

# Delivering energy in the 21<sup>st</sup> century energy: Context, challenges and choices

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Thank you Nader. And a very good evening everyone.

It is especially good to see you, after several near misses here and in Kuwait. It is a great pleasure to participate in this forum, where so many BP staff and others have learned so much over the years. I last attended in 2007 during an adventurous period with TNK-BP.

The Oxford Energy Seminar is a very unique institution in the world of energy that gives people a great immersion in our industry, with speakers from around the world covering all the major topics and talking points.

The challenge as a speaker is to find something original to say – even on day two - because I know you will have already covered a great deal of ground.

I have decided the best thing I can do is simply to share with you the way BP sees the energy world and the choices we have made as a result. I'll spend about 5 minutes on each of three areas:

- the context of the world in which we work;
- the challenges this creates for operators;
- and finally the choices BP has made as a company.

I have five very brief points to make about each of these areas – so my aim is to make 15 points in 15 minutes – approximately!

## CONTEXT

So starting with context, I expect you have already heard, talked a lot about, and will hear more about the big trends in the energy world later this week, so I'll be brief on this part. Let me just pick out five facts which flag up really important developments. These are from the BP Statistical Review of World Energy and the forward looking Energy Outlook.

The **first fact** shows the scale and the source of demand. We expect the world's consumption of energy to rise by 36% by 2030 on present trends. And over 90% of the additional energy will be used in the non-OECD world. Almost half the growth will come from China alone, with a sizeable chunk from the Middle East.

The **second fact** is about shale - the big story of the 21<sup>st</sup> century so far. In 2012, the US experienced the largest oil and natural gas production increases in the world. And this increase reverberates beyond energy. The shale phenomenon has revived the US economy, created thousands of jobs and improved the country's competitiveness. Gas is becoming the fuel of choice for power when it is competitive with coal as in the US, and we expect its use to grow 2% a year to 2030.

The **third fact**, about carbon emissions, is connected to the shale gas revolution. America's carbon emissions last year were at their lowest level since 1994. That was in large part a consequence of power generators choosing gas over coal. It was also partly due to the recession and the massive improvements in energy efficiency. For example this summer a VW Passat car set a new world record when it drove 8,000 miles around the US averaging 77.99 miles per gallon.

That takes me to the **fourth fact**, and this is about oil. We expect vehicle engines to become twice as efficient over the next two decades, but we also expect oil to remain the fuel of choice for vehicles. We expect that 90% of cars in 2030 will still run on gasoline or diesel, albeit with fuel efficient features such as hybridization and lighter materials.

The global vehicle fleet is expected to grow by 60% from around 1 billion today to 1.6 billion by 2030. More than three quarters of the growth is projected to come from the non OECD countries.

So this means that demand for oil will be solid although it is expected to grow at the relatively low rate of 0.8% a year to 2030. However, that still means finding an additional 16 million barrels a day by then.

My **fifth and final fact** is about renewables. I think the world is on a long wavelength transition to a low carbon economy but renewables are only part of the story. Today renewable sources other than hydroelectricity account for no more than 2% of global energy and we expect that to rise to only about 6% by 2030.

## **CHALLENGES**

So there are some simple facts. Let me now attempt to draw some conclusions from them and frame them in the form of five related challenges we face as an energy industry.

The **first challenge** is that we will need to go to new places and do new things in the effort to meet demand. We have an additional 4 billion tonnes of energy resources to provide over the next decade and a half.

So the industry will continue to explore the deep water from Brazil and West Africa to Australia and the South China Sea. It will continue to extract heavy oil from Canada and Venezuela. It will attempt to repeat the shale revolution in China, Russia and possibly Europe – depending on how the current debate evolves. The industry is starting to venture into the Arctic, with all the challenges that involves.

And we're also going back over old fields with new tools and technologies. This is very much the pattern in parts of the Middle East where a new wave of activity is reviving older fields and opening new extensions. For example, in Iraq, BP is now at work in Rumaila, jointly developing the world's second-largest oil field with our partners from China and Iraq. We've been there since 2010, added 100 or so new wells, upgraded old wells and increased water injection. We've installed new equipment, trained people and introduced new ways of working. And production has now reached levels towards 1.5 million barrels a day – the highest since the 1980s.

And the **second challenge** follows the first. If you go to new frontiers and use new techniques - then you face increased risks. There is no lack of oil and gas in the world but it increasingly shows up in places that are tough to get at. Obviously in BP after the accident in the Gulf of Mexico in 2010, we're acutely aware of this. As a company and as an industry we need to consistently hit the

highest standards of risk management, up there with the military and the space, aviation and nuclear industries.

The **third challenge** is the challenge of specialisation. BP's view is that even so-called super-majors can't be super at everything. We too have to make choices about the areas where we will specialise along the chain from the seismic survey to the service station.

I think this is now well understood and it is actually leading to a much more fruitful culture of partnership in the industry whereby IOCs and NOCs are increasingly working together.

We're involved in such partnerships around the world with some of the most long-standing in the Middle East, in places such as Egypt, Abu Dhabi and in Kuwait, which I have had the privilege of visiting many times over the years. We appreciate Kuwait's support as an investor in BP and our opportunity over the years to contribute to its energy industry and learn from it.

And indeed we partner with NOCs today well beyond the Middle East – with Petrobras, with Statoil, with Sonangol, with CNOOC, Sinopec and of course with Rosneft – among others.

I should recognise the fact that many countries, particularly in the Middle East and North Africa, have experienced significant disruptions in the past few years particularly with the Arab Spring. But we operate in a global market and it is remarkable to see how the system works to compensate. Last year, it was production from Iran and parts of Africa that was down – but this was offset as Saudi Arabia, the UAE and Qatar all produced at record levels.

The **fourth challenge** I want to mention is to do with carbon and the need to think differently about it. I think many people

understandably hope that renewable energy will become very widely used in the future – even becoming the major source of energy. That can happen, but not in our lifetimes. Grow – it will rapidly, but it cannot power the planet for a long time. However, what we can see very clearly from the US experience – and it should be no surprise - is that the real game changers are those ways of reducing emissions that also reduce costs. And these include increasing energy efficiency and switching from coal to gas in power generation.

**Fifth and briefly**, none of these other challenges can be met if the industry doesn't step up to the task of the great 'crew change' - hiring and developing highly skilled, highly committed professionals to replace the baby boomer generation who are all beginning to retire.

## **CHOICES**

So finally let me turn to BP and how our company has responded to these facts and challenges. Again I'll leave you with five key points.

**Firstly**, and the first priority, is safety. Since 2010, BP has been very conscious of the need to continuously improve our risk management so it is absolutely fit for purpose as we move into increasingly challenging environments.

The **second point** is that we have chosen to play to our strengths to create value for our investors at the same time as pursuing continuous improvement in safety. It's a simple approach but one we have been able to develop in many ways.

We have identified our distinctive strengths as exploration, leading upstream positions - including giant fields and deep water – and a set of world class downstream businesses, all underpinned by technology and relationships.

If we focus in on the things we do best then we will work both safely and efficiently, continue to build our capability and extract the maximum value from each asset and each person.

The **third point** is that we have reshaped the company in line with this thinking, so as to be able to really apply these strengths.

We have divested nearly \$40 billion of non-strategic assets and this process has created a stronger asset base with less risk. In the upstream, for example, we have divested many older oilfields, half our installations and pipelines, but these included only a tenth of our reserves.

We now plan to bring high margin major development projects online at a rate of 4 or 5 a year.

We have also boosted investment in exploration which has always been a big strength for BP. I can't remember when BP has had more exploration activity going on at any one time.

In Russia we have secured a very large high quality asset by selling our share of the TNK-BP joint venture to Rosneft and acquiring a share of nearly 20% in Rosneft itself. Rosneft has become the world's largest publicly traded oil company in terms of production and is now very well positioned to help Russia fulfil its massive scope for growth.

In the downstream we have sold two large US refineries and we are investing in a major modernisation programme in Whiting, near

Chicago, and upgrading with new plant and new technology at the remaining two.

That takes me to the **fourth point** – we are very methodically investing in technologies that support our key strengths. For example we are building the world’s largest supercomputing centre for commercial research in Houston to give us the capacity to process seismic data and maintain our strength in exploration.

Often when a field is discovered, the technology does not yet exist to develop it. That was the case, for example when the ultra-deep water fields were found off the Angolan coast in the late 1990s. But when there is a great prize at stake, oil and gas companies have the incentive to develop the necessary technology.

One example is our giant development called PSVM (which stands for four discoveries called Pluto, Saturn, Venus and Mars), off the shore of Angola. We developed the technology to produce there over the past decade and it went on-stream last year as the largest sub-sea development in the world. To give you some idea of scale, it sits in water depths equivalent to 6 Eiffel towers on top of each other, and its sub-sea spread just about fits into an area equivalent to Greater London.

The **fifth and final point** about BP is that we are very keen to play our part in the great ‘crew change’ required to provide future capability. We recruit on a global scale, looking for the best talent to come and join a truly global company working in interesting, challenging places to bring the world the energy it needs. One thing you might talk about this fortnight is the image of the industry and ways to show young people what an exciting industry this is - and the valuable and positive role we play in bringing heat,



light and energy to society - driving economic growth and improving the lives of our burgeoning world population.

## **CONCLUSION**

So I have made 15 very simple points. Your hosts won't be testing you on them. But I hope you will think about what they mean for you. In terms of context and facts, we need to be aware of the scale of demand, and the implications of the shale revolution, including the impact on carbon emissions. We need to appreciate how oil demand is likely to continue to grow, albeit at under 1% a year. And we need to appreciate the limitations of renewables.

We need to think about the challenges presented by these trends in the companies, organizations and governments that we represent. As we have done at BP, you will need to think about the choices you make in order to play to *your* own strengths and to shape *your* strategies accordingly to create enduring value.

This fortnight will undoubtedly help you to contribute to that task. It gives you two big opportunities. First you have the opportunity to hear and also to question some of the most experienced people in our industry. I'm sure you'll come away with many new insights.

And second you have the opportunity to get to know each other – people from all over the world. Many lasting friendships have been made at this seminar over the years and I am sure 2013 will be no exception. So have a great couple of weeks and thank you for allowing me to join you today.