

Speaker: Lord Browne
Speech date: 29 September 2005
Venue: World Petroleum Congress, Johannesburg
Title: Group Chief Executive
Ladies and Gentlemen

Good afternoon.

I want to begin by thanking you, both personally and on behalf of BP, for the honour of this award and the opportunity to deliver this lecture.

This is the seventy second anniversary of the first World Petroleum Congress, held in London in July 1933 thanks to the energy and commitment of Thomas Dewhurst who believed that our industry, working collectively, had a unique role to play in providing energy to the world and in helping to renew the sense of prosperity and progress which had been lost.

He believed that science and technology applied by business could change the world.

It's an enormous pleasure to be here and to have the chance to speak at this tremendous meeting. It's also a privilege to have the opportunity to step back from all the day to day activity of the business and to think about the industry – its past, present and future.

It's more than 35 years now since I joined the industry – in Scotland working in the North Sea and then in Alaska working on Prudhoe Bay and learning the science of petroleum engineering.

I'm struck by what has changed in those 35 years.

Just taking the period since 1970.

- an increase in oil demand of 35 million barrels per day – an increase of almost 80 per cent.
- a shift in the pattern of the market – with a steady growth in Asian demand. In 1970 only one barrel in 7 was consumed in the East; now it is just over one in 3.
- we've seen a dramatic growth in trade. In 1970 just 25 million barrels a day was traded internationally. Now the figure is 48 million barrels a day – 60 per cent of the world's daily needs. Then the flow of trade was predominantly from developing countries to the developed. Now by far the most important elements in the growing trade in oil are the emerging markets of Asia and Latin America.
- we've seen a shift in the fuel mix, establishing natural gas as one of the primary sources of fuel for power generation.
- there's been a dramatic change in politics –opening up Russia and China and Vietnam, and many other places which until only 15 years ago were closed to international investors.

And then of course there have been numerous advances in technology - advances in which so many people in this room have been personally involved.

- in drilling, including the development of horizontal drilling.
- In the application of IT throughout the industry – including visualisation, so we can walk through an oil field and understand with much greater precision than ever before its structure and the ways in which the reservoir works.
- In seismic imaging, allowing us to look at structures before any drilling takes place and enabling us to do things which once seemed impossible, such as looking through salt.
- in deep-water technology which has taken the horizon of the possible from 1,500 feet in 1970 to 10,000 ft or more in the latest wells in the deep water of the Gulf of Mexico.
- In refining technology, much improving the quality of the products produced.
- In the technology of the internal combustion engine, which when you combine new fuels and new lubricants and new engine design can transform the efficiency of vehicles.
- In the technology of turbines, particularly combined cycle turbines which have made natural gas the most attractive fuel for power generation.
- In the technology of LNG which has reduced costs and made natural gas an internationally traded fuel.

And then there have been the changes in the structure of the industry. First the consolidation of OPEC as the dominant force in the industry, then the emergence of new non OPEC suppliers and strong state companies, and then the re-structuring for the first time in more than 50 years of the international private sector and the emergence of the super majors.

Despite all those changes, despite periods of conflict and revolution, despite extended periods of high and low prices sometimes characterised by great volatility, supply has continued to flow and to meet demand.

Throughout the whole period there have never been any serious supply shortages.

And that has also been the reality of the last few weeks. Hurricane Katrina took over 800,000 barrels per day out of production and shutdown four refineries on the Gulf Coast. But supplies to all consumers were maintained. The industry responded to the need very quickly and very effectively.

That has been the pattern of the last thirty years – the supply system has proved itself again and again to be capable of a rapid response to unpredictable events and circumstances.

That's a tribute to an open market system and it's a tribute to this industry.

The story of the last thirty years is fascinating, particularly for those of us who have lived through it.

But the history isn't finished and there's now a new challenge for the industry which is to restore stability and confidence to the market, and to convince people that they can indeed rely on oil and gas as their principal sources of primary energy.

The perception of insecurity and potential shortage is reflected in the current price, of course, but it is also reflected in the public commentary on the industry. There is no shortage of books predicting the end of oil. I counted ten in just one bookshop in London.

I believe those predictions are misplaced but I believe we have to prove the case once again.

To do that, we have to look at what has happened, to examine the causes and to define the remedies.

Why has the current sense of insecurity grown? Why are people and politicians nervous about energy in general and oil in particular?

There are a number of factors:

First, demand is rising. The world's population is growing... and more and more people have the prosperity to be able to afford energy for heat, light and mobility. On a worldwide basis there are probably an additional 200 million new customers for commercial energy every year.

Chinese demand grew by 2.3 million barrels per day between the end of 1999 and the beginning of this year.

On the figures produced by the International Energy Agency, demand for oil by 2015 will be between 15 and 20 per cent higher than it is today – over 90 million barrels a day. On the same estimates the demand for gas could be more than 40 per cent higher.

Secondly the requirement for trade is growing. Supply and demand are not co-located. World trade in oil has grown by 18 per cent in just the last five years alone. Trade accounts for well over half the oil used everyday. By 2015 that could increase to two thirds. That means more than 65 million barrels a day.

At the same time it is becoming obvious that the available resources are concentrated in a limited number of places – in Africa, in the Middle East, and in Russia. Some of those places remain, for the moment, beyond the reach of international investment.

In many cases the resources are held directly by Governments and are not open to development by the international industry. I find it very striking that our industry is one of the very few businesses in the world where the private sector share of activity is actually declining.

Then there is a need for investment to ensure that the resources which are available are developed and brought to market in good time to meet rising demand. Investment in developing new fields and in establishing new infrastructure – such as pipelines and LNG terminals. The scale of that necessary investment is rising.

According to the International Energy Agency the annual requirement for investment in all forms of energy is now around \$560bn a year. Of that more than a third is in oil-field development and the infrastructure necessary to bring it to market - perhaps \$200bn a year.

That represents a 20 per cent increase over the level of investment which was being made through the 1990s.

Then there is the longer term challenge of the environment. I think the period when people could live in the hope that issues such as climate change would be disproved and go away has passed.

If you read the statement published before the July summit by the scientific academies of all G8 countries you will find a cool and rational assessment of the evidence by some of the most authoritative scientists in the world.

The science is unfinished of course. There are things we don't know – there always will be. But the academics come to the unanimous conclusion that precautionary action is necessary.

The emissions of carbon into the atmosphere are now probably 16 per cent higher than they were in 1997 when the Kyoto protocol was signed. And they are set to be 33 per cent higher by 2010. Climate change is a long term issue, of course, but year by year the point at which we could face harsh choices is coming nearer.

So, growing demand, growing trade, a requirement for increased investment and the need to handle the long term environmental challenge of climate change and global warming.

Those are the reasons why people feel insecure about energy.

And on top of those long term challenges have come the shorter term issues which have put energy right into the headlines.

The fact that a single hurricane in the United States, probably produced by the warming of the waters of the Gulf of Mexico, can affect the whole world market as US production and refining is shut-in and as product supplies flow from Europe to meet American needs.

The fact that prices have risen by more than 80 per cent over just the last eighteen months to a level as high as anything we have seen since the beginning of the 1980s.

And the fact that the conflict in Iraq is making it impossible to begin the investment necessary to increase production in one of the most important areas of the world.

Those are the reasons why people are concerned. Why people are talking about the end of oil.

The challenge for the industry, for all of us, is to prove them wrong. It is our industry and we can't expect anyone else to do the job for us.

And I believe we can prove them wrong.

First we can explain very clearly the reality which is well known to everyone in this room.

The world isn't running out of oil.

There is no physical shortage of oil or gas. There are decades of booked reserves of both oil and natural gas and even more yet to be found. And there are huge volumes of heavy oil – in Canada and Venezuela – which are identified and which have yet to be developed.

Secondly we can bring that oil to market at a reasonable cost – a cost well below the current market price.

And the industry is investing to do just that.

The 1990s were a period of relatively low investment – for the simple reason that prices were low and cash flow was limited.

But that began to change with the turn of the century. The underpinning of prices from 2000 onwards has increased the funds available and the industry has responded by increasing investment.

Over the last five years annual upstream investment by the five largest companies in the industry has risen by over 50 per cent and is now running at around \$50bn a year. The private sector is making its contribution to the development of the resources which the world needs.

BP alone has invested \$ 50 bn upstream since 2000. In places such as Russia, Angola, Trinidad, in the deep water of the Gulf of Mexico, in Algeria and in the Caspian.

The industry has also invested in the continuous improvement of the refining business – upgrading capacity and ensuring that there is sufficient refining capability to meet the changing and growing needs of the market.

That's a continuous process and the challenge has not always been made easy by the complexity of regulation and permitting procedures, and by the added and unnecessary complexity caused by minor differences in product specifications between one area and another.

It has been interesting to see that in the response to Katrina in particular the relaxation of minor state-by-state differences in product specification was one of the keys to the resolution of the immediate problems in some particular markets. The market was opened and order was restored.

As well as investing in exploration, production and processing facilities worldwide, the industry is shifting its geographical base and in the process is beginning to learn how to operate successfully in complex areas, in countries in transition, and in emerging markets.

We're beginning to understand that if you want to manage the risks of a very long term investment it is important to be engaged with the countries in which you are operating.

Not just extracting resources and paying taxes, but also playing a part in the successful development of those countries.

Being transparent about what you pay; staying out of politics and making no political contributions. Avoiding bribery and facilitation payments and working with local communities to develop enterprise and education – to ensure that countries are ready and able to make full use of the wealth which resource development can bring.

We're beginning to understand how to help the countries in which we work avoid the resource curse – the negative impact of suddenly becoming what Adam Smith would have regarded as a rentier, with a huge inflow of unearned income which can swamp all the incentives which shape an economy.

We're only beginning to learn and there's much more to do, but I believe that this will become an ever more important issue as the geography of energy development shifts from the OECD world to emerging economies in places such as Africa and Central Asia.

The industry is also learning how to work in partnership with state enterprises and Governments. The notion that everything was going to be privatised and that oil and gas exporting countries are going to give up their patrimony has been shown to be mistaken.

Governments and state-owned enterprises are enduring elements of our industry. Our challenge is to work with them, and to realise the full benefits of a partnership built on mutual advantage.

Every country is different – in its history and its capabilities. I'd just quote two where we've found that partnership is not only working but has enabled business to be done which would otherwise have been impossible.

By the end of this year we hope to inaugurate the pipeline from Baku through Tbilisi to Ceyhan on the Turkish coast. That line will bring at least 1 million barrels a day of oil to the world market and it will be followed by the development of a natural gas line from Baku to the Turkish border.

That whole development is a prime example of effective cooperation between private international companies and public authorities and state enterprises. The combined effort has produced a development which will not only help to relieve pressure on the world market but will also enable each of the countries involved to benefit directly from the flow of resources.

If we believe in global markets we have to make sure that the benefits are spread widely and that large numbers of people feel that they are gaining personally from globalisation.

Another very different example of partnership is the development of our investment in Russia through TNK BP.

That investment is raising production and generating a healthy cash flow. Production has increased by 20 per cent since the partnership began two years ago.

We've begun to apply the best international technology and as a result we've increased reserves including the reserves of some of the largest mature structures.

TNK BP is a partnership between BP and Russian investors backed by the Russian Government.

Russia is of course a country in transition. A great power which has moved an enormous distance over the last twenty years since Mr Gorbachev embraced glasnost and perestroika. The transition isn't over but as investors we can see how much progress has been made.

And that progress is of crucial importance to the whole energy balance because after the Middle East, Russia is the only country with the capacity to be a major energy supplier to Europe, and to China, and the countries of Asia.

And finally I believe the industry is beginning to provide answers to the long term environmental challenge of climate change.

Many different companies are involved in that process. People are not just reducing the emissions from their own operations.

They are also beginning to develop new technology which can take the challenge of climate change and transform its resolution into business opportunities.

I'll quote just one example.

We have worked for most of the last decade on the basis that one day carbon will be priced and that the application of technology which can reduce carbon will have a commercial value.

The emissions trading system established by the European Union is one of the first steps towards establishing such a system.

As well reducing our own emissions through stopping leaks and improving the efficiency of the ways in which we consume energy, we've been examining technology which can transform the way in which resources are used.

We have a new project which is just getting underway which will separate out the chemical elements of hydrocarbons, re-inject the carbon into oil or gas reservoirs, with a consequential increase in reservoir pressure and recovery rates, and simultaneously supply the hydrogen to a power station which can produce carbon-free electricity.

It is very exciting technology which we believe can be applied in many different places.

And it's just one example of the way in which technical skills can be applied to meet the challenge of the environment. This industry is all too often seen as part of the problem. In fact, I believe we have a unique ability to

offer the solutions.

Ladies and Gentlemen, energy security is often discussed in terms of what Governments can do.

The role of Governments is certainly important. They have to ensure that there is an open trading system, that the necessary investments can be made in different areas, and that the incentives are in place for everyone to do what they can to tackle challenges such as the environment. In the refining sector they can encourage new investment by reducing complexity.

But Governments alone won't deliver energy security.

It's down to us. To this industry.

And there are three fundamental reasons why our industry can deliver energy security.

First, as the papers delivered at this conference will demonstrate again and again we have the technology. This is one of the fastest moving and creative technology-based industries in the world. The boundary of knowledge in every aspect of the oil and gas industry is moving day by day.

At the beginning I listed some of the things which technology has delivered over the last 30 years.

But there's more to come. I'm sure everyone in this hall can think of an advance in technology and engineering which they believe will become part of the normal operations of this industry in the years ahead.

- production from ever deeper water. What do you think the limit of the possible will be in 2020 - 20,000 ft, 25,000 or more?

- the development of cleaner fuels. When do you think our industry and the auto industry will be able to produce genuinely zero-emission vehicles?

And when will we see a similar transformation in the power sector – which is such a significant source of emissions. In 30 years time, in 20 or even less?

- the progressive extension of recovery rates. What do you think will be the average recovery rate from an oil field by 2020 – with the application of yet more advances in seismic imaging, in computing and in areas such as multilateral drilling. 65 per cent ? 70 ? ... or even more.

- And the development of technologies which can convert fuels from one form into another. - Do you believe that conventional oil will be the only source of commercial supplies of gasoline by 2020? Or is it more than likely that the conversion of coal and gas at a material scale will have become both technically and economically viable?

Those are just some of the more obvious, perhaps predictable advances. I am sure there will be even more which lie beyond our current imagination.

The potential for progress rests on the quality of the engineers and scientists we have in the industry. From everything that I see happening there is enormous scope for optimism.

The second factor which supports that belief in progress is the scope and reach of this industry. Because of the developments over the last decade the industry now has the capacity to spread and share knowledge and ideas on a global basis very quickly.

This is one of the most genuinely international sectors of the global economy. That's why it has been able to sustain supplies through all the change and volatility of the recent past.

The restructuring of the industry which began in the mid 90s is part of that. Global companies have a special role in sharing knowledge and making markets work effectively. But just as important is the network of links between the large and the small, between the international oil companies and the service sector, and between all of us and the academic community.

And thirdly, we have the capacity and the experience to take the managed risks that are necessary.

To invest on the time scale required in multiple major projects across the world, within a management structure which imposes discipline and high standards.

The largest companies in the industry have grown remarkably over the last fifteen years. That growth has made possible the pattern and scale of investment we see today – with activity today balanced by developments for tomorrow, and by planning for the day after tomorrow.

That level of activity has helped to sustain supply. And it has brought the development of a strong service sector and the continuous renewal of a set of specialist companies focusing their technical and commercial skills on specific issues and areas.

The history of the last thirty years is a story of huge change and great success. I think the next thirty will be just as challenging, and will see just as much change.

There are many issues to be addressed and many potential hazards, but I do believe that given the quality of this industry, and the companies and people within it, those next thirty years will be just as successful.

This industry is needed as never before. And I believe we are ready to rise to the challenge.

Thank you very much.