

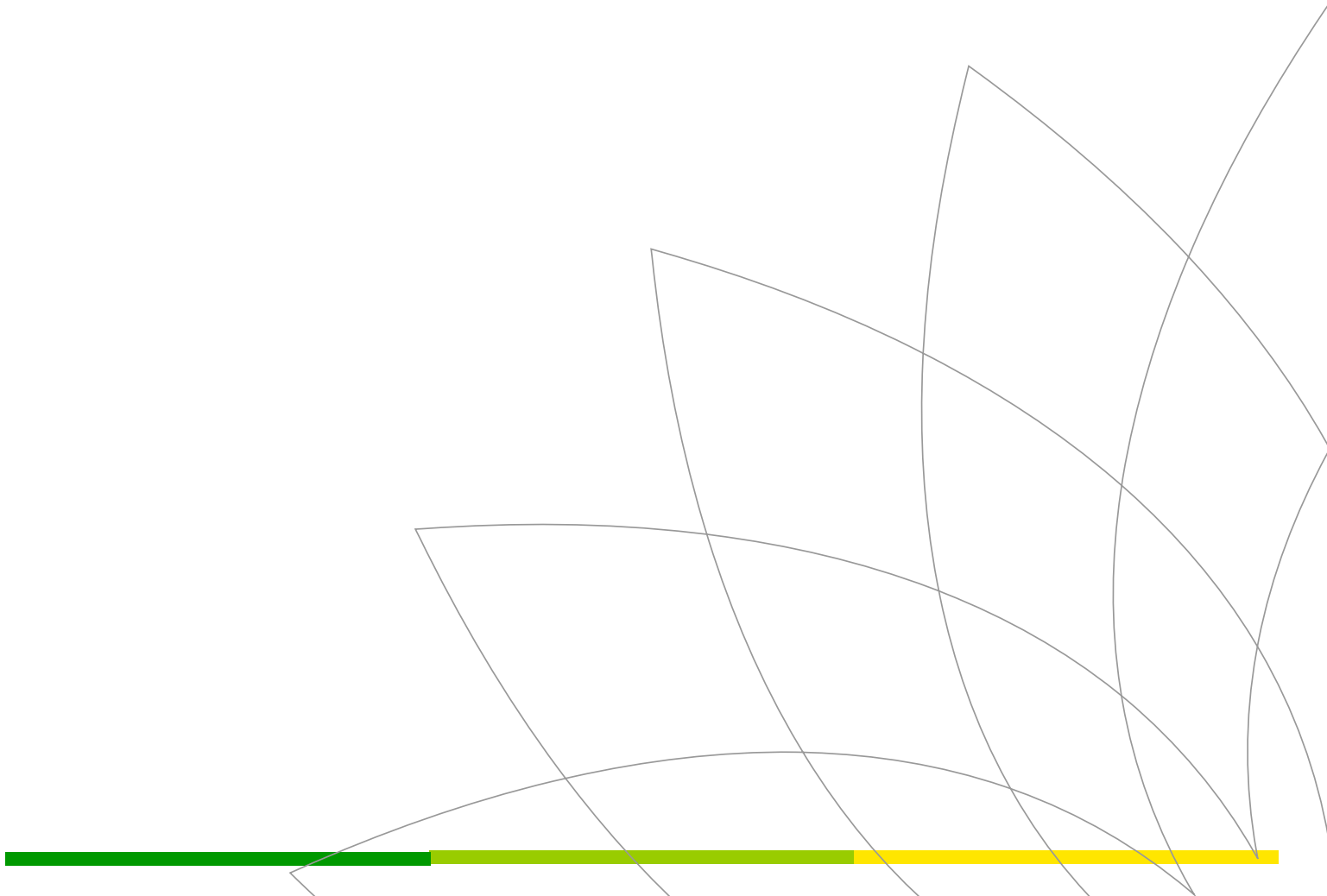


Energy and Climate Policy: Searching for the balance

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Introduction

Thank you, Ambassador for your introduction. I am delighted to be here at CERA Week, and it was great to hear from Executive Secretary Espinosa, just now.

When we look to the future of energy we see a dual challenge.

On one side of the challenge we have the world's growing demand for energy – up by around a third by 2040, according to one of the scenarios in the BP Energy Outlook, with almost all of that demand coming from emerging economies, led by China and India.

On the other side of the challenge, we need to find ways to limit greenhouse gas emissions.

If we assume policies and technologies evolve as we have seen in the recent past, carbon emissions could grow by around 0.4% per year out to 2040.

This is much improved on the 2.5% in the decade up to 2014.

But to keep to a carbon budget in line with the climate goals set out in Paris, emissions need to fall, not grow.

As Confucius is said to have proclaimed: “When it is obvious that the goals cannot be reached, don't adjust the goals, adjust the action steps.”

So how do we meet society's need for more energy with the low carbon future that it increasingly wants?

As Nils Bohr, said: "Prediction is very difficult, especially if it's about the future."

Nevertheless, I believe we should approach the challenge predicting that it can be managed.

As an industry we are experts in dealing with ambiguity and managing change.

Consider the profound change that has already taken place over the past two decades:

Four drivers of recent change

1. We've seen a **shale gale** that has nearly doubled US oil production, while gas has grown by around 20% globally.
2. We have seen a **renewables revolution** that has seen global capacity quadruple (of renewables other than hydropower).
3. We have seen **technological advances** significantly increasing the proportion of oil and gas we can extract from known resources.
4. And **digital technologies** are increasingly transforming what is achievable. BP's base production actually increased in 2017, which is remarkable in an industry that traditionally assumes a base decline of around 5% a year.

So turning to the ambiguities ahead to be managed, let me propose four enablers of the change we all wish to see happen.

Four enablers of future change

1. Consumers

The **first** of these is consumer demand, which is the driving force not just for lower emissions but for better air quality.

That is certainly the case in China, which is pivotal to the future shape of global energy. Premier Li Keqiang has told an annual politics congress of plans to make the skies of China blue again.

And Istanbul provides an example of what is possible. Over a period of 20 years, gas consumption has increased more than five-fold over 20 years, with gas replacing oil and coal in heating. This has cut particulates by half, and sulphur dioxide emissions by 90%.

2. Markets

The power of markets is my **second** enabler.

There is no better example than here in the US, with the Shale Revolution. There are more shale resources in Algeria, Argentina and China than in the US, yet it is here where conditions above the ground have enabled the development of resources below the ground.

3. Technology

The third enabler is technology, which is transforming efficiency and reliability across the industry and bringing costs down at a remarkable rate.

Recently we applied a mathematical model developed with a Californian start-up to optimise production at 180 onshore wells in the US. It led to a 75% cut in venting emissions, a 20% increase in production and a 20% fall in costs.

And in our Lower 48 business over the past three years, planning algorithms, drones and augmented reality software have

- Halved the man-hours needed to keep wells online.
- Halved our expenses.
- Increased production by 20%.

4. Policy

My **fourth** and final enabler is around policy.

In business we are all looking for clarity, simplicity and stability, and in relation to the energy transition specifically, in BP we have long been advocates of carbon pricing.

In our view, it is the most effective policy to limit greenhouse gas emissions as it incentivizes all actors - businesses and consumers - to take action on a wide range of fronts.

For businesses, one of those actions is low carbon innovation – innovation in technologies, business models, markets and new resources including renewables.

Conclusion

One final thought is that it is important when faced with ambiguity and uncertainty to understand what you are aiming for.

As Yogi Berra said, "If you don't know where you are going, you'll end up someplace else."

We know the goal is more energy with fewer emissions.

We may not know today exactly how to get there, but we know it's possible to do so.

Thank you.