



# Embracing change, advancing energy, strengthening our partnership

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## Introduction

Good afternoon and thank you for the invitation to speak here today.

It's a great honour to join you at the 20th anniversary of this conference.

And this year's title, Energy Forward, allows us all to pause and look ahead at where we are going.

I'm Gordon Birrell -- and my job title at BP is Chief Operating Officer [for] Production, Transformation and Carbon.

## Energy transition

The world is changing at a dramatic pace.

A rising and increasingly prosperous population is pushing up energy demand, perhaps by a third by 2040.

At the same time, carbon emissions need to come down dramatically to support the Paris goals – falling by half by 2040.

That's the dual challenge we all face: the world needs to produce more affordable energy with fewer emissions.

Contributing to meeting this challenge underpins everything we do at BP.

We need to continue helping the world meet its energy needs; to help lift people out of poverty and low incomes; and improve living standards.

At the same time, we need to find ways to reduce emissions. That means doing things differently.

And that's a really exciting prospect. When I think about how things have changed since I started in the industry [25] years ago, there is so much going on now and everything is changing so fast.

By far the fastest-growing energy source is now renewables, undoubtedly important today and very important in the future. And they present exciting business opportunities for energy providers.

But renewables are also coming from a very low base – making up less than 5% of the fuel mix today. And despite their rapid growth, aggressive BP projections, based on current trends, suggest they might still make up just 14% of the fuel mix by 2040.

So the dual challenge cannot be about a race to renewables. It's a race to lower emissions.

And it's something that affects us all and we all have a role to play.

I now want to show you a short video to show how BP is addressing the dual challenge.

## Multiple sources of energy

I hope that gives you an idea of how BP views the dual challenge.

The world is going to need many kinds of fuels – so long as they are made cleaner, better and kinder to the planet.

Oil and gas currently make up more than half the world's energy mix. And our projections suggest they could still make up to 40% of the energy mix in 20 years' time in a scenario consistent with the Paris goals – so long as we can continuously reduce the carbon content, enabled by factors like improved energy efficiency and carbon capture use and storage.

BP believes oil and gas have a crucial role in advancing the energy transition.

That requires ongoing investment, not just to meet demand but also to offset decline rates.

Without significant investment, the ramifications would be huge.

Oil and gas supply could be constrained and prices would likely rise, slowing global economic growth, with knock-on effects across other sectors. That could have serious consequences for financial stability and economic prosperity more generally – not least for people's quality of life.

So we will need oil and gas to help meet the demand side of the dual challenge — and we need to make all fuels cleaner to meet the emissions side of the challenge.

## BP experience

Let me add another variable to that equation: in the last few years, the world has shifted from thinking energy resources are scarce to knowing they are abundant.

Abundance means that only the most competitive resources will win out in the future.

So we need to meet rising demand, while reducing emissions, amid stiffer competition.

The businesses that will thrive in that environment are the ones that can anticipate change and move ahead of the times.

It's an area where both BP and BHGE have led by example.

Over the decades, our businesses have adapted to changing market conditions, technological advances, consumer preferences and policy environments. We've shown our ability to move with the times.

But the truth is, if we don't keep advancing, others will overtake us.

In this constantly-changing industry, you can't afford to stand still.

Modernisation and transformation of our business is something that our teams expect, the next generation will demand and shareholders deserve.

And the businesses that will stay ahead are those that will continue to improve performance and make their employees feel better for working there.

At BP, our modernisation and transformation programme has three parts: embracing digital, being agile, and changing our mindset.

Let me talk through what that looks like in practice, starting with digital.

## Digital

The fourth industrial revolution is well underway and digital is already changing every aspect of our lives...

As an industry – particularly one with a history that goes well back before the first computers – we might talk as though we have already opened up to digital. But we need to do so much more.

And at BP, we're seeing it transform our business.

Perhaps one of the best examples is our **Plant Operations Adviser**, or POA. Some of you may know about this as we developed it along with BHGE.

POA is a digital tool that integrates real-time operational data from oil and gas facilities to deliver notifications to engineers. It's bringing the Internet of Things to our industry.

With POA, we spend less time managing data and more time managing the overall health of the plant.

After one recent shutdown, POA helped us find the root cause in 15 minutes. Hours ahead of what it would have taken previously, with engineers manually collating data, preparing spreadsheets and managing reports.

This is something many organizations have talked about but we have already rolled it out. It's up and running in the Gulf of Mexico and Angola – heading for other regions over the next 18 months or so.

The next step is to move POA onto predictive analysis and Artificial Intelligence – that means spotting a problem and avoiding it before it's even happened.

Early tests are encouraging – we can now detect operational changes and signal a problem before a costly shutdown occurs.

If we get this right, I think it could be a game-changer for our industry.

There are plenty of other examples of BP successfully developing and deploying digital tools:

Another one of my favourites that you might have heard about is **Apex** -- BP's highly sophisticated simulation and surveillance system that creates a virtual copy of all BP's production systems throughout the world. It means every pipe, every valve, every vessel is modelled. That allows us to do optimisation runs offline. And we can implement change to maximise value.

And in Trinidad we are using **the latest digital modelling technology** to create 3D visualisations of our offshore facilities, allowing us to complete detailed plans of our activities on our normally unmanned installations without having to go offshore. By reducing the number of visits our teams have to make, we improve safety – and it has also saved our business nearly half a million dollars in three months.

Collectively, our production digital toolkit has added over 30 thousand barrels of oil equivalent per day production in 2018.

Our transformation programme can also help us improve safety.

In operations, we are putting fewer people in harms' way by completing inspection activity through deployment of technology such as drones and crawlers. We have already reduced our surface and subsea inspection costs by \$200 million since 2016, while improving quality.

From an engineering and a business perspective, those are pretty good reason to embrace digital.

## Agility

But transformation doesn't stop with the tools we use. It also relates to how we use them. So let me turn to the next part of our modernisation framework: agility.

That means empowering people – and encouraging them to work in increasingly agile ways.

Research suggests about a third of the work that gets done in large companies actually has little value to delivering results. I'm sure most of you can identify with that. Ever sat through an unnecessary meeting or two? A call that ran too long? Wasted time on a task that didn't help drive the project forward?

To find ways of getting around that, we've been making some of teams more efficient by using the so-called 'Scrum' approach.

It's taking a way of working used in other sectors -- such as IT and software -- and bringing it to the oil and gas industry. That involves bringing together small groups of people from different disciplines. So in one room, you might find a driller, a reservoir engineer, a geophysicist – you get the idea.

We give them a single objective. And then we let them get on with the job with a singular focus.

Our experience has found this is an incredibly efficient way of working.

And by giving our people the space and the freedom to think outside the box – while focusing on the customer -their fast-developed conclusions made a valuable impact on our business.

In **Azerbaijan**, for example, we had 16 active scrum teams at the end of 2018. The results are striking:

- We saved \$26 million last year in logistics costs by changing how we used and optimised our vessels.
- Our teams identified opportunities to reduce capital expenditure by up to \$1 billion.
- And the number of Work Orders that were executed behind schedule fell by almost half.

As for the people involved, it's been a really enjoyable experience.

Yes, it can be challenging. It takes them out of their comfort zones. And for a process-driven business like BP, it can also be a little uncomfortable.

But it's intensely rewarding and it can help drive the business forward.

This is just the start.

Trialling new ways of working like this -- and rolling out the ones that work -- is the way we want to go.

We also find that by trying things out, we are encouraging a culture of innovation and creativity. Once people have experienced a new way of working that they like, they are more likely to take it forward.

So far, around 3,000 people out of a total of 17,000 across BP's upstream have now experienced some kind of new way of agile working.

I hope many of those will be inclined to take ideas back to their teams and think more creatively of how we operate.

## Mindset

I've spoken about the need to embrace digital and work in increasingly agile ways. Both are important but can be copied. What can't be copied is our culture and our mindset.

And that's the third part of our modernisation programme: changing our people's mindset.

We have made real progress in this area.

For example, in December we announced the Final Investment Decision on the first phase of our **Tortue gas project** in West Africa.

It's a vast undertaking: a multi-billion dollar investment with gas reserves totalling 15 trillion cubic feet, spread across the border between Mauritania and Senegal.

And it has some of the deepest wells to date in Africa. This is something familiar to BHGE as they develop the subsea infrastructure. It's the first major gas project to reach FID in the basin -- and it will

help provide gas for domestic use in Mauritania and Senegal, as well as providing LNG for global export.

Because the business really took on the ownership of the project – and because our team was given the space to approach this in an innovative and agile way -- we were able to move from discovery to FID in just over three years – that’s surely an industry record for a project like this.

The whole process was really action-orientated, which meant we had a dynamic and motivated team.

And we worked in a really inclusive way, collaborating with our partners and governments, which enabled us all to progress quickly and efficiently.

There are plenty more examples of how changing our mindset can really help our business.

In the **Gulf of Mexico**, our project teams have been using the latest agile ways of working and challenging themselves to bring our new subsea tie-backs on line quicker, “Fast Paced Tie-backs” as they now call them. They are making good progress with seven tie-backs either in execute or operate with an average 10-month improvement in cycle time.

And in the **Atlantis field**, our teams thought creatively to apply new algorithms to a traditional programme – and uncovered an additional 400 million barrels of oil within the field.

I come back to this mindset of business ownership, which allowed our people to drive these projects forward, deliver results, and help advance the energy transition.

And by changing the way we work, we’ve been able to reduce BP Upstream’s carbon footprint and put BP well on our way to meeting our target to make sustainable reductions of 3.5 million tonnes of greenhouse gas emissions in our operations by 2025.

## Collaboration

So those are the three parts of BP’s modernisation programme: digital, agile and mindset.

Now I want to talk about collaboration -- and how we can do more as an industry.

We are certainly seeing the benefits and we look forward to thinking creatively about how we can progress even more.



But none of us alone has all the answers.

We can work faster and more efficiently if – as an industry -- we pull together and strengthen our partnerships.

And for that to work, we are going to need to engage with each other and trust each other.

Let me give an example of how this can work, which is the **Cassia Totex** contract in Trinidad.

Instead of BP buying or leasing gas turbines from BHGE – we devised a new type of contract that charges only for the hours the turbines operate.

It's not been done before at this scale – but we both stand to benefit from it.

And it was only possible because both companies changed how they thought about the contract -- requiring more transparency and trust.

I want to finish with an example that goes to the core of how energy providers, engineering contractors and suppliers work together.

It's called **Joint Industry Project 33, or JIP33** – and I think this really has huge potential. In BP, today, we are already seeing the benefits.

BP along with 11 other leading energy providers are working to standardise the specifications we use when procuring equipment. It's great to see many of them represented here today.

The idea is that instead of us bombarding suppliers with different sets of requirements – we'll all use a common specification.

That will make life easier for everyone, and deliver benefits in safety, in quality, in reliability, in schedule, and in cost.

For suppliers like BHGE, it means you won't have to develop bespoke products for every operator and every project.

That means you can spend your energy on improving your business.

We now have the first 12 specifications available – and we’re working to expand the range of items covered. All these specifications were reviewed by our suppliers – including BHGE – as they were developed.

It’s something that’s only possible because, as an industry, we came together and rethought how the process works.

As the project expands, we look forward to the continued support of BHGE, and others, to make this a success.

## Conclusion

Let me briefly conclude.

I firmly believe that the changes we are seeing in society and across our industry mean that companies like ours also need to transform and modernize.

As we advance the energy transition, the pace of that change will only increase.

The pressure is to constantly evolve, adapt and improve; as well as becoming safer and more efficient as we look to meet the dual challenge.

That means trying new commercial models and being willing to take a risk.

We are only just beginning to realise what is possible when you harness digital, at the same time as unlocking the creativity and innovation that is within our teams.

We have to innovate and to collaborate. But we must also hold on to the desire to keep advancing.

As we mark the 20th anniversary of the BHGE Annual Meeting, let’s celebrate your achievements.

Let’s consider how you have adapted a world that continues to change. And let’s carry that spirit into the next chapter of our partnership.

Because as BHGE -- and I hope BP -- demonstrate: the key to long-term success is the ability to innovate and collaborate.

And by doing that together, as we have done over so many years, we all stand to benefit.

