Tackling methane: a big lever for a huge challenge

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Good morning, everyone. It's wonderful to be here.

My special thanks to Dr Xu and Dr Li for the kind invitation.

bp's relationship with Tsinghua University goes back many years. And although I never studied here myself, I feel a strong personal connection.

My former doctorate supervisor – Dr Henry Tan – studied here. And if his wisdom and kind counsel was anything to go by, I know this is a place where talent is nurtured, and students can thrive.

In my 35 years as an engineer, I've travelled the world a fair bit. But surprisingly, I've only been to China once before.

As a tourist.

I remembered I had an amazing time.

We somehow managed to lose my son and daughter on the Great Wall.

Whilst a moment of panic for my wife and I, we found them gazing in awe of the endless stretches of a massive wall on a picturesque mountainous landscape.

So, I remembered how beautiful the country looks.

What I hadn't remembered is just how alive the country feels.

So many people. So much activity. So much innovation.

And that's obvious before you even land…

As you approach Beijing Capital International Airport – it's striking just how much city you need to fly over.

This city is vast – 22 million people. Almost twice the population of my native country, Jordan. And as China accounted for 72% of the increase in 2022 energy consumption – it goes without saying all those people need, and rightfully expect energy.

Then passing through the airport, there's so much going on. Plenty of people walking through those vast open spaces, traditional gardens, a replica Forbidden City. No wonder it's the second busiest airport in the world – and with global passenger kilometres potentially increasing 70-115% between 2019 and 2050, both aviation and China will continue to inform how the energy transition unfolds.

Then on the transfer from the airport – I think I saw more EVs than I did in a week in London.

Half the world's EVs are here in China. And it's obvious – that's why bp pulse and our joint venture with DiDi have more than 20,000 charging points in this country.

So, you don't need to be told that China is playing a critical role in the energy transition.

You can see it with your own eyes.

And it is a source of great pride within bp that we've been operating here for more than 50 years.

bp's footprint here shows what a tremendous opportunity China presents to a company like ours: from oil and gas to EV-charging and Castrol to aviation and ventures.

We have great people, growing businesses, and deep partnerships.

Momentum to net zero

China demonstrates perhaps better than any other country the challenges and opportunities that the energy transition presents.

The need to rapidly produce much, much more energy – to provide for a growing, ambitious, technology-savvy population.

And, at the same time, find ways to bring emissions down at scale.

Delivering on that is the clear rallying cry coming out of the COP28 summit in Dubai last year.

Under the leadership of Dr Sultan Al Jaber – the agreement to transition away from fossil fuels in a just and orderly way was both remarkable and ambitious.

And a crucial element of that – will involve the rapid and substantial reduction of methane emissions by 2030.

Why zone in on this particular area?

Because it is nothing short of crucial.

Oil and gas operations contribute nearly a fifth of global methane emissions from human activity. With methane continuing to drive a rise in global emissions of 0.8% in 2022.

Natural gas will play an important role in weaning the global energy system off coal.

When it's burned for power, natural gas has about half the emissions of coal.

But when unburned natural gas – methane – escapes into the atmosphere, it is a powerful greenhouse gas.

In fact, methane is thought by some to be responsible for about a third of current global warming.

So, methane contributes to near-term climate change – but it also means that acting on methane has the potential to give a shorter-term climate response.

That means methane is a very powerful lever. And of course, our industry can play a massively important role here. According to the Global Flaring and Methane Reduction Partnership, if we can deploy the full potential of methane reduction, the world could avoid roughly 0.1°C of warming by mid-century.

To put that in context, it's roughly equivalent to switching off the emissions of every car and truck in the world.

Now, I'm going to shift focus to methane. But I should mention that while action on methane can slow down short-term warming, urgent action on CO_2 is still very important.

So, this methane work needs to run alongside other climate activities.

Nice idea, tough challenge

Well, that's a nice idea. It's certainly easy to say.

But – as we all know – it is a monumental challenge.

Then I came across a Chinese quote that seemed appropriate.

And it was translated like this: *"Mountains and rivers can be moved, but it's our determination that truly shapes the landscape of our destiny"*.

I'm no expert on Chinese philosophy.

In fact, I'm no expert on any philosophy.

But as an engineer, it's certainly an idea I can identify with.

Because I know how determined we can be. And I know we can help shape our destiny.

Through engineering.

And through innovation.

You know this already, I'm sure.

bp and Tsinghua have worked together for years.

In 2003, we set up the Tsinghua-bp Clean Energy Research and Education Center – with a shared low carbon vision.

We collaborated on developing technology, talent, and overseas partnerships.

Aiming high

So, I thought I would briefly talk about some of the work our teams at bp have been delivering in this space.

And how engineering, technology, and collaboration help in our success.

Four years ago – not quite to the day, but fairly close – bp set out a new purpose, ambition, and a series of aims to deliver on that ambition.

One of those aims was to implement our methane measurement approach across our upstream operations by the end of 2023…

…to publish the data…

…then drive a 50% reduction in methane intensity of our operations.

…with a 0.2% for our operated asset by 2025, based on our new measurement approach.

…and work to influence our joint ventures to set their own methane intensity targets of 0.2%.

As an engineer…

As a bp employee...

As just a person who wants to see the world make a success of the energy transition, I find this aim hugely motivating.

I've certainly been happy to discuss it at the dinner table with my kids.

I only hope they were as happy to listen to me.

Bringing others in

Of course – as with anything concerning the global energy transition – it's impossible for bp to do this alone.

We have worked closely with many, many other organizations.

…governments, partners, universities, suppliers…

From some of the largest suppliers in the world, to some of the smallest.

From names you'll have heard of – like Baker Hughes – to names you might not, like SeekOps.

We're doing everything from deploying drone-mounted measurements to advance predictive algorithms to deploying exciting new flow measurement technologies.

Through our partnership with the Environmental Defense Fund, we supported development of satellite technology.

And just recently, they successfully launched MethaneSAT, and the data will be available to all for free.

We are making the invisible visible – working to progress methane transparency, focus and action.

…but more importantly, enabling us to rapidly respond to previously undetected methane emissions.

We embraced the power of digital, first-principle engineering, and advanced predictive algorithms.

We leveraged existing data. And gathered wholly new data to improve how we measure and monitor methane emissions from our turbines and flares.

It's about deploying brand new technology and computing models and, I think I can say, the world's largest field measurement and testing of flare combustion to date.

I know… this may sound slightly abstract.

But it's real. It's happening.

We've now introduced 130 predictive emissions monitoring systems around the world.

Almost 90 flare and vent meters.

12 flare gas composition analysers.

And performed around 91 advanced computational fluid dynamics analyses of our flare and vent systems.

All that together means, we expect to be well below 0.2% methane intensity on a measured basis with the newly deployed measurement systems based on initial data.

Collaborating in China

I'm incredibly proud of the teams at bp who have worked tirelessly to deliver these results.

But, of course, we're not complacent.

We know we have much further to go – as a company **and** as an industry.

And we know we do not have all the answers.

So, we are always ready to reach out to others… to collaborate… to learn from each other.

And, you know, I think this is the perfect occasion to make this point.

Because there is nowhere better than here in China.

…where this country's oil and gas sector could help drive the whole industry forward. Both CNPC and CNOOC are good friends of bp. And these two companies have ambitious goals of reaching 0.25% by 2025 with 0.2% by 2035.

And we all know that the only way progress can be made on a global scale is through collaboration and industry programmes.

Of which the Oil and Gas Climate Initiative, or OGCI, is a really positive example – and I note CNOOC's and CNPC's methane targets are both in line with OGCI's general target of 0.2%.

This is a country that is so vital… not just to bp – but to the global energy transition.

…where we can draw on the knowledge, drive and experience of our many friends and partners here.

And where China is playing a fundamental role in this area, not least through initiatives like the Methane Emission Control Action Plan, or MECAP.

Through this, China is prioritizing emissions monitoring and technological innovation, while also developing policy frameworks and global cooperation.

And further afield, there are initiatives that I believe could help really move the dial on tackling methane.

The Methane Guiding Principles or MGP – a voluntary, international partnership designed to reduce methane emissions is where bp was delighted to share our flare emissions advancement that we worked with Baker Hughes.

And the Oil and Gas Decarbonization Charter – a global industry charter launched at COP28, dedicated to speeding up climate action. This marks the first time a large number of national oil companies publicly pledged to reduce operational emissions.

The world needs China – with your energy skills, resources, and know-how – to participate in these global dialogues, industry cooperations to set standards, share innovations, and bring the best to tackle this challenge.

Conclusion

So, we know this topic matters.

We know much work is underway.

We know we have much more to do.

And I would add one more thing…

We know there is no better time than now.

With the momentum of COP28 behind us…

…I believe, the drive towards net zero is now unstoppable.

bp's ambition is to become a net zero company by 2050 or sooner, and help the world get to net zero. China aims for carbon emissions to peak before 2030 and achieve carbon neutrality before 2060.

We are on a similar journey. We share much in common.

And I truly believe that by working together, we can help make a difference. bp's partnership with Tsinghua University is a testament to that. And I invite you to join us.

Thank you.