

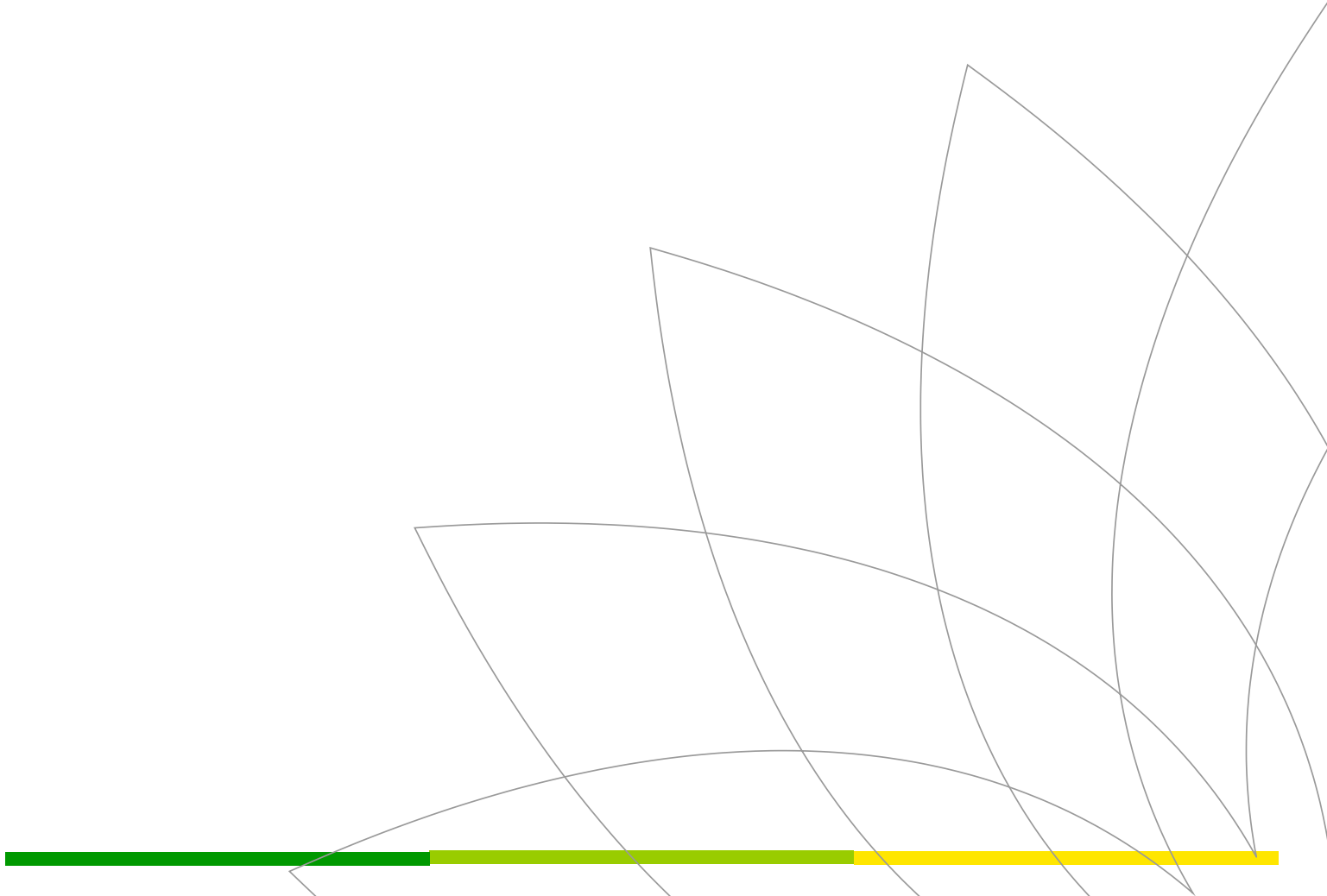


Taking a 4D approach to the dual challenge

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Thank you, and good afternoon.

I always enjoy IP Week, so it is great to be back again this year.

When thinking about today's discussion it is important to remind ourselves of what we are all trying to achieve.

The Paris Agreement calls for rapid reductions in greenhouse gas emissions in the context of sustainable development and efforts to eradicate poverty.

My industry has a big role to play in helping meet this challenge – this dual challenge.

To help reduce emissions, of course.

But also to provide the energy that will drive rising prosperity and well-being.

If we look at just the last 30 years:

- We've seen extreme poverty cut in half.
- Child mortality globally also down by half.
- Average life expectancy increasing by 7 years.

This has taken place at the same time that energy consumption rocketed by 80%.

There is an undeniable link between access to energy and improving quality of life.

The importance of this link grows when you consider that demand for energy is set to increase by a further third by 2040 on current trends.

That is the equivalent of another China and EU on top of today's consumption.

With that level of growth we see an opportunity for another 2.5 billion people to help lift themselves out of low incomes.

So how do we collectively solve this dual challenge of delivering the energy the world demands in a way that it needs?

Low carbon technologies are one part of that, but let me place them in the wider context of four points.

- Demand side management,

- Decarbonisation of fossil fuels,
- Dependencies between fuels and systems
- And, creating the right direction.

That's 4'D's, and I have about a minute for each, so here goes.

1. Demand side management

Starting with demand, it's staggering to think that, by some estimates, less than 20% of energy is usefully deployed for useful heat, light and mobility.'

So 80% is lost... 80%!

There is therefore huge potential for better demand side management.

It's a responsibility for everyone...

Corporates...

Governments...

And consumers - you, and me who use this energy, and enjoy its benefits.

We have to take responsibility for our decisions.

If energy demand does indeed grow by around a third or more, then meeting this growth will take fuels of all kinds.

Renewables will have a big role to play, and BP has a long history in this space - over two decades.

Today, my alternative energy business at BP has a successful biofuels and bio-products presence in Brazil as well as a significant wind business in the US.

And we have added to this by going back into solar in a big way with Lightsource BP.

Renewables will continue to be the fastest growing source of energy – contributing half of the growth in energy supplies – becoming the largest source of power by 2040.

Growth in wind and solar is secular – truly remarkable how they have developed over the last few years.

That said, on current trends it will still only account for around 15% of primary energy in 20 years. Even optimistic scenarios range around 30%, which means over two thirds of energy has to come from somewhere else.

In short, the world will still need hydrocarbons for some time to come.

Our BP Energy Outlook suggests that the world can still be on track to meet the Paris goals with 40% oil and gas in the energy mix by 2040.

That is of course, conditional on finding ways to decarbonise, which is my second 'D'

2. Decarbonisation of hydrocarbons

The greatest opportunity comes in power... followed by power... and then power.

This is in recognition that three quarters of primary energy out to 2040 will come from the power sector as the world continues to electrify.

And that power is the single biggest source of CO2 emissions from energy use.

The good news is that it is the sector where most good can be done most effectively over the next 20 years.

Particularly when you factor in gas which has half the emissions of coal when burned to generate power.

So displacing coal with gas in power is a vital step.

3. Dependencies

And it is gas that brings me onto my third 'D', which is about dependencies between fuels.

Being abundant and affordable, gas is also the perfect partner for renewables...

Creating an inter-dependency between the intermittency of renewables and the flexibility of gas.

Renewables and natural gas together account for almost 85% of the growth in primary energy – so nearly 85% of new energy is lower carbon energy.

There is also a role in adjacencies between renewables – joining up solar with wind, biofuels and other forms of non-fossil fuels.

And you see examples of how businesses and institutes are seeking new relationships with suppliers to harness the benefits of solar.

A good example is Penn State – one of the USA's largest research universities – which has invested in solar through Lightsource BP.

And a deal between Lightsource BP and AB InBev to brew Budweiser with 100% renewable electricity.

4. Direction

Armed with all this knowledge, what is the thread that pulls it all together - the catalyst that makes it more than just individual parts?

This is my final 'D' which is direction.

Take shale as an example. A whole industry didn't just happen by accident. It was the result of a great deal of research, investment, and know-how.

The same is true of the internet, which was – to some extent – born out of Pentagon research.

So where is the serendipity here for accelerated progress to meet the dual challenge?

At BP, we are looking at all of this, and have devised a plan for how we can play our part.

We are focussing the whole company on low carbon through our RIC framework.

A framework to:

- reduce emissions in our operations,
- improve products to help customers reduce their own emissions,
- and to create low carbon businesses.

That's our plan, but our peers have their own. There is no right or wrong approach.

We just have to all be heading in the same direction. Utilising our collective human capability, technology, business know-how, including scale and relationships – all lubricated by finance.

We have the capability to do all this now, and if we bring it all together we have every reason to be optimistic of success.