# Energy Outlook 2030

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Good morning everyone and thank you for coming along today. And thank you, Lord Howell, for your kind introduction. Thank you also to the British Institute of Energy Economics for joining us in staging this event.

As you know, BP's top priority in recent months has been to respond fully to the tragedy that occurred in the Gulf of Mexico last April.

As well as the physical clean-up activity and the payment of claims, we have been making changes in the way we work, particularly by strengthening our approach to safety and risk management.

The incident has also made us ask big questions about our role and responsibilities as a large global company.

We serve millions of customers and we employ tens of thousands of employees. We have a big influence – and therefore big responsibilities.

Our first responsibility is very clearly to operate in a way that is safe and compliant.

If we fulfil that responsibility, we will rebuild people's trust and we can play our part in the long term effort to meet the world's growing demand for energy.

This requires us to understand our market in depth – how it has developed in the past and how it is likely to change in the future.

This is why our economics team produces a Statistical Review of World Energy each year, recording the way different forms of energy are produced and consumed. The Statistical Review is turning 60 this year. It was an internal document at first, but in 1956, our predecessors decided to make it public. The aim was to share information, and to support the debate on energy and energy policy by putting them on a factual footing.

I think the Statistical Review has done just that ever since.

Today we're looking at the Review's forward-looking counterpart – a report that we call our Energy Outlook. In the past we've used this as an internal document, and now we have decided to share it publicly. I believe one of our responsibilities is to share the information we have, to the extent possible, to inform a debate which, if anything, has become even more important: the debate on energy, and now on climate change.

The issues covered in this document are huge ones and I'll let Christof Ruehl – our chief economist – explain them in more detail. I will just pick out some key points on the overall context, on the projections themselves and about what this means for BP.

## Context

The big picture here is the effort to provide energy to fuel the global economy in an era of unprecedented growth.

To take just one indicator, during my lifetime the world's population has grown more than it did in the previous hundred thousand years of human existence - from around 3 billion to nearly 7 billion.

Since 1970, while the world population has risen about 2 fold, GDP has risen more than 3 fold and consumption of commercial primary energy 2.5 fold.

But while the growth of energy consumption has been relentless, think how the world has changed in other ways.

Between 1970 and 1990, we lived in a world of two halves, in which well established industrialised countries dominated the global economy and energy use.

In 1970, OECD countries used around 70% of all the energy consumed worldwide.

Between 1990 and 2010, after central planning had disappeared and after a period of adjustment, the emerging economies grew to a point where they now dominate global energy use.

By 2009, the OECD countries accounted for only 47% of all energy consumption.

Inter-dependency has also grown. Business links have multiplied between the old and new economies.

In the next 20 years we will see a truly integrated, global, multi-polar economy with less distinction between OECD and non-OECD players.

Through each of these waves of growth, we have also experienced fears that there would not be enough energy to meet demand.

But in reality, the market has been effective in driving innovation to avert such crises. Energy intensity - the volume of energy per unit of GDP – has risen as economies industrialize – then fallen as energy is used more efficiently.

On the supply side, the market has prompted explorers and innovators to find new ways to meet demand when new sources are needed. The start of the oil age 150 years ago can be seen in this light - so too today can the revolution in unconventional gas, the acceleration in renewable energy and the drive for exploration in challenging frontier areas such as the Arctic and the deepwater.

This not a charter for complacency. The task of fuelling growth will always be a challenge. But history does teach us that economic signals, including price signals, drive rational responses among consumers and producers.

## Projections

With that as background, let me move on to pick out some headlines from this report.

Looking at the top-line of energy growth, we have set out what we call a 'base case'.

This is what we regard as the most likely outcome, based on our best assessment of the way key drivers of energy demand and supply are likely to evolve. And this projects annual growth in energy demand of 1.7%.

I need to emphasize that this is a projection, not a proposition. It is our dispassionate view of what we believe is most likely to happen on the basis of the evidence.

For example, we are not as optimistic as others about progress in reducing carbon emissions.

But that doesn't mean we oppose such progress. As you probably know, BP has a 15 year record of calling for more action from governments, including the wide application of a carbon price.

Our base case assumes that countries continue to make some progress on addressing climate change, based on the current and expected level of political commitment.

But overall, for me personally, it is a wake-up call, not something any of us would like to see happening.

If the efforts to build greater commitment are successful, this will alter the outlook. So we have also developed an alternative 'policy case' to explore the implications of stronger policy action. For example, this projects 23% less coal consumption and 33% more renewable consumption than the base case.

Demand for power, rather than transport, will be the main driver of energy growth. There are many forces at work to make vehicles more efficient – including new regulations, innovation, better lubricants and more use of biofuels.

On the other hand, vast amounts of power are needed to drive the emerging world's growth.

We expect demand for oil will grow relatively slowly – at less than 1.0% a year in our base case – although the decline in existing fields means that we need to keep exploring for new sources. We expect much of the new production to come from the OPEC countries, in particular Saudi Arabia and Iraq. Meanwhile, OECD countries will still be looking for security in their supplies.

We expect the emerging non-OECD economies to drive demand for coal at a projected 1.2% a year globally.

And we foresee an ongoing shift towards natural gas as a power feedstock. Gas is highly efficient and has roughly half the carbon footprint of conventional coal generation. We project natural gas to be the fastest growing fossil fuel, growing by some 2.1% a year.

We also anticipate that renewables will make up a much bigger share of the growth, growing by over 8% a year over the next 20 years. In particular, we expect demand for biofuels to more than triple in that period.

## What this means for BP

I want to end with a few comments on what all this means for BP. As I have indicated, we believe our overall role as a company is to help meet the increasing demand for energy safely and responsibly.

As I also mentioned, we have been acting in BP to strengthen safety and risk management, particularly by setting up a more powerful safety and operational risk division.

But we have also been taking opportunities to grow our business in line with the trends identified in this report. And recent announcements have demonstrated this very clearly.

So in respect of oil for example, we are at the forefront of the efforts to develop new resources. Just last week we announced a ground-breaking agreement with Rosneft to explore the Russian Arctic - one of the world's last great unexplored basins.

As the Outlook shows, a large share of the growth in oil production will come from Iraq and we are directly contributing to that growth by investing in the supergiant Rumaila oilfield with our partners Petrochina. Last week we announced that production there had already increased by more than 10 per cent above the initial rate.

Meanwhile in China itself we have just signed a new agreement for deepwater exploration and in Australia we're been awarded rights to four deepwater offshore blocks in the Ceduna Sub Basin, another exciting new exploration area for us.

In Azerbaijan we have signed a new deepwater production sharing agreement and we also announced a significant gas discovery in the Egyptian West Nile Delta late last year.

It's clear from these developments that we are committed to learning and applying the lessons of the Deepwater Horizon tragedy rather than abandoning deep water production. And that is because deep water is expected to meet a rising share of demand worldwide – increasing from around 7% now to around 9% by 2020.

BP is also contributing to the growth of natural gas. As well as being the largest producer of gas in the US, we have new exploration agreements in North Africa and the Middle East, including in Egypt and Jordan. We're shipping gas from Trinidad to the US. We're shipping gas from Indonesia to meet demand in China - indeed we were recently awarded a new production sharing contract in Indonesia's Papua Province.

So we are helping to provide energy for the fast-growing emerging economies as well as producing energy in many of those countries.

However, we are also committed to major OECD markets as they seek to maintain secure supplies. Our commitment to the US is as strong as ever, with major upstream operations, an extensive refining and marketing business and over 20,000 employees.

Our commitment to the UK also remains strong, as was highlighted by the award last year of seven offshore exploration blocks - the largest licence award BP has received in the UK for more than a decade. This reinforced our position as the largest producer of oil and gas in the UK.

We also have major stakes in renewables. We have built a substantial wind business in a short time. Brazilian sugarcane ethanol provides us with a business that is sustainable both environmentally and economically. And we plan to be a leader in the new cellulosic biofuels sector.

These are all contributions towards the ultimate goal of providing what producers, governments and consumers all want - secure, affordable and sustainable energy.

But on a global scale, this remains an aspiration. And to meet that aspiration over the next two decades, we need smart, market-oriented policies to deliver the energy we need in a manageable and safe way - without inhibiting economic development or jeopardising the improvements in living standards now being experienced by billions of people worldwide.

I believe this outlook shows we are going into the future with our eyes open, basing our direction on solid research and looking to play a significant part in meeting the world's demand for energy safely and sustainably between now and 2030.

With that, I hand over to Christof who will walk us through the Energy Outlook 2030. After he is done we will both be happy to take your questions.

Thank you.