I think the problem is that it has been allowed to be a debate that is about coal when it should be a debate about industrial clusters and that is where CCS, if it is going to happen, will be commercialised because there will be multiple users using shared infrastructure for multiple different reasons. Co-location is where we will get the efficiencies in the deployment of CCS and that makes a lot more sense. It is rather pleasing that the UK is ending up in that place after five years of mucking about, frankly.

David Brewer: The question was: what should Europe do?

Lord Giddens: How should it reconcile obligations to reduce carbon emissions?

David Brewer: Its obligations on carbon emissions extend to the 20-20-20 target by the year 2020. That is Europe's obligations. It has no obligations beyond that. Those obligations

will be met under existing policy with the EU ETS because the EU ETS sets a cap on carbon emissions. So those targets will be reached under existing policies.

Lord Giddens: Largely because of the recession.

David Brewer: If it had not been for the recession then the carbon price would have been higher and it would have forced more transfer away from high carbon sources. Under existing policies, those obligations will be met.

Lord Giddens: But I mean a long term—

David Brewer: Europe has longer term ambitions and longer term targets. The question is: will it go there? A debate will take place in Europe as to whether Europe should go further if the rest of the world does not come with it.

Lord Giddens: What is your opinion?

David Brewer: On what? Whether the rest of the world will come with it or what Europe should do?

Lord Giddens: What Europe should do given that it will sustain—

David Brewer: Assuming that the rest of the world does not come with us, Europe is an irrelevance. It is an irrelevance. We produce in Europe perhaps 10% of the world's carbon emissions, so unless somebody does something about the other 90% we are going to be all toast anyway. So what is the point of a grotesquely expensive investment in utter futility? What is the point? And it will be very expensive for us because if we continue in Europe to pursue a low-carbon agenda and the rest of the world does not it will be expensive. We are also in a situation where climate change is still going to be taking place, if that is the case, on a runaway basis. We are also going to have to spend truckloads of money on mitigation measures. So we suffer doubly. I think that is the real question for Europe. Europe has decided where it is going and policy measures are in place to get us to 2020 but whether we go beyond that is a question and it is a question of whether the rest of the world comes

with us, and if the rest of the world does not come with us whether we are prepared in Europe to go it alone, with all the consequences that that entails.

Q114 Lord Cameron of Dillington: Does that mean that you believe that the coal industry has no responsibility—the question was about carbon capture and storage—to look further and to promote and do the research into carbon capture and storage?

David Brewer: We do, and in Germany. In Europe the big lignite produces, which is the majority of coal production in Europe, lignite, are owned by the generators and the power stations are mine-mouth power stations. Huge mines, huge power stations, and they are in common ownership. There is vertical integration. So when you are talking about most of the coal industry in Europe, lignite producers, you are also talking about the utilities. So in Germany RWE, the lignite mines that produce over 170 million tonnes a year, and of course it is now increasing because of their decision on nuclear, are owned by RWE, E.ON and Vattenfall who also own the power stations.

Lord Cameron of Dillington: Do they have responsibility for—

David Brewer: Yes, they do. For hard coal producers like UK producers, I have to say it is a bit more difficult for us. We have neither the skills nor the wherewithal to do it. We just do not have the money. The kinds of money that is being talked about are way beyond our capacity, we would have to borrow it all anyway, and we do not have the skills. I think for the hard coal industry internationally the big players, the RTZs, BHP Billitons, Anglo Americans, Xstrata Glencores of this world do have a responsibility and we would go along with them. But UK coal producers, which are medium-sized, small cap companies, some of them genuinely small companies, SMEs, do we have the ability to do that? No, we do not have the skills, we do not have the wherewithal.

The Chairman: Lord Lewis, do you want to come back in or shall we move on to Lord Caithness? Thank you. Lord Caithness.

Q115 Earl of Caithness: You defined it very well, and we are going to be the maiden aunt of the world in Europe and forgotten about, which makes the Emissions Trading System rather irrelevant. If we want to continue to be the maiden aunt, do you prefer a trading system that has a basic floor price for carbon or would you prefer a carbon tax?

David Brewer: I prefer regulation. I think that is the way to do it so that you will say to all fossil fuel producers, “By a certain date in the future you will have CCS”. You make that date the same for gas as for coal because if you do not make it the same for gas as for coal all that anybody will do is just build gas. For some people that is fine, but it comes at a price, and the price is that the fuel cost of generation from gas is more than double that of coal. That is the price you pay.

I think you do it by regulation. You say that as from a certain point in time all new fossil fuel plant or all fossil fuel plant will have to be equipped with CCS and you put in place mechanisms, as is proposed in the Energy Bill, by a contract for differences, which will make sure that that plant can be economic. But do not be under any illusion, the price for electricity customers will be very high. It will be very high under any circumstances.

Earl of Caithness: Following that through then, if it is going to be high, should we be pursuing this route? Do you think there is a remotest chance of Europe ever agreeing a common policy on energy post 2020 other than continuing to be green when the rest of the world is dirty?

David Brewer: I think you will find a split emerging in Europe, as it is emerging now between Central and Eastern Europe, with high levels of dependency on both hard coal in Poland, in particular, and lignite in many other countries, and Western Europe where the dependency on coal may be less. They may feel that there are other alternatives—nuclear or a combination of nuclear and renewables—and they are not particularly concerned, rightly or wrongly, about an increasing dependency on gas.

Earl of Caithness: So you do not agree with Professor Helm in saying that we should go for gas in the short term and renewables long term?

David Brewer: If I take my coal hat off, the argument that you should go to gas from coal in the short term or in the medium term to get carbon emissions on the downward path is a very seductive argument but not at these prices. The major oil and world gas price is controlled by who? It is controlled by the oil majors and the various national gas companies, Sonatrach, Gazprom and Qatar, and they are oligopolies, whether they are in the public sector or the private sector, and they are interested in maintaining their profits.

The answer is: tell them to go away and come back when their prices are 30%, 40% lower, as they are in the States. This is not just a matter of gas availability. It is a matter of market structure. In the States multiple producers of shale gas are competing with each other and driving the price down. That does not exist in the rest of the world, so no matter how successful shale gas exploration might be outside the States, it is unlikely to result in a lower gas price, while you have this oligopolistic structure.

I do not think anybody in the oil and gas industry in Europe has the beginnings of an inkling of an idea of what the words “market” and “competition” mean, whether our marginal revenues are inextricably forced down to marginal costs. It is utterly beyond either their experience or their comprehension.

Q116 Baroness Parminter: Rather than market mechanisms, you have argued that Governments, particularly the UK Government, should use regulation, but can you give an example of any politician who is prepared to legislate for what is an unproven technology? How can Governments legislate the CCS?

David Brewer: Are you talking about CCS as being—

Baroness Parminter: Yes, because you argue that the Government should legislate for the future using CCS. That is an unproven technology. What politician has ever or will ever use a legislative tool to do that?

David Brewer: I think the answer to that is quite simple: the individual elements of CCS are proven. What is not yet demonstrated on a commercial scale is sticking them all together. But when you look round the world at the enormous amount of coal-fired generating capacity that exists and is being built as we speak, without CCS there is no route to a low-carbon world. It is that or nothing. It does not mean to say that other low carbon technologies do not have a part to play. They do. But without CCS we just do not get there, so it is an imperative. You make it work. You have to make it work. That is what you do. It is an imperative.

Matt Phillips: Can I make an observation?

The Chairman: Yes, in a couple of minutes and then we should come to Lord Courtown's question, but please do.

Matt Phillips: David raised a lot of points. The familiar debate about what should Europe do in the context of global is worth examining—for instance, the IEA's analysis of the future scenarios and future fossil price scenarios. What the IEA has looked at is a current policies trajectory on fossil fuel prices globally and a 450 scenario, so the scenario where the world adopts policies capable of living within 450 parts per million, which is the two degrees scenario apparently all Governments are signed up to.

The way fossil fuel prices will be moderated is a much more successful moderation of fossil fuel prices if you go for the 450 scenario than if you allow business as usual. Business as usual says, "Let us all just give up on this climate policy because I am not convinced. Let us go for the race to the bottom in terms of standards rather than trying to pursue a high ambition pathway". All that does is it means more people use more fossil fuels, the supply and

demand dynamics in the fossil fuel industry, according to the IEA, just projects them all continuing to go up. What keeps them low is if people start decarbonising the power sector, move out of fossil fuels and get going with low carbon. Most of the costs of global decarbonisation are not in the power sector. They are in transport. So the power sector is quite a modest direction. It just depends on your taste as to whether you think fossil fuel prices will go up or fossil fuel prices will go down as to whether it will cost anything to decarbonise the power sector over the longer term, especially if you are deploying other parts of the package preventing energy waste through energy efficiency programmes. What that does is it helps moderate the costs entirely across the whole economy as well as for bill payers. There are plenty of ways that you can decarbonise that do not necessarily mean you go for the higher prize.

What should Europe do? Should Europe just go hell for leather for coal or should it go for a decarbonisation pathway? It partly depends on Europe's bet. Will other countries play ball on decarbonising and will Europe get a benefit industrially from being there at the start rather than trailing? It depends how you look. If you look at it from global climate negotiations, it does not look that encouraging. If you look at it from other ways it looks extremely encouraging. What is the policy that meets David's need? It is an emissions performance standard. What that does is regulate to rule out coal.

The US has now introduced that. The US is not buying into a global agreement but it has regulated out all new unabated coal in the US through an emissions performance standard. It is possible that would have fallen had Romney come in. He has not. Obama is in there. That policy is going to stick. That has prevented 150 new coal plants being built in the US and now the US is tightening up air pollution controls, which is leading to the closure of some of the existing coal fleet.

What Europe is doing on coal and what the US is doing on coal is broadly similar. China has introduced a coal cap. It is capping in the 12th five-year plan the amount of coal it will allow to be burnt in China. In the course of the next year or two, that will be turned into policy in the regions where it will be enforced. Is the huge coal expansion in China going to continue? That is unlikely. The reason China is doing that is partly climate and partly because it does not want to keep on importing.

Globally the picture is not one of no one going with us if we do not do anything. Quite the opposite is the case. Europe's leadership is already gaining some traction and results in other parts of the world. While our eyes might be focused on a global climate agreement, if you start looking at real things that economies are doing, a lot of economies are willing to decarbonise. So should Europe trail that and just do it when everyone else has done it or should it be ahead? It seems to me that Europe needs to think a lot about its industrial renewal and think about where future markets are going to be. It can have a lot of edge on low carbon. I think that will be my general commentary in response to some of David's points there.

However, I think we are probably agreed that a solid clear regulation helps a great deal and also that regulation stimulates innovation. If you mandate CCS or you cannot build, that is an extremely good way of encouraging actual real investment as a serious way forward. That is what happened with sulphur dioxide controls, so I think we might well agree that regulation is a very good way forward. You would simply say that no new coal without CCS from the outset globally should be a standard that all IFIs adopt from 2015.

The Chairman: It is nice to have you agree there at this point. If we could go on, because we are slightly—

David Brewer: I do not agree with that. I agree that you should have regulation not with an EPS. I think that you should have from a point in time all new fossil fuel plant CCS, gas as

well as coal. I see no merit whatever, either from a climate change point of view and certainly not from an economic point of view, in ending up with a system, be it a carbon-pricing system or a regulatory system, which just drives you from coal to gas.

Matt Phillips: But an EPS—

The Chairman: I think we have taken that point.

Lord Cameron of Dillington: Can I just ask a quick question? On the cap that China has introduced, when is it likely to meet this cap?

Matt Phillips: Within the course of the next five-year plan the cap is slightly higher than in the previous five-year plan. It is the 12th five-year plan. It is a quite remarkable thought.

Within the course of the next five-year plan they have capped the amount of coal they are allowing to be burnt in China. It is projecting ahead over the next five years. When they will meet it is within the five-year period.

The Chairman: Perhaps if we have five more minutes, Lord Courtown, and we can get the answers to that last question.

Q117 Earl of Courtown: We have already looked at EU enlargement and coal to a certain extent, but is there anything you would like to add on the implication of eastern enlargement and the EU energy policy? At the same time, with regard to the pre-accession negotiations, how should coal be tackled in negotiations with these different countries?

Matt Phillips: I think David made an important observation when he said that there is a difference between Western Europe and Eastern Europe. It was not quite accurate in terms of who is, if you like, leading the opposition to climate high ambition in Europe. It is only Poland which stood out. All the other countries in Eastern Europe aligned around Europe going for a deeper cut. It was only Poland that held out against it. Let us be very explicit, that was because of coal, and we know it was because of coal because they said so.

What happens if Europe, as it expands, allows another five countries in the Western Balkans, all of which see their future including new coal, and Turkey, which sees a future of planning to build 60 or 70 new coal plants? Those countries coming in mean that you get a lot more Polands dragging Europe behind a low ambition direction rather than a high ambition direction. When you dig into the situations in those countries as to why coal is nevertheless being progressed, those Western Balkan countries are part of the energy community, which means they must adopt EU policies. But of course they do not adopt the carbon price. They adopt all the other parts of the EU policies, like the Industrial Emissions Directive, and the Large Combustion Plants Directive must be applied in Western Balkan countries and after that negotiation within the AKE, with Turkey, conceivably in Turkey in preparation for EU accession.

So the problem is they simply discount the carbon price. They do not include it in their economic assessments because they are not manifesting in the way they operate the power sector in the Western Balkans, like Serbia and Kosovo and so on. They are not manifesting in their actual national context a reality that they would one day be part of the carbon price. All those Western Balkan countries intend to be part of the EU by 2020. They all face the carbon price on the plants they are proposing should be built right now. It is a form of cognitive dissonance. They are expecting that they can do the same as Poland and other former Warsaw Pact countries did when they joined the EU. They expect that they will simply get some form of derogation and will fight for it. That is why there will be a continual drag and therefore this points to what policy needs to be adopted, which is a neighbourhood policy. The EU just has to wake up. DG Energy has to wake up and look at what is happening. If those countries build a shed load of coal it will change the dynamics of the political negotiation on Europe's ambition on climate change in the future.

The Chairman: Anything further? Thank you both very much. I think it was a very stimulating exchange. Thank you very much. We learnt a great deal.