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Speaker:	Tony Hayward
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Ladies and Gentlemen, it's a great pleasure to be in Buenos Aires and to be invited to address this prestigious World Gas Conference. I'd particularly like to thank our Argentine hosts and the organizers, the International Gas Union.

As some of you may be aware, BP has a special connection with Argentina thanks to our very successful joint venture in Pan American Energy. And Argentina has a strong connection with gas – gas provides half of the nation's energy.

Today I'd like to share with you my thoughts on the world's energy challenge, and the significant role gas could play in helping to address it.

Low cost, readily available energy enabled the global economic development and prosperity of the 20th century. Now, at the beginning of the 21st century – as living standards rise and urban populations expand – satisfying ever-growing energy demand in a sustainable way has become probably the world's biggest challenge – it's one that is political, practical and economic.

According to BP's projections, we'll need about 45% more energy in 2030 than we do today. And we mustn't underestimate the scale of what it will take to deliver that.

To meet it, we'll need an investment of some $25 – 30 trillion, that's more than $1 trillion a year between now and 2030.

In oil alone, declining production from existing fields, coupled with new demand, means we'll have to bring on nearly 50 million barrels/day of new production over that time – that's almost twice the current level of production in the entire Middle East.

There's no doubt that Alternative Energy will play an increasingly important role in addressing the issues we face. A more diverse supply – one made up of fossil fuels, as well as nuclear, wind, solar and biofuels – is certainly a good idea, both for energy security as well as helping to address the challenge of climate change.

But we need to be realistic – the transition to a lower-carbon economy won't happen overnight.

Why is that? Well, the sheer scale of the energy industry makes this impossible.

To give you an example, it takes 30 years to turn over the capital stock in the power sector and 15 years in automobiles.

Such long lead times mean that, like it or not, fossil fuels will continue to play a very significant part in our future energy mix. We estimate that by 2030 they will still be satisfying around 80% of our energy needs.

In the realm of alternatives, promising too much too soon is dangerous. It risks rendering the entire global effort both politically and economically unsustainable.

And the world can't afford that

So we're talking about an evolution - not a revolution in the energy mix.

Our energy future isn't predetermined. We can and we need to shape it. What we badly need is a roadmap for this transition.

One built around a clear and realistic understanding of the existing infrastructure, changing technology, economic incentives and the inevitable policy trade-offs we'll face along the way.

In fact we'll need a series of roadmaps as the transition won't be a 'one size fits all'. It will vary by country and by sector depending on each nations needs and resources.

I'd like to focus my remarks today on the area of electricity generation as this will be one of the principal drivers of growth in the global demand for energy to 2030.

While the industrial and electrical sectors use some petroleum products, the three big energy sources are coal, nuclear and of course, natural gas.

Going forward, the share of renewables will certainly increase. Wind power for example can be cost-competitive in certain locations. In the US it's been the fastest growing of all energy sources over the last couple of years. Nuclear too is expected to gain ground.

But the technology, infrastructure and regulatory framework for those alternative energies are expected to take decades to be deployed at scale.

In the meantime, the choice for utilities boils down to two hydrocarbons: coal and gas.

Coal of course produces more carbon than any other fossil fuel. To give you an example: it accounts for around 50% of America's power generation, but it also accounts for 80% of the resulting carbon emissions.

And although Carbon Capture and Storage is often trumpeted as the path to cleaner coal, it still faces a number of challenges which will take time and effort to resolve.

I don't believe we'll see the commercial use of CCS at scale for at least another decade or more – and it won't come without a price. If and when it is established, there will be substantial costs associated with its use.

I don't think we can afford to wait.

We need to begin to take carbon out of the energy mix today.

And we need to be realistic about how we're going to achieve that.

Until renewables gain a sizeable share of the power sector and cleaner coal is available through Carbon Capture and Storage, I can see only one way of doing it – by increasing the use of natural gas.

Gas is the fuel that offers the greatest potential to provide the largest reductions at the lowest cost – and all that by using technology that's available today.

If we get it right, gas can transform the global energy outlook in the decades to come.

It has a long list of advantages.

- It's easily the cleanest burning fossil fuel. Compared to coal, it only generates 50% as much carbon per kilowatt hour and a fraction of coals' nitrogen and sulphur dioxide emissions.

- It's very efficient. Combined-cycle turbines, fuelled by natural gas, are quick and relatively cheap to build. They can generate electricity at up to 60% efficiency in terms of power generated as a proportion of energy input.

- As well as burning fuel more cleanly, natural gas generators can be switched on and off more easily than coal-fired plants. They can also be expanded with fewer political objections than those invariably encountered by coal.

- Gas can complement renewable energy. Given the intermittency with which wind and solar power operate, gas-fired plants are ideal for providing the necessary swing capacity.

- It's the most versatile. Natural gas is unique in that it can be used for transportation, as well as for generating electricity.

- And it's abundantly available – more abundant than oil.

According to BP's Statistical Review of World Energy in 2008, proven global gas reserves reached more than 6,500 tcf, or 1.2 trillion boe, with enough reserves in place to provide the equivalent of 60 year's consumption at current rates. And reserve estimates are rising sharply as technology unlocks unconventional resources.

I'm pleased to say the world seems to be waking up to the advantages of natural gas. Last year consumption increased in both the OECD and non-OECD countries. It was the only hydrocarbon to do this – and this in spite of the recession which dampened demand for all fuels.

Much of this success is explained by new technology opening up access to new supply, and recent developments in the US provide a perfect example with which to illustrate this story.

North America is experiencing nothing short of a renaissance in gas development. Just four or five years ago, the industry was having to look at importing gas simply to satisfy the country's existing needs.

Today the situation is very different - A quiet revolution has occurred in the gas fields of North America.

New techniques such as hydraulic fracturing and horizontal drilling are accessing deposits of unconventional tight and shale gas, and coal bed methane.

One field where these techniques were pioneered – the Barnett Shale near Ft. Worth in Texas – has almost singlehandedly turned around the production of natural gas in the US.

The technology has also led to other major new discoveries, not only in traditional oil and gas states such as Texas and Louisiana, but also in areas like Pennsylvania, Ohio and upstate New York.

As a result of this, the picture of natural gas in the US has been transformed in a very short period of time.

US dry gas production increased last year by 3.9 bcfd, despite production taking a major knock from Hurricanes Gustav and Ike. Without those disruptions, production growth would have been closer to 5 bcfd which amounts to just under 10% year on year.

Estimates vary, but the US may now be sitting on between 50 and 100 years worth of recoverable natural gas.

All this is highly significant for the rest of the world as those new technologies have only just begun to be applied to unconventional gas resources elsewhere.

We believe there's the potential to find and develop tight gas and shale gas in North Africa and the Middle East, Europe, China and in the southern cone of Latin America.

There's also potentially high quality coal-bed methane in Australia and South-east Asia.

All in all we estimate that as yet undeveloped or unidentified unconventional gas could contribute a further 4,000 tcf to gas resources over the next few years.

That would add another 60% on top of our 2008 figure for world proven gas reserves – a total of roughly 100 years of consumption at current rates.

In the meantime, the availability of gas around the world is expanding through trade in LNG.

The number of countries that import LNG has risen from 9 in 1999 to 22 today and the movement of trade is gradually changing too – from traditional A-to-B cargoes, to multi-basin, multi-point deliveries with increased trade between the Atlantic Basin and Asia-Pacific.

Put simply, gas is becoming a global commodity – more flexible, more tradable and more secure.

So looking at all these advantages, why don't a lot of the forecasts point to a more rapid growth in demand?

And what will it take for the world to encourage and accelerate its growth?

I believe that on the one hand it requires decisive and appropriate policy action on carbon pricing, and on the other, a more customer focused offer to the utilities.

It's clear we need to begin to address the issue of climate change. Until both producers and consumers know and pay for the cost of carbon, the uncertainty around planning and investing in the transition to a low carbon economy will remain high.

The power sector is a good example of where a uniformly applied carbon price could positively impact choices and behaviours.

It could influence the choice between coal and gas in the most cost effective way and it would allow informed investment into sustainable and more economically attractive gas plants.

At BP, we favour a Cap and Trade system because it gives environmental certainty based on an absolute emissions cap.

Such a system needs to treat all carbon as equal and push for the best possible outcome in terms of both carbon and economic impact across all industrial sectors.

I believe the ultimate objective should be a global Cap and Trade system, but that's probably some way off. The best place to start is at the national level.

Turning now to the users.

In the US, it's fair to say that utilities have historically favoured coal over gas. There are a number of reasons for this, but principally it's been about price – gas has been more expensive than coal, and gas prices have also been more volatile.

The current low price of gas has increased its share of power generation. But to capitalize on this advantage and compete properly with coal, we need to address volatility.

We must review how we contract and price gas sales.

Utilities need to be able to hedge against price uncertainty using flexible market mechanisms. Regulators need to ensure a level playing field enabling producers and consumers to work together to manage short-term fluctuations.

The bottom line is that the new abundance of gas reserves should now give the power industry and its regulators the confidence to discuss long term supply arrangements – and rising demand should give producers the confidence that such arrangements can be profitable.

With that, let me conclude.

Natural gas has often been described as a ‘bridge fuel’ to a lower carbon future.

It’s definitely that – But I believe it can be much more.

Using the technology we have available today, greater use of natural gas can provide us with the quickest, most realistic path to achieving the largest emissions reductions at the lowest cost.

It can be a ‘destination fuel’ – a fundamental fuel in a lower carbon world.

Natural gas is here. It’s now. It’s cleaner. It’s more affordable.

So, ladies and gentlemen, what are we waiting for?