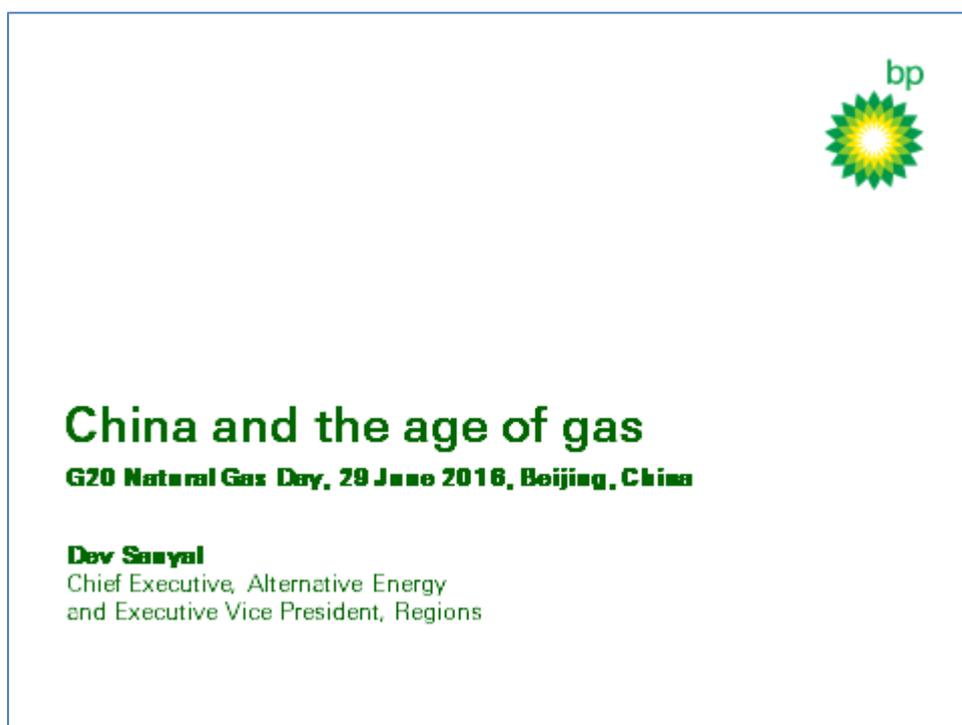


G20 2016 Natural gas day, Beijing

Wednesday 29 June 2016

China and the age of gas



Ministers, your excellencies, distinguished colleagues – good morning.

It is an honour to contribute to this occasion – by the beautiful lakeside of Yanqi.

My warm congratulations to the National Energy Administration and the International Gas Union. On behalf of BP, we are very grateful to you for hosting such an important event.

As we have been hearing already this morning, this city and this country will play a central role in shaping not just global energy, but also the global economy.

And in this context, we believe, natural gas will play an important role.

History tells us that there has always been a single dominant fuel.

For a thousand years or more it was wood.

Then for centuries it was coal.

Indeed, the world's first industrial revolution in the 18th century was powered by coal.

Then came the age of oil and a revolution in our ability to move people and goods swiftly around the world – loosening the barriers on trade and enabling globalisation.

Today, for the first time in history, there is no single fuel that is dominant.

According to BP's Statistical Review of World Energy, in 2015 oil, coal and natural gas met 86% of global primary energy consumption, in similar, though not equal proportions.

Hydro, nuclear and renewables contributed to the remaining 14%.

With global energy demand likely to rise by about a third over the next 20 years, this diversity of supply is a great virtue.

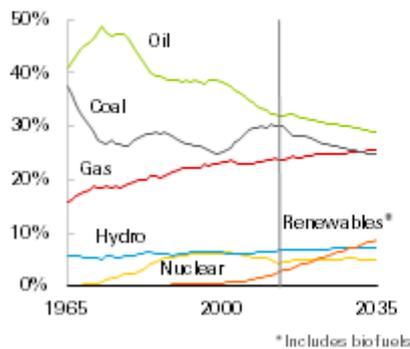
But the need to meet that demand sustainably means that we need to ensure that the fuel mix continues to evolve.

That evolution should be towards a greater contribution from natural gas for many compelling reasons, which I would like to briefly summarise.

Security of supply

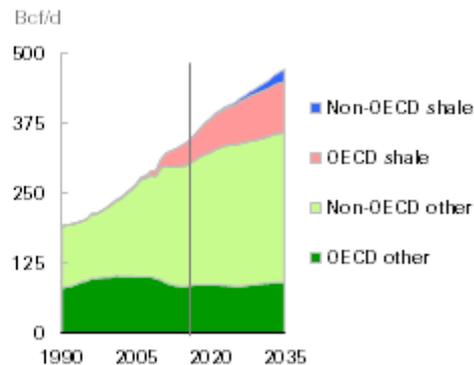


Shares of primary energy



Energy Outlook 2035

Gas production by type and region



Security of supply

The first reason is that natural gas provides security of supply.

As we have seen over the years, natural gas is an abundant source of energy.

When I joined this industry in 1989 the world had a little under 110 trillion cubic metres of gas reserves.

Since then 70 trillion cubic metres have been consumed.

But the proved reserves have grown and now stand at close to 190 trillion cubic metres.

Natural gas is widely available, with new sources of supply opening up all around the world as technology unlocks new frontiers in shale formations, tight rocks and deepwater.

We forecast natural gas to be the fastest growing fossil fuel over the next two decades, growing at an average of nearly 2% per year.

In China, natural gas is expected to be the fastest growing fossil fuel by some margin. Gas consumption in China grew by 4.7% last year. It is forecast to grow over 5% per year for the next 20 years, representing an aggregate growth of nearly 200% by 2035.

And, of course, natural gas is available at a reasonable cost – and increasingly so, as new pipeline networks and LNG trading create a more integrated global market for gas.

Low carbon economy



Options that achieve equal CO ₂ emissions reductions	Change
Replace coal with gas in power (% of total power)	1%
Add CCS to coal power plants (% of total power)	0.7%
Increase renewables power generation	11%
Increase nuclear power generation	6%
Improve vehicle efficiency	2%
Improve 'other sector' energy efficiency	1%
Improve efficiency of power production	1%

Energy Outlook 2035

Low carbon economy

The second reason for an age of natural gas is of course its potential for limiting greenhouse gases at scale.

China has been a leader in this respect with its pledge to see its emissions of CO₂ peak by around 2030.

This commitment helped to set the tone ahead of the UN climate conference in Paris last December which saw the world come together – 195 different countries – to agree the ambitious target of holding the temperature rise on pre-industrial times to well below 2 degrees.

Natural gas has a unique and vital role to play in enabling these commitments.

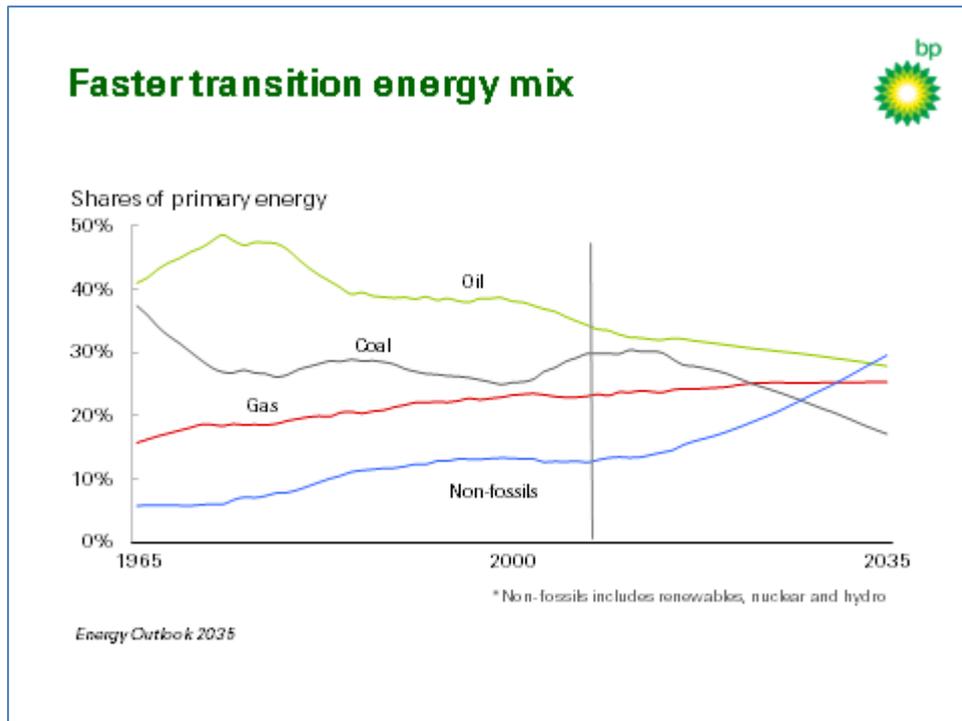
Renewable energies are growing fast – and faster in China than in any other country. China today is the world's largest solar generator, accounting for 16% of the total.

But even renewables growth at historically unprecedented levels would only provide for 9% of global energy demand from renewables by 2035.

Hence the significance of natural gas.

And it releases only around half as much carbon as coal when burned to generate power.

From that fact it can be calculated that a switch of just one per cent of global power generation from coal to gas would reduce carbon dioxide emissions by as much as increasing renewable capacity by 11%.



Complementary to renewables

Natural gas enables the space for renewables to grow at scale.

But we should not simply consider natural gas to be a transition fuel.

It is also a destination fuel – and this is the third of its advantages.

Natural gas has a long term role in a lower carbon future.

We have just heard from the distinguished executive director of the International Energy Agency – my good friend Fatih Birol.

The IEA estimates a fuel mix that is consistent with limiting the global temperature rise to 2°C – its 450 scenario.

In the current 450 scenario, oil and gas still make up as much as half of the total energy mix in 2030 and 44% in 2040.

Our own BP projections are consistent with this.

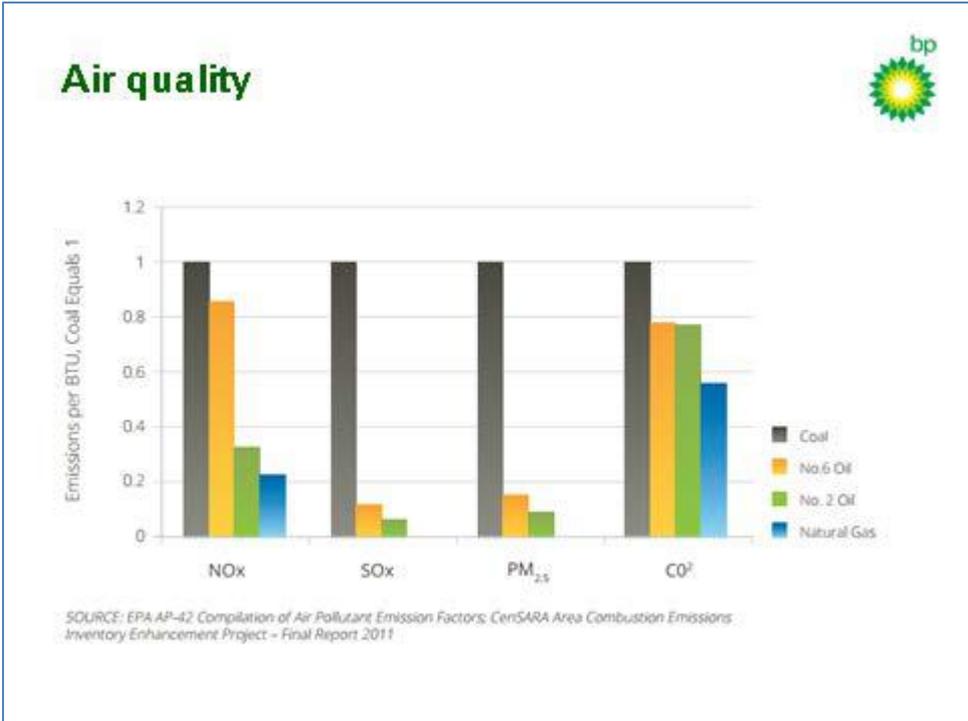
The chart on this slide is from our BP Energy Outlook and shows our projection of how the energy mix will change over the next 20 years.

This is our faster transition case, which makes further assumptions about policy interventions than in our base case and results in renewables comprising 15% of the primary energy mix.

In this faster transition case, oil and gas meet 53% of the world's primary energy needs in 2035.

As a result, we believe natural gas and renewables are complementary in a lower carbon economy.

The wide availability of gas and its compatibility for use in power generation make it the ideal back-up for the intermittency associated with wind and solar renewables.



Air quality

The fourth case for gas is one that is appreciated by citizens of many major cities around the world, as well as here in Beijing, which is among the biggest consumers of natural gas.

As well as needing to provide people with energy for heat, light and mobility, we also need to do so without compromising well-being and quality of life.

Let me turn here to the study published last year by the International Gas Union on improving urban air quality.

The IGU report compared pollutant-forming emissions from coal and natural gas power plants in the UK and found that gas plants were considerably cleaner.

Emissions of sulphur dioxide were roughly 250 times lower from gas plants, while particulates were about six times lower and nitrogen dioxide emissions were just over half those from coal plants.

Coal fired power plants are just one of many contributors to urban air pollution of course, However, the phased transition from coal to gas power plants offers a compelling option for improvement in air quality while maintaining reliable power supplies.



Partnership

Let me conclude with my fifth and final reason – and it is the opportunities created by natural gas for new and deeper partnerships that are economically and environmentally beneficial for all partners.

I base this on the over four decades of partnership and cooperation between China and BP.

We are proud to celebrate 10 years in partnership with CNOOC and others, in our LNG regasification joint venture in Guangdong province – the pilot project for LNG terminals in China.

We now supply two LNG terminals in China from our LNG plants in Australia and in Tangguh in Indonesia.

These operations have gone from strength to strength and we have long-term supply agreements with CNOOC and Huadian. We have a high-quality and flexible LNG portfolio offering diversified gas supply solutions to global customers.

The picture you can see on the right is the signing of a strategic cooperation agreement with CNPC, which we were honoured to conclude during President Xi's historic state visit to the UK in October 2015.

This cooperation with CNPC includes a production sharing contract to explore for shale gas in the Sichuan Basin.

In the photograph on the left is, of course, Deng Xiaoping, who met with Sir Eric Drake, BP's then chief executive in 1975.

Conclusion

BP has been a partner with China since the early 1970s and we are very proud to support China in its ambition to bring more gas to its growing clean energy market.

For each of the past 15 years China has been the world's largest growth market for energy.

After an extraordinary 20 year period in history, the rapid pace of energy demand growth globally is slowing.

And that can be attributed in large measure to the strategic shift in China towards less energy intensive but more productive and higher value activity.

For all the reasons I have just summarised, natural gas will be an increasing part of that story – here in China and globally.

China is writing a new chapter in the remarkable story of its economic development.

For BP, now in our fifth decade here, we are privileged and honoured to partner with China as it writes this next chapter.

Thank you.