

# Hydrogen: less talk, more action

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Good morning, everyone.

My name is Felipe Arbelaez, and I head up bp's hydrogen and CCS business.

It is an honour to be here today – to be invited to deliver this year's keynote speech.

This is my first in-person conference of the year, following the restrictions posed by COVID.

It's great to be able to travel again, isn't it?

There's nothing quite like seeing people face-to-face.

To experience great cities like Rotterdam.

And be in the company of great minds, like I am at this important summit.

It's fair to say that the Netherlands is home to some of the world's most prominent thinkers.

Great philosophers down the years, such as Erasmus, Spinoza, and perhaps the greatest of all: Johan Cruyff!

Yes, I know Cruyff is famous for playing for Ajax in Amsterdam. But the locals tell me he was happiest playing in Rotterdam for Feyenoord!

In all seriousness, it was Cruyff who once said that every disadvantage has an advantage.

He was probably talking about football.

But he could have easily been talking about Rotterdam too.

When faced with conflict last century, this is the city that rebuilt and reinvented itself for the future.

And in the face of climate challenges today, the city has innovated to construct the world's largest floating building in its harbour – designed to rise with the tides.

People here don't talk about what they are going to do when faced with a challenge. They just get on and do it.

'Geen woorden, maar daad' – as the locals would say. 'Less talk, more action.'

I think that is a fitting saying to start this year's summit.

Those of us gathered here and watching online already know the benefits of hydrogen.

How it will provide a low carbon energy for activities and processes that are difficult to electrify, especially in industry – iron, steel and chemicals for high-temperature processes.

And how it will help to decarbonize long-distance transportation in marine, aviation and heavy-duty road transport.

We know all that.

And two events have convinced me of the need to speed up hydrogen's penetration of the global energy mix to turn words into action.

Both events are once again connected to climate change and conflict.

## More action

One, is the latest assessment from the Intergovernmental Panel on Climate Change.

Its report makes clear the need to ramp up hydrogen as part of the energy mix required to meet the goals in the Paris Agreement.

That's a pretty big reason to act.

But so too is the issue relating to security of supply.

That's particularly true here in Europe.

A difficult winter due to low levels of gas inventories has been further destabilised by the terrible conflict in Ukraine.

We often talk about the need for clean, affordable and reliable energy - but never has the need for all three of those been more acute.

## Helpful hydrogen

This is where hydrogen can help.

That's green hydrogen, made from renewable energy.

And blue hydrogen, where the CO<sub>2</sub> from gas is abated through carbon capture and storage.

As things stand, bp analysis shows that hydrogen could have around an 8% share in final energy consumption by 2050.

And it could be double this figure when we factor in additional hydrogen demand to generate electricity and produce fuels such as ammonia, methanol and synthetic jet fuel.

To put that into context, this would be roughly equivalent to the share of the global energy mix that natural gas has today.

And just five years from now, estimates show that the hydrogen industry could be worth in the region of \$290 billion – around \$100 billion more than in 2020.

These are big numbers, for sure.

But just assuming this will happen is fallacy, as Spinoza might have put it.

An alternative scenario is that the world fails to deploy hydrogen, and fails to reach net zero.

The worst possible outcome.

It's up to all of us to prevent that happening.

Better still, I believe that if we pull together, hydrogen's energy market share and value could – and should – be far higher over the timescales I described.

And we can therefore get this highly versatile, clean, secure energy source into use where, and when, its needed.

And I believe it's possible to achieve.

You only have to look at the acceleration of electric vehicle take-up as a case in point.

Every year, bp's Energy Outlook projects potential scenarios for energy supply and demand over the coming three decades.

And every year we have to revise up our projections for EVs.

I have to tell you that we have been way off.

That's not to discredit our work.

But our analysts can only work with the data that's available.

And what we all see is that EV take-up continues to defy expectations.

The demand, the desire to manufacture, and the legislative backing are growing – so the market is also growing.

I believe the same can be true of hydrogen, because it is increasingly understood to be a low carbon, affordable and reliable source of energy.

But like the growth of EVs, it's going to take the efforts of various parties to make it happen.

## Bp in action

bp's doing its best to play its part.

We are very serious about hydrogen, with plans to reach a 10% share in core markets by the end of this decade.

We believe that making a significant contribution to the market plays to our strengths.

- By decarbonising our existing hydrogen at our refineries to underpin our projects.
- Capitalising on our experience of delivering and operating complex global projects.
- Drawing on the expertise of our world-class trading business, with a presence in 140 countries and more than 2,000 employees.
- Building on our longstanding relationships throughout the world, created through our oil and gas businesses.

That's what an integrated energy company like bp can offer.

And we're already putting these capabilities into action.

Like here in Rotterdam, where we are teaming up with Netherlands-based firm HYCC to develop a 250-megawatt plant – this city's largest green hydrogen project.

And we have plans to scale this much, much further, to integrate flexible, scalable demand for renewable power as part of the Hollandse Kust west licensing round.

Back in the UK, we are developing plans for one of the UK's largest blue hydrogen production facilities – H2Teesside - targeting 1 gigawatt of hydrogen production by 2030.

The project would capture and store up to two million tonnes of CO<sub>2</sub> per year.

And it's not just blue; our HyGreen Teesside project has plans of up to 500 megawatts of green hydrogen by 2030.

The proposed developments will be a major contribution to the UK government's target of developing 10 gigawatts of hydrogen production by 2030.

These are just a couple of examples of the work bp is doing, with much more to come.

## Call to action

So, I've described why I think we need to accelerate the penetration of hydrogen.

Outlined the opportunities ahead.

And I've made clear the significant role bp is to play in this space.

Before we move onto this morning's panel debate, allow me to finish with a call to action.

This call to action is for policy makers – crucial to the success of a burgeoning hydrogen market.

We've seen examples of governments that back hydrogen – the UK being a case in point.

We need more policies to allow for the provision of new infrastructure for hydrogen.

Where new gas infrastructure or equipment is planned, it should be capable of repurposing – or actually made ready – for CCUS or hydrogen.

And we also need to repurpose existing infrastructure for hydrogen.

Rotterdam, with its oil and gas infrastructure and corridors, is a good example.

Those existing assets could be reimaged for hydrogen. Turning a disadvantage into an advantage as Cruyff said.

On top of this we need to see incentives to produce molecules and a system ready to distribute hydrogen to customers.

Policy should also promote the use of CCS, as storing CO<sub>2</sub> is key to decarbonise hard-to-abate segments, and for the world to get to net zero.

Together, we can overcome any obstacles if we pull in the same direction.

It's time to make hydrogen happen.

Less talk, more action... Geen woorden, maar daden.

Thank you.