

Lord Browne

Fred, Ladies and Gentlemen, good morning, it is a very great pleasure to be back in Aberdeen and an enormous pleasure to have the chance to come and talk to you. Aberdeen is a place to which I have returned time and time again over the past four decades. I started work here as a very young, new graduate, back in nineteen sixty nine, I came back to Aberdeen at the beginning of the nineteen eighties to manage the Forties Field, then when BP merged with Britoil I came here as Chief Executive of the upstream business. Throughout that period the North Sea has been one of BP's most important investments. Over those four decades we've invested some forty seven billion pounds in developing and operating dozens of fields. To date we've produced approximately five billion barrels of oil and nine trillion cubic feet of natural gas, and over that period we've paid over seventy billion pounds in taxes and royalties. For us, the North Sea hasn't just been a source of oil and gas and revenues, but also a training ground for many of the people who now lead our company world wide. It's also a place in which advances in technology have been made, advances which have moved the frontier of what is possible not just here but all around the world. The North Sea has been of crucial importance to BP, it remains so today and I believe it will retain that importance for us and indeed for the whole industry for many many years to come. The North Sea's important for the industry and therefore for Scotland because oil and gas activity, much of it based in the north east provides one hundred and eighty five thousand jobs directly and employment for more than a quarter of a million people if you apply a reasonable multiplier to add in all the other activities which support the industry, and the North Sea is also important for all those who consume oil and gas in the UK and beyond, because its provided and can continue to provide a secure source of supply in a complex and volatile world. Energy security is an issue which is receiving a great deal of attention today, some of that attention is based on the mistaken view that oil is running out or the fear that countries such as the UK which are no longer self-sufficient in natural gas are becoming ever more vulnerable to shortages and price increases, those fears I believe are unjustified. On natural gas in particular we do not share the view, which appears to have become entrenched in some circles that supplies will run short in the UK this winter. You can never rule out any remote possibility entirely but the chances of a shortage are very limited indeed, over the full year domestic production meets some ninety percent of demand with the balance being provided primarily by Norwegian imports over the high demand winter period production in the UK and Norwegian sectors is likely to cover some seventy percent of anticipated demand and that'll leave thirty percent to be supplied through storage, the interconnector from the continent and through imports of liquefied natural gas, LNG. The best estimate provided by national grid is that the weather internationally would need to be as cold as the coldest winter in the last fifty years for there to be any serious risk of a shortfall. Its worth remembering that even with the Isle of Grain facility working at full capacity, LNG, supplied from the global market represents only three percent of UK winter peak demand, market forces determine when LNG cargoes are draw to the UK rather that any other destination and that's a very healthy state of affairs. Of course, every molecule of gas is important when supplies are tight but its our

industries ability to keep the North Sea fields up and running which matters most, and that is on track and that's why I believe the chances of any shortage this year are very low indeed, and again, contrary to some fears which have been expressed we believe that security of supply for the UK will improve as time goes on. UKCS production will decline, but greater import capacity is being developed for example through the interconnector and new LNG import terminals at Milford Haven. So some of the fears are unjustified or exaggerated but there are some legitimate reasons why energy security is once again being debated as a serious policy issue. Prices are high today by historic standards, last years average oil price of fifty four dollars a barrel was a twenty year high in real terms, and though some new production is coming on stream this year in different parts of the world, including the Caspian, the Gulf of Mexico, West Africa and Russia, there is no immediate sign that prices are about to fall back towards the long run average of twenty five dollars a barrel. The balance of supply and demand is still quite tight; demand continues to rise driven by the powerful combination of population growth and the spread of prosperity. I find it startling to think that since I started work thirty seven years ago the world's population has almost doubled. Now there are six and a half billion people on earth and more and more of them are able to buy the commercial supplies of energy which they need for heat, light and mobility. Now that's a good thing, a sign of human progress because people are escaping from poverty and securing some degree of freedom and choice. The world economy has grown strongly in recent years with the result that global oil demand is now eighteen percent higher than it was just six years ago, at the turn of the century, or to put it another way its grown in absolute terms by seven point two million barrels a day and that's roughly equivalent to four times the total output of the UK North Sea today. The market has been able to respond to that growth with new supplies, but the balance is tight, the level of spare capacity, that is oil which can be brought on stream quickly is less than two million barrels a day, significantly lower than the historic average of three million barrels a day, and crucially close to the production level from Iraq, Venezuela or Nigeria. There has been no shortage but the fact that the amount of spare capacity is low is the real reason why prices have moved up, but the sense of insecurity in the energy market isn't just about price. The rising level of energy demand poses other challenges because for the moment that demand is focused on hydrocarbons, coal, oil and natural gas and in particular on oil and gas because of their enormous convenience. There is the challenge of the natural environment, can we find ways of using increasing amounts of energy without destroying the sustainability of the climate, the science of climate change is not complete, but real science is never complete and it is the balance of evidence which matters. The evidence that we do have suggests very clearly that the increasing concentration of carbon in the Earth's atmosphere poses real risks to the sustainability of the climate on which we all depend and the proportion reaction is absolutely justified to mitigate those risks. That's one challenge; the other challenge is the challenge of matching supply to demand, because to an increasing degree the two are not co-located. The US, Europe, Japan and now China are all major importers of oil. On the other side of the equation, three areas are coming to dominate supply, within ten years almost eighty percent of all internationally traded oil which means four barrels in every five consumed world wide will come from just three areas, Russia, West Africa and most important of all, the Middle East. There is no shortage of physical resources of either oil or gas, at

current consumption rates there are at least another forty years of oil supplied from proven reserves alone, even before we begin to count resources yet to be found or declared proven. For natural gas the comparable figure is sixty-five years, but those resources are concentrated in particular areas and the challenge of maintaining the balance with growing demand will depend on the development of open markets, and the freedom for international as well as state companies to invest. In a number of areas, which are crucial to future supply that freedom does not exist at the moment, and that's why the North Sea is more important than ever to the energy security of the UK and Europe. In a volatile and uncertain world, there's a great advantage in having resources that are local, and supplies of oil and gas, that are co-located with demand and not contingent on political decisions in other producing states. Production of oil and gas, particularly in the UKCS is declining, but the UKCS and the North Sea as a whole remain a significant source of supply and according to the latest DTI and UKOA data there are still up to twenty six billion barrels of oil equivalent to found and developed here. The life of the North Sea continues to be extended, when I first came to Aberdeen the general expectation was that activity would be over by nineteen ninety, when I came back in nineteen ninety the general expectation was that the North Sea would have closed down by the year two thousand. In two thousand and five UK North Sea hydrocarbon production was around three point three million barrels of oil equivalent a day, and this year according to independent estimates UKCS production will still comfortably exceed three million barrels a day of oil equivalent with total North Sea production including the Netherlands and Norway of over nine million barrels of oil equivalent a day, and the resources are there which could keep production going for many years to come, so the end is not nigh, but to deliver the remaining potential does mean that we have to deal with some real issues. The North Sea needs continued investment, production is declining in the UKCS as we all know but it would be declining much more, perhaps by twenty percent a year without the investment that has been made, in total the industry has invested over forty billion pounds in capital and operating expense in the UK over the last five years. BP's invested five and a half billion pounds over that period and that investment enabled us to bring on stream three new fields in two thousand and five alone, Clare Faragon and Ruhm. Now, in response to increases in world prices there's the possibility of that investment being sustained and even growing, we intend to invest between one point three and one point four billion pounds here in the UK this year in existing fields as well as new activity, and that includes the continued development of Clare and Ruhm, the completion of our Magnus extension project, further development in Etap and Foinaven, major projects in the west of Shetland and around the central North Sea Harding field and that on top of that will mean also some work in Norway, in the Valhal field in two thousand and six, and we intend to bring on stream this year thirty eight new BP operated wells. Investment is crucial, but the North Sea also needs advances in productivity and a continued focus on costs. The greatest risk in a mature province is that volumes decline faster than costs can be managed, reducing margins substantially over time. High oil prices conceal the problem, but who can really rely on high prices, its worth remembering that only twelve months ago, in January 05 the price of a barrel of Brent crude was just over thirty dollars a barrel, we all thought that, at that time, was rather high, it would be foolish to plan on current prices persisting, particularly when the lifetime of new development runs in to decades, so costs are a continuing challenge made more

serious at a time when the industry world wide is investing more. To achieve those required advances in productivity the North Sea also needs continuing development of technology, the main focus of development is now on smaller fields, satellites and step-outs and the average size of field development has fallen from over two hundred million barrels of oil equivalent in the seventies and eighties to twenty million barrels of oil equivalent today, for a tenfold reduction and that poses different challenges, the advances we've seen in technology have helped to increase recovery factors, and to make economic the development of complex structures in small accumulations of oil and gas which, even ten years ago would not have been viable. Key examples of technology development have included the use of increasingly sophisticated three and four D seismic technologies, advances in drilling and completions which have allowed multiple reservoir penetrations to be drilled from a single well, and the ability to reach new elusive reservoir targets with extended reach drilling, all of those advances mean that the North Sea's continued to be at the forefront of development of a wide range of technology and that technical progress is also raising new and fascinating possibilities. We announced last year we're working on a new project based here in Aberdeen to separate out carbon from hydrogen to re-inject the carbon into an existing reservoir and to take the hydrogen to produce carbon-free electricity. Work on that first project is progressing well and subject to very necessary clarification of the regulatory regime we hope to have it on stream by two thousand and nine. We'll take a stream of natural gas, take out the carbon, put it back into the Millar field, delivering the hydrogen to the existing power station at Peterhead to produce three hundred and fifty megawatts of carbon free electricity a year. In the process we'll raise the amount of recoverable reserves in the Miller Field by forty million barrels, adding perhaps fifteen to twenty years life to the field. It's a project, which, if successful, can be replicated in many other parts of the world. We are already in discussion on a series of other potential projects in the United States, in China and elsewhere, and of course there's much more potential here in the North Sea. In theory, one could bury some sixty years of European carbon emissions in the reservoirs of the North Sea. Projects of this sort not only extend the life of many fields, they can also reduce the amount of carbon which would otherwise be emitted into the atmosphere, applied internationally on a material scale we could make a significant contribution to meeting the challenge of climate change. That is work in progress, and there's much to be done, but I'm delighted that this technology, which could have global application, is being developed here, in Scotland. So investment, technology and rigorous cost control, those are all necessary but we do need one other thing as well, and that is a reasonably secure fiscal environment in which to make long term investment decisions. For investors in the North Sea there are enough areas of uncertainty, enough things which no one can predict, to add fiscal uncertainty to that is dangerous because it could deter investment at the margin and in the North Sea at this phase of the life of the province almost every investment is marginal. It's easy to understand the logic which says that the industry here and elsewhere has benefited over the last year from high prices and that the result is windfall profits, or perhaps in the elegant language of the economists unearned rent. It's easy to think that such rents can be safely taxed away without affecting the underlying business, but that logic ignores the volatility of prices. If a windfall tax is to be applied when prices go up then the tax should be removed as prices come down. If there was no justification for a windfall tax twelve months

ago when prices were just over thirty dollars a barrel then there would clearly be no justification for extra taxation if prices fell back to that level. It's also worth remembering that profits, including so called windfall profits fund just two things, first, payments of dividends and returns to shareholders, who in our case, in BP are predominantly UK pensioners and those saving for their retirement. We estimate that one pound in every six pounds of UK pension funds income from companies in the FTSE index comes from BP's profits. Other companies in the oil and gas sector also make a material contribution to pension funds through their dividends. That means that if profits in this sector are subject to exceptional taxation it is that flow of revenue into the pension funds which is reduced. The other use for profits is for investment and there again an increased tax take will mean that the resources available for re-investment in areas such as the North Sea are reduced. Fiscal stability has been an important element of the regime which has sustained the North Sea in recent years and I hope that a sense of stability of alignment between the legitimate interests of Government and the interests of the industry will be restored by clarification of the fact that windfall profits taxes will be removed immediately if and when prices fall. The risk of course is that if the position isn't clarified investments at the margin will be postponed or perhaps even foregone entirely. Ladies and Gentlemen, if those conditions can be satisfied then I believe the future of the North Sea, including the UKCS can be very strong, as UKOA said "there's no reason, in terms of resources, why the United Kingdom shouldn't still be producing two million barrels of oil equivalent a day in twenty twenty and further advances in technology may take us even further than that". To summarise then, I would draw just one conclusion from everything I've said the story of the North Sea has run now for forty years, the end of the story has been predicted on many occasions and on each occasion the prediction has proved to be wrong, human ingenuity, especially in an area like this is a great thing, there is no reason for fatalism, the story will continue. Ladies and Gentlemen, thank you very much. Lord Browne, thank you so much for that very informative, thought provoking and encouraging speech, what more could we have asked for from our keynote speaker. Lord Browne has agreed to take some questions now, I'm very sorry, time is very pressing so can we say we'll just take two or three questions from the floor, would anybody like to start with the first question? If you make yourself know we'll bring a... there's a question here in front, could you say who you are as well please?

Kevin Furnley from Composite Energy, Lord Browne, welcome back to Aberdeen. We're actually drilling for gas just a hundred miles south of here, we're hoping to deliver a new source of energy for Scotland, coal bed methane, our major challenge there is all issues in the environment, I know particularly and personally have been a very great champion of BP's commitment to the environment probably no more so than... nowhere more so than the environmentally meticulous operation at Witch Farm, you touched on this but I'd like... would you share a few of your thoughts on managing and protecting the environment as a specific strategy for extending the economic life of this province and the oil and gas industry globally?

Certainly, there are of course two things it seems to me to think about and probably two points in each of them and so I can make up four things to say, but I'll figure out what I'm going to say as I do this. I

think that the first is the most visible thing about operations is what happens close in so what's the neighbourhood like and there I think we're hugely assisted by technological advance, smaller footprint, better ways of having closed operations where there are no emissions, understanding standards for remediation putting back the place in the way in which we found it before we were there, handling waste, all these sorts of things, very important and there are huge lessons learned, everything from coal bed methane in the United States and the meaning of how to handle all that water that comes out with CBM operations, how do you actually put it back in a way which is not deleterious either to the operation or to the environment for example. Then I think there are the other areas which are the unseen areas, and they're to do with carbon emission into the atmosphere. This is really important for this industry, we must be absolutely the leaders I'm confident all of us in making sure that we do all and everything to reduce the carbon content of our operations and actually long term, not so long term the carbon content of our products. The carbon content of our operations is best in a practical way thought through as how efficient can they be? As every energy operation burns energy, and surely to goodness we can... since this is our business we can figure out how to become more and more efficient every day and not to flare surplus gas, I mean we don't do that sort of thing nowadays, that is like almost dead, its sort of regarded as totally inappropriate, but a few years ago people did and it still happens in different parts of the world. Technology will help enormously again efficiency rises the whole time in the way in which we generate energy ourselves, but I think the area which is not so apposite necessarily for this conference that we all have to work on is this question of lower carbon content in our products, or in energy products globally, and that means the world I think will need to and probably will move very quickly to change the energy content of what its burning and oil and gas will remain crucially important but I think to that will be added - depending on which part of the world you're in - revival of nuclear power the new concepts I believe in bio-energy these are very good things because they're very local, you grow them locally and they employ lots of people they will come on stream as well as much better ways of using the energy that we have. So that's the array of things I think the oil and gas industry has to work on in the end of course we are a business all of us are a business and our business is to serve human needs that's the purpose of all business in my book, the point is I think human needs want everything, they want to hold all these points at once and we've got to get there for everybody which is, we want energy, we want it cleanly, we want it low cost and we want it locally.

Thank you very much indeed, another question? Somewhere from... yes, over here, we've got a question here.

Thank you very much, my name is Martin Milwood-Hargrave from Icon Science, my company works in 3d and 4d seismic technology, and with BP and various other companies. I'm very interested by what you said about the combination of sequestration technologies and 4d technologies, could you give us some kind of idea of where BP is heading on this and what you think the size of the prize is?

Em, let me try and uncover, I think the point here which is this, that if you're going to store things away in geological horizons you really better make sure they're stored away permanently otherwise I think we're all kidding each other, fooling ourselves putting carbon dioxide in the ground it escaping, so it requires monitoring and its not quite enough to say that since I've taken the oil out and its been there for several million years when I put the carbon dioxide in its bound to stay there for several million years, I think you need to demonstrate that, seismic technologies, in particular, time lapse technologies allow us to do that provided we can identify the fluid type in the reservoir which we clearly can do depending on the type and nature of reservoir that we're dealing with. Sequestration is, I think a very important technology, to be thought through, probably in the very long run, if I take maybe a fifty year horizon it probably won't be a relevant technology by that time, we've figured out how to find much lower carbon origination of energy rather than to originate the carbon and then store it away. So it is an intermediate technology but its quite a long time I think its got to go. There are enormous possibilities, first it allows you to use different forms of hydrocarbon to produce the singas to go in and take out carbon and produce hydrogen, and they can range from such things in today's environment as surplus petroleum coke, everyone's upgrading more and more heavy oil in refineries so the global balance of petroleum coke has got very high and there's a big surplus so this can be reduced into carbon dioxide and hydrogen so it opens up possibilities you can then bury the carbon dioxide in old oil fields, or use it for enhanced recovery. Its an interesting historical fact in the United States of course that if you look at a map of where so many refineries are there are probably a couple of historical reasons, one is its by the sea, I mean to say so you can get in and out with ships but the other one you have to ask yourself why are they in the places they are on land, and the answer is of course it used to be where the oilfield used to be and you know why transport the oil so far so build the refineries close to oilfields and all those oilfields are now pretty well depleted so these refineries are sitting on top of potential storage which could be used for carbon dioxide and then we just need the technology I think advanced to figure out how to burn the pure hydrogen to generate electricity, that's not quite with us yet, we have to use it as a mix and maybe there are lots of other chemical engineering processes which can be much more enhanced if the scale of the prize is there such as hydrogen separation.. I think it's a very important technology I think it has applications globally. I think it's important that the UK seize hold of this to build the know-how if you will of how to put the pieces together and the experience of doing something at such an enormous scale that has not been done before. It's scaling up, its understanding how to work it in practice that gives us I think the edge and that's something we should do.