



Harvard Kennedy School – facing the energy challenge

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Good evening.

It is always good to be here in Harvard and to be at the Kennedy School.

In few other places will you find so many brilliant people with such a passion for problem-solving. And I speak as a member of the Dean's Council and the parent of a recent student.

So I am here to listen as well as to talk.

Today's topic is 'Facing the energy challenge'.

I am going to address this from the perspective of the two companies that I chair: BP, the energy supplier; and Volvo Group, the manufacturer of commercial trucks, buses and construction equipment.

These companies represent the whole energy chain from what we call "wells to wheels".

Before we start, let me provide some context to my thoughts.

Over the past century the world's economic growth has come in the main from OECD countries, and has benefited around a billion people.

For the current century this will change.

We are already seeing billions of people in the emerging markets starting to benefit from dramatic growth in their countries.

The UN's millennium target of reducing by half the number of people living in extreme poverty has been achieved.

Energy is fundamental to this journey of progress and development and, whether we like it or not, this means that the world will need more energy, not less.

So far the industry has been able to rise to that challenge. For example, in the last 30 years, when oil consumption has grown by more than 40%, more oil has been found than the world has consumed.

However we need to have a realistic and open debate on energy. We need to establish a common ground for discussion. We can't pretend, for example, that climate change is not a serious issue. Neither can we pretend that renewables are the only solution.



In seeking to set out a basis for addressing these issues, I will focus on three questions:

- What is the energy challenge?
- What should be the policy response?
- And what should be the business response?

The energy challenge

The energy challenge has three dimensions: sufficiency, security and sustainability.

Sufficiency is about demand.

BP's projection is that the world's GDP will grow 80% in the next 20 years, and as a result we believe that energy demand will grow some 40% until 2030.

This equates to two times the United States' current energy consumption – in addition to what the world uses today.

95% of that extra demand will come from the emerging markets, led by China and India.

Our figure of 40% more energy is based on likely trends in demand, supply, policy and technology.

It's a projection, not a proposition. It is simply what we believe is most likely to happen.

So the first part of the challenge is to supply enough energy to meet demand.

Second, when we look at demand and supply, there is a mismatch. For example, the US and China each use twice as much oil as they produce; Russia produces three times as much as it uses.

Six countries produce half the world's oil; three countries produce half the world's gas.

It is easy to understand why governments worry about the reliability of supplies.

So the second part of the energy challenge is security.

The third is sustainability.

Put simply, an increase in energy demand of 40% is likely to result in an increase of over 25% in greenhouse gas emissions.

We must find ways to supply energy on the scale required while minimising environmental effects and without depleting critical resources such as water.

So what is the response to this three-dimensional challenge?

Many have a part to play in this, from experts in academia to policy makers and businesses.

The policy response

As I see it, policy-makers provide a framework. Businesses provide goods and services within that framework.

Responsible business leaders want to make companies a force for good. But they also have to compete to survive.



If governments want business to rise to a particular challenge and there is no obvious business case, they need to set conditions to make it happen.

This is not an easy task for policy makers. They must and do think long term – indeed very long term.

However they serve governments who are elected on short-term cycles. This is another mismatch.

Businesses, particularly in the energy industry, also work on long-term cycles, often over decades.

A framework for sufficiency and security

Let us now apply this to energy sufficiency. In order to incentivise companies to produce energy, governments need to promote competition and innovation.

A great example is the shale oil and gas revolution that has led the US to the fastest growth in oil production outside OPEC.

This was encouraged by a policy framework supportive of open competition, market prices and research and development.

The same policy framework of competition and open access encouraged BP to invest in the seismic technology needed to find deep water oil and gas fields.

Those developments have been game-changing for energy security.

US oil production today is the highest for twenty years. Domestic natural gas could last up to 100 years. As a result energy imports have fallen dramatically.

A framework for sustainability

Looking at sustainability, the picture is more complicated.

The market does not always deliver the best outcome for society. But policy can harness market forces positively.

For sustainable energy, two things are critical: saving energy through efficiency; and switching energy to lower carbon sources.

Energy efficiency needs to be addressed in a fundamental way.

In its journey through production, conversion, transmission and final use, the vast majority of energy is lost, mainly as waste heat. Academic studies suggest these losses could be more than 80%.

The potential for efficiency improvements is huge. It would reduce costs and emissions, and tackle sufficiency, security and sustainability.

When it comes to switching energy, governments can and must act in various ways to encourage energy efficiency or low-carbon energy.

It must start with setting a price on carbon and BP's preference is to harness the market:

- through cap and trade systems;
- through regulations, such as the US CAFE standards;
- through targets, such as for biofuels;
- or through direct support, such as tax credits for wind power.



On that last example: in 1998 the US Government projected that the US would have 4 GW of wind capacity by 2020. But policy support encouraged business investment, and this year wind capacity reached over 51 GW, literally off the chart of the forecast.

In deciding how to act, it makes sense to look at where the biggest issues are.

Coal is the world's biggest source of emissions today due to its widespread use in power generation.

Natural gas is the fastest-growing fossil fuel, and it is the cleanest, with half the emissions of conventional coal.

Shifting from coal to natural gas is probably the most important action to reduce emissions in the medium term.

As an example CO₂ emissions in the US last year fell by nearly 2%. Switching to gas in power plants was a clear contributing factor.

Let's turn to transport; here oil is the primary fuel.

Tough emissions targets have been set. In addition, the potential to improve energy efficiency in combustion engines is significant. BP expects it to double in the next 20 years, partly as a result of regulations like CAFE.

Through more efficient vehicles and increased biofuels substitution, oil consumption has now peaked in the OECD world.

But will it continue to grow in emerging markets.

We expect global oil demand to grow 20% to 2030, less than 1% a year.

That said, existing fields globally show a natural decline of some 4% a year, corresponding to half of Saudi Arabia's annual production.

So there is a constant need to use technology to increase yields in existing fields, and to find new reservoirs at new frontiers.

The bottom line is that, in our most likely scenario, fossil fuels will still account for some 80% of the total energy mix in 2030.

Even in the most radical scenario from the International Energy Agency – the so-called 450 scenario – fossil fuels remain the major source of energy.

Non-fossil energy – renewables, nuclear and hydro – is set to grow faster than any single fossil fuel, but from such a low base that in the medium term it cannot turn the dial that much compared with efficiency and switching from coal to gas.

We expect that renewables at best will reach 6-7% of the mix by 2030.

Fossil fuels per se are not incompatible with a healthy planet. It is about the mix; and it is about energy efficiency.



BP's position on this is clear:

- We support action by governments, individually and collectively, to limit emissions;
- We believe the best way to limit emissions is to price carbon on as wide a scale as possible in order to stimulate efficiency and innovation;
- We also support transitional incentives to help emerging low-carbon options become commercial at scale.

The business response

So that is our thinking on policy, but what is our response as businesses?

As an energy industry, we are at an inflection point, with many doors opening at once.

The shale revolution has transformed the US and it is spreading.

In the deepwater, we are finding hydrocarbons at unprecedented pressures and temperatures.

New enhanced oil recovery techniques are giving many depleted reservoirs a second life.

And new possibilities are emerging in low-carbon fuels and energy efficiency, from cellulosic biofuels to new generations of hybrid cars.

The industry is broadening – to provide more energy – and it is also deepening – by working in more specialized areas.

The new super-major

This poses big questions for companies such as BP – so-called “super-majors” – who have operated everywhere from the reservoir to the pump.

The global reach of the super-majors was seen as strength, with the ability to replicate successful projects again and again round the world.

These old certainties no longer apply. The world is changing. We have seen the rise of the National Oil Companies, the NOCs.

These NOCs are becoming more capable, both at home and abroad.

In the early 70s the largest international oil companies produced more than 50% of the world's oil; today's super-majors produce just 10%.

Our role has evolved.

Our view is that in a broader and deeper industry, a super-major can't be super at everything. It needs to make choices.

Where once the super-major was defined by scale the super-major of the future will be defined by quality – deep capability, applied to specific areas of activity.



BP's response

For BP this is a natural progression. We had to develop specialisms to survive after the nationalisations in the 70s.

We developed new skills at the frontiers of the industry, in the deep water and giant fields of the North Sea and the Gulf of Mexico, as well as the Arctic conditions of Alaska.

And then in 2010 we experienced a defining event with the Deepwater Horizon accident.

We deeply regret this incident and the eleven lives that were lost. To date, we have spent nearly \$15 billion in operational response and clean-up costs and more than \$8 billion in claims to individuals, businesses and government entities. And our task is not yet finished.

We also committed ourselves to learning, applying and sharing the lessons we have learned from the accident with industry, government and regulators around the world. We aim to emerge a safer, stronger BP that creates shareholder value in a sustainable way.

We also remain committed to the US and to our role in its energy industry.

But our response is more than just in the development of our skills and specialisms.

We have understood the challenge that I set out earlier. We see the role of the policymakers and the limitations that are placed on them. We see the rise of the NOCs.

Just as our role is changing as a super-major so is the way in which Boards need to operate. Whether I am chairing a Board in Britain or in Sweden, the conversations are the same.

We have seen the challenges from the financial and the banking crisis. We have seen the concerns that have been voiced around the world about the role of companies and indeed the role of business.

I truly believe that business is a force for good in the world, conducted in a way which meets the expectations of shareholders and society at large.

But business needs to build the most valuable asset, which is trust: trust from shareholders that we can create value; as well as from society that we can operate safely now and in the long term.

We need to be responsible to our shareholders, but responsive to the expectations of those with whom we come into contact through our activities.

I have led public corporations for two decades. Again and again I have found that trust is the critical underpinning of all achievements.

Also, Boards operate differently in different jurisdictions. In the UK and US shareholder value is in focus.

In the UK there was a debate about 10 years ago whether Boards were responsible to shareholders only, or to the broader stakeholder community.

The UK came up with the notion of "enlightened shareholder value" as a way to recognise societal concerns. It was in line with the concept of responsibility and responsiveness that I mentioned earlier.

In continental Europe and certainly in Sweden the balance of the interests between companies, government, shareholders and society has been in stronger focus for quite some time.



But whichever system is used, the modern Board of a global company has to work in a way that allows it to do the things that only the Board can do.

Let us be clear: the Board does not manage the company; it governs the company. These are two very different activities.

Boards need to organise themselves so they can govern in a way:

- That makes sure that the company has the right strategy;
- That understands the risks to the company and how they are being mitigated;
- That has oversight of the performance of the Company and the executive team.

And above all that, it has to have the time to understand the challenges facing the company not in the short-term but in the long-term. And it must set the tone from the top which ensures that the company is a good citizen in the societies in which it works.

For companies like BP and Volvo it means understanding the energy challenge and recognising the very real role that those companies can play in working with policy makers and society to develop the right solutions.

Conclusion

So, let me leave you with 6 messages:

- Energy benefits society, and demand will rise with economic growth;
- There is a geographical mismatch between demand and supply that will continue to create geopolitical tension;
- The world will continue to be largely dependent on fossil fuel in the medium term, and we need to go to new frontiers to secure supply;
- We can mitigate the environmental effects from fossil fuels through improved energy efficiency and by switching from coal to gas;
- We must continue research and development for renewables to make sure that we can provide the world with energy solutions also in the longer term;
- Business can be the glue that can tie all of this together, but it must have the trust of society to do so.

Beneath these simple statements lie a host of complex questions.

The policy tools, resources, technologies and investment exist to address the energy challenge. I am optimistic that we can provide energy that is sufficient, secure and sustainable into the future.

I look forward to discussing them now.

So over to you. Thank you.