



Energy for the future – finding the right direction

Speaker: **Steve Westwell**

Title: **executive vice president, strategy and integration**

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Good morning and thank you for the invitation to join today's discussion. I want to begin by referring to the Deepwater Horizon tragedy in the Gulf of Mexico.

BP deeply regrets the loss of life and the impact of the spill. We have stepped up to our responsibilities. Working alongside local communities and government and industry partners, we have mobilized a crisis response on an unprecedented scale. At the peak of the effort, we mobilised over 45,000 people, deployed 3 million feet of protective boom and co-ordinated around 7,000 vessels.

The incident has highlighted the risks we face as we work at new technical and physical frontiers in the quest to develop the energy of the future.

Our initial investigation has confirmed that it was a complex accident resulting from a sequence of failures involving a number of different parties.

We must learn the lessons and prevent another such accident.

Turning now to the wider challenges we face in providing the energy of the future. The way we see it, the energy of the future has to meet three distinct objectives.

First there needs to be sufficient energy. By 2030, International Energy Agency estimates indicate that the world could be consuming 40% more energy than today.

Second, we need secure energy. Countries that are major consumers of energy are looking to reduce demand, diversify supplies and maximise domestically produced energy.

Last but not least, we need sustainable energy.

The challenge is to create a future energy mix that meets all three of these objectives – sufficiency; security; and sustainability.

This is not impossible. But it is immensely challenging. There is no magic bullet. We need a spectrum of energy sources, both traditional and new.

But there are hard political choices involved in agreeing to cut emissions and accepting the implications for energy.

We believe the main policy mechanism for a lower carbon economy should be a price for carbon. In principle this should be applied globally, uniformly and equitably although pragmatically, it has to start at national and regional levels, and should include some protection for energy intensive industries.

But the market alone will not drive the necessary innovation or deployment of emerging low carbon technologies and so we also support transitional incentives for such technologies.



That is our position on policy. But we are not policy-makers. We are energy providers and our job is not primarily to shape the architecture but to deliver the building blocks.

So taking a practical, business, approach, we have spent some time looking not so much at the destination but at the pathways by which we can start to travel towards it.

Specifically we have looked to identify strategic technologies that can come to the fore at different stages of the journey. They need to be economically rational and efficient, environmentally effective and politically and socially acceptable.

I'll start by looking at power because in our analysis power will account for some 60% of the growth in energy demand to 2030.

We must start with efficiency. We must invest in more efficient power supply and demand infrastructure and more efficient buildings and appliances.

We then need to chart a course towards a lower carbon future by looking at timescales over which different technologies can be deployed at scale.

Renewable energy is set to make a significant contribution, but even with very strong policy support we estimate that all forms of renewable energy combined are unlikely to make up more than a third of all power supply by 2030.

Nuclear will probably grow too and carbon capture and storage is a nascent technology with huge potential, but it will also take many years to mature.

However, if we are looking for material changes in the short to medium term then we believe that there should be a far greater focus on natural gas.

Gas is the cleanest burning fossil fuel. As a power feedstock, it produces 55% less CO₂ than conventional coal generation. It is also increasingly plentiful. New techniques, such as hydraulic fracturing and horizontal drilling, are accessing deposits of so-called unconventional gas.

Globally, there are enough proven reserves to meet more than 60 years of demand at today's consumption rates. But we believe that the worldwide potential from 'unconventional' gas could actually add up to a century's worth.

Increasing supply has made natural gas more economic. Last year, US gas prices fell and coal fired electricity generation fell by 11% while gas fired generation rose by almost 5%. At lower and less volatile gas prices, this may be the shape of things to come?

Let me now turn briefly to the pathway for transport. Again increasing efficiency has a very big part to play driven by sufficiently robust regulation.

Hybrid vehicles, such as those pioneered by Toyota, are also playing an increasing role.

Full electric vehicles by contrast are a longer-term option. They will be familiar in the future, but to be truly sustainable the electricity that powers them needs to be much lower in carbon as well.

So aside from more efficiency, what can be done in the near term?

BP believes that advanced biofuels also have a major role. Projections suggest biofuels – which provide roughly 2.5% of transport fuel today - could account for 10% or more by 2030.

However, it's vital to understand that not all biofuels are the same. Some involve damage to ecosystems or have negligible greenhouse gas benefits.



But others have minimal ecosystem impacts and produce major reductions in greenhouse gas emissions. Ethanol made from sugarcane is one such fuel available today – already dominant in Brazil.

For the future, we believe the focus should be on ligno-cellulosic biofuels. They can achieve higher yields than corn. They don't use crops that feed humans. They can be grown on marginal land. And they often need less fertiliser.

So those are some brief thoughts on the future of energy. And I hope that I have left you with three clear messages from BP.

First, we remain as committed as ever to a sustainable future. We continue to advocate precautionary action on climate change.

Second we are restless to make progress in the right direction and our work on energy pathways tells us that there are powerful roles for natural gas and sustainable biofuels, as well as efficiency across the board.

And third, to end where I started, we remain painfully aware of the tragic impacts of the accident in the Gulf of Mexico. This has reminded us sharply that we are far from perfect and we don't have all the answers. But we are prepared to learn lessons and meet our obligations.

Thank you.