



# Journées Annuelles des Hydrocarbures

Dev Sanyal, chief executive, alternative energy and executive vice president, regions

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## 1. Introduction

Good morning.

I am delighted to be here to share the platform with such distinguished guests.

Thank you Didier for your kind introduction.

A glance at the annual IFPEN activity report shows powerfully the important work that you are engaged in.

And in BP we also share the ambition to help find solutions to energy demand and emissions reduction while supporting economic growth and development.

Over time our industry has had to contend with many challenges, economic, technical and geopolitical.

In BP our story has found a new beginning on each occasion. We are doing so again in 2016.

Our costs are coming down, our efficiency and reliability are going up and we are rebalancing for a lower price environment, with a focus on delivering value through the cycle.

Today's challenge is to provide sufficient, secure and sustainable energy whilst ensuring affordability and competitiveness. This includes meeting growing demand while lowering greenhouse gas emissions.

History tells us that we have the tools and capabilities to do so it and I would like to set out how we can turn this apparent paradox into a pathway for positive change.

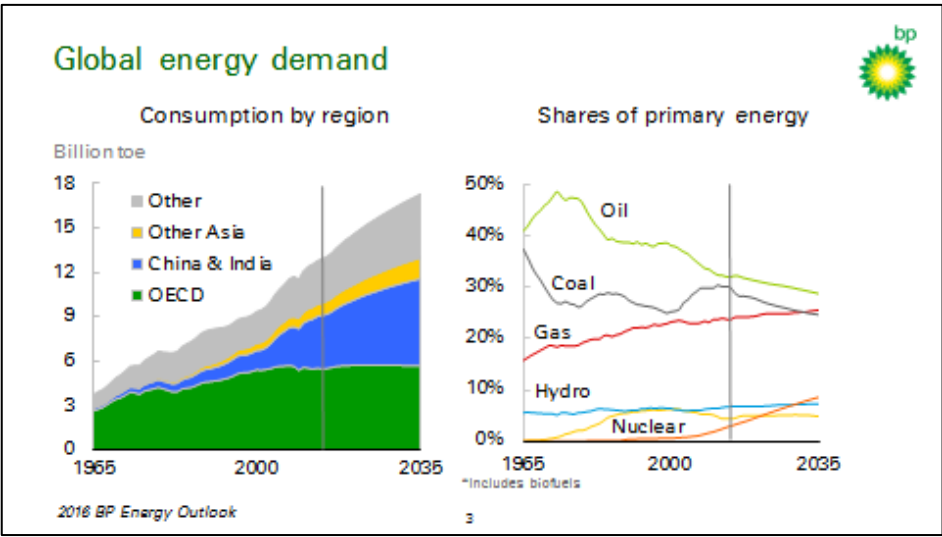
I will do so by outlining four forces for change that we have to consider and four agents for change in helping tackle those four forces.

**Forces for change...** 

1. Demand
2. Supply
3. Competitiveness
4. Low carbon emissions

2. Four Forces for change

Let me begin with the four forces for change, which are demand, supply, competitiveness, and lower carbon emissions.



First is demand

Like the IEA, in BP we see global energy growing but slowing, with demand increasing by about a third over the next 20 years on the most likely path.

Almost all of that growth, 95%, will come from non-OECD countries led by China and, increasingly, India.

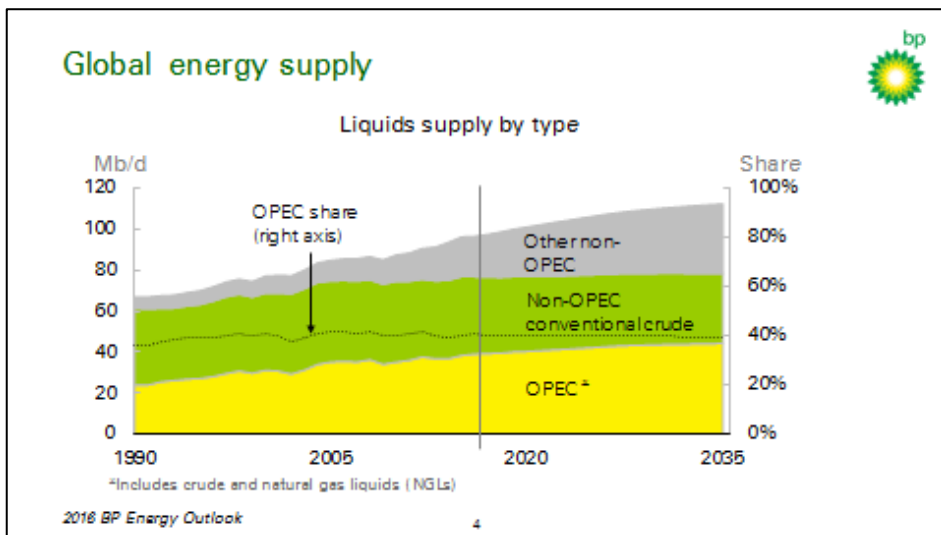
This growth is bringing the heat, light and mobility enjoyed by developed economies to those who are still developing.

And as a consequence, it is lifting people out of poverty.

Coming from India, I can tell you that the conversations around energy in many corners of the world are very different to those here in Paris, or London.

Energy demand takes on a whole new meaning when you consider that around 400 million people in India - 6 times the population of France - still have no access to electricity. Globally the number is over one billion.

How we supply this demand depends on the decisions we take today.



Second is supply.

The good news is that energy supply is growing and diversifying - my second force for change.

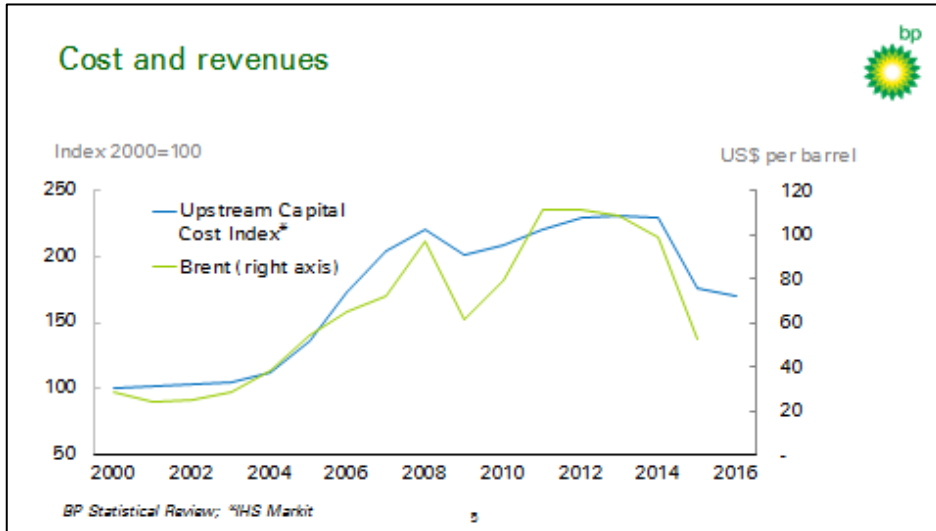
Supplies of oil and gas are plentiful.

Advances in science, engineering and technology have continued to unlock vast new resources of energy - like the shale revolution in the US.

We estimate that just over half of the expected increase in global gas supply for the next 20 years will come from unconventional shale gas sources around the world.

Today, renewables represent 3% of world energy supply and they are the fastest growing fuel, but begin from a low base.

This means that - while important - on the most likely path we expect that non-hydro renewables will account for just 9% of world energy needs in 2035.



This brings me to my third force for change, competitiveness.

In most industries, costs come down with time.

It's a downward curve - improving productivity year on year.

Like all companies, we've been working to adjust to the current realities.

Capital and cost productivity is about real, sustainable competitiveness.

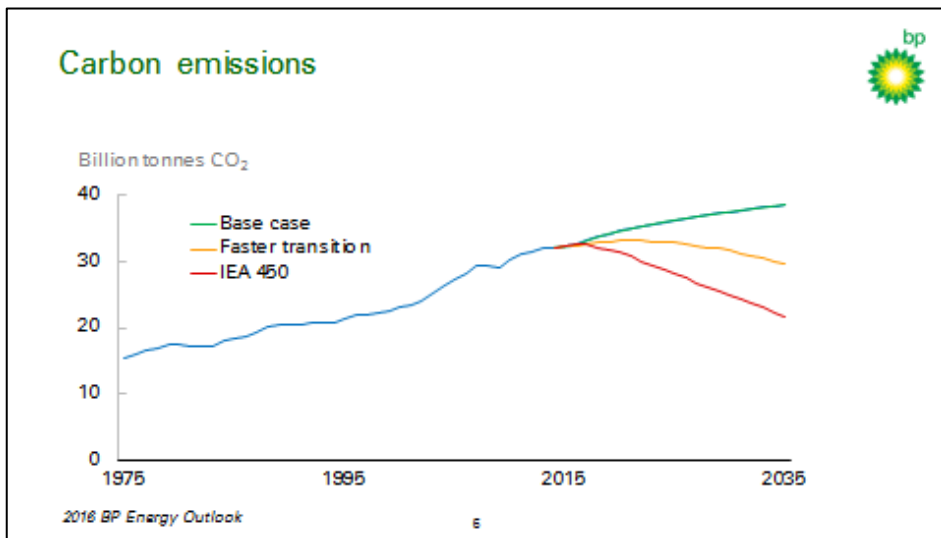
We're already seeing the fruit of these early efforts.

For example, the costs for developing the proposed expansion of our Mad Dog field in the Gulf of Mexico are now less than half the \$20 billion originally estimated just a few years ago.

We have sought to bring a more manufacturing mind set from our downstream business into the running of our upstream assets with some positive results.

We are running our operations more efficiently, innovating and applying technology and improving recovery.

Our production costs have reduced by 33% since their peak in 2013.



All this forms an important part of my fourth force for change - the imperative to lower carbon emissions.

This is taking place on many fronts - such as through greater efficiency of engines, and more fuel efficient fuels and lubricants.

And through action on methane emissions - a busy area of industry collaboration.


Incidentally, BP along with 7 others is taking action to reduce methane emissions through the Oil and Gas Methane Partnership.

And renewable energies are growing fast, at around 7%, per annum, as I have already mentioned.

But even assuming a more ambitious rate of growth - at historically unprecedented levels - our faster transition projection sees renewables only providing 15% of global energy demand by 2035.

Hence the significance of the fact that natural gas releases only around half as much carbon as coal when burned to generate power - and it is readily available today.

As a result, we believe natural gas and renewables are complementary in a lower carbon economy where a mix of energies will be required to meet global demand.

Agents for change... 

1. Market forces
2. Gas
3. Technology
4. Relationships

### 3. Four Agents of change

This brings me to what I describe as four 'agents of change' - the means by which we achieve sufficient, secure, sustainable and affordable energy in the decades ahead.

They concern market forces, gas, technology, and relationships.

The first of these is market forces, and we are already seeing the market at work, with prices responding to current imbalances between supply and demand and industry responding to these new circumstances.

The emergence of US shale has added a new market-based dynamic to the global energy market which is driving new supplies and placing downward pressure on global oil prices.

We anticipate that the production of shale gas will grow by around 6% per year for the next 2 decades.

Regulation is also playing an important role through transitional incentives such as feed-in tariffs and quotas to encourage investments in renewables and alternatives.

In our view, the most comprehensive and efficient long term answer is to put a price on carbon - whether via a carbon tax or an emissions trading system. In this way, rather than attempting to pick winners, you unleash market forces to do it more efficiently.

The second agent is natural gas, for its potential to lower emissions affordably and at scale.

Gas reserves currently stand at around 190 trillion cubic metres, some 80 more than when I joined the industry in 1989.

Since then 70 trillion cubic metres have been consumed, so gas is abundant.

It is also widely available, with new sources of supply opening up all around the world.

It is increasingly affordable as the costs of developing, producing and transporting it to market are falling.

Here with partners in Europe for example, we are developing one of the biggest energy projects in the world - the Southern Gas Corridor.

This will bring gas from a major field beneath the Caspian Sea in Azerbaijan through into southern Italy via a 3,500 km pipeline at a total cost of \$45 billion.

My third agent of change is the role played by technology in changing the energy industry especially in terms of energy efficiency.

What used to take weeks and months can often be done in hours and minutes.

New technology is progressing quickly - from advanced materials and fuel cells, to artificial intelligence and quantum computing.

Today we are using drones, robots, remote sensing and data analytics to inspect facilities for corrosion and environmental monitoring, improving both maintenance efficiency and safety.

Most important of all however, is the role technology is playing in improving energy efficiency in the transport sector.

The IEA estimates that half of the reduction in carbon emissions needed by 2030 will come from energy efficiency.

In transport, the pace of innovation and change has been and continues to be significant.



My fourth and final agent of change is relationships, or more specifically, our ability to work together as businesses, governments and consumers to forge the solutions.

We have no better example than the agreement signed here in Paris last December, which will come into force next month.

BP welcomed the Paris Agreement, and for many years now we have been determined to be part of the climate solution.

We have funded independent research, piloted new technologies and built low carbon businesses ranging from wind farms in the US to biofuels in Brazil.

The oil and gas industry has rightly been asked to respond to the challenges of climate change, and through an innovative industry partnership - the Oil and Gas Climate Initiative (OGCI) - we are working collaboratively for the first time to do that.

Our aim is to lead the industry response to climate change through best practice sharing and collaboration within the industry.

#### 4. Conclusion

There is no doubt that the forces for change and the associated challenges facing the energy industry today are complex and paradoxical in nature.

The oil and gas industry has to meet current and growing demand with affordable supplies whilst remaining competitive in securing a return on its investments.

It also has to be at the forefront of innovation - promoting and investing in the various agents of change in technology, energy efficiency, and natural gas - all of which will help ensure energy supplies are increasingly sustainable in the face of the climate challenge.

We need to see beyond this paradox to the symmetry of interests that exist between the producers and the consumers of energy.

We all have a role to play in tackling the challenges of the energy transition - policymakers, governments, business, and society in the widest sense.

To quote French philosopher Albert Camus "Real generosity toward the future lies in giving all to the present."

I hope when subsequent generations look back at the foundations we have laid, they will see that collectively we made the right choices today to ensure that the energy needs of the future could be met sustainably.

Thank you.

