



Bridges to the future of energy

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Ben van Beurden

Chief Executive Officer of Shell
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Ben van Beurden became Chief Executive Officer (CEO) with effect from January 1, 2014.

Ben joined Shell in 1983, after graduating with a Master's Degree in Chemical Engineering from Delft University of Technology in the Netherlands.

Ben's career in Shell spans both Upstream and Downstream activities. He has held a number of operational and commercial roles, including some 10 years in the LNG business, and a variety of positions in Downstream.

In January 2005, Ben became Vice President, Manufacturing Excellence, based in Houston, USA. In this role he was responsible for standards in operational excellence and high-performance initiatives in refining and chemicals manufacturing.

In December 2006, he was appointed Executive Vice President, Chemicals, based in London, UK.

During his tenure in the role, Ben was appointed to the boards of a number of leading industry associations including the International Council of Chemicals Associations and the European Chemical Industry Council.

From January to September 2013, Ben was Downstream Director and had regional responsibility for Europe and Turkey. He has been a member of the Executive Committee since January 2013.

Ben, a Dutch citizen, is married to Stacey and has three daughters and a son. He enjoys reading, running and travelling with his family.

The world is already undergoing a transition of its energy system and some significant steps have been taken along the path to a low-carbon future. In this speech, Ben van Beurden emphasises the importance of taking a global perspective on the challenge of tackling climate change.

Ladies and gentlemen,

I am delighted to be part of such an eminent panel. And, you know, sharing a stage like this with a Russian, an American and a Saudi, just emphasises for me the truly global nature of the challenges we are discussing.

And to be together in Istanbul, a city straddled across two continents, a city that has, for centuries, witnessed the free flow of ideas, culture and history between East and West, feels very appropriate.

What better place could there be to discuss a huge, global challenge like the future of energy?

This future has to mean a world in which higher energy demand from a growing population is met at the same time as reducing greenhouse gas emissions.

Opportunity

This is a great opportunity for the world. There have already been huge advances in efficiency, through digitalisation and in the field of renewables. With wind and solar, costs have come down fast and are predicted to fall further.

All of this is good news for the world and must accelerate. All this change also offers many opportunities for energy companies.

Take Turkey, for example, a country in which Shell has a proud 94-year history of operations. Here we find a country moving to meet its Paris commitment – a 21% reduction in greenhouse gas emissions – with a government strategy of renewable hydro, solar and wind power, combined with an expansion in the country's capacity for liquefied natural gas with its lower emissions profile compared to coal. In 2015 Turkey's LNG capacity was 34 million cubic metres. It was 64 million cubic

metres at the dawn of 2017 and will be 107 million six months from now.

This is just part of the change taking place in one country, and change on this scale does not just happen on its own. It takes vast effort, investment and collaboration. That is why the energy transition we are seeing take shape is also a challenge for the world. It is a complex task and there is no simple solution.

A quick look at the UN's population projections tell a compelling story of complexity and evolving energy demand.

Today we have around 7.5 billion people on the planet and by 2100 we can expect about 11.2 billion. But then consider where these people will be, where the energy demand is going to emerge. It is in areas where we can expect to see living standards rising... because as people make their lives better they consume more energy, with a first lightbulb, a first fridge, a first car.

The population in Asia is predicted to rise 750 million by the middle of the century, with its energy demand increasing by around half. By 2100 it will fall back to 280 million higher than today.

But more than anything, this is a story about Africa. We can expect 3.6 billion extra people to be living on this planet by the end of the century and 3.2 billion of them will be in Africa, the vast majority in sub-Saharan Africa.

Half of the world's population growth will be concentrated in nine countries: India, Nigeria, the DRC, Pakistan, Ethiopia, Tanzania, the US, Uganda and Indonesia.

Perspective

This session today is a discussion about shaping the future of energy. Yet when I think about projections like this it makes me

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feel that perspectives about the energy transition are sometimes mis-shapen.

Often – too often – energy transition is considered from the perspective of the European or the North American. And it is true, that these areas of the world have a historical responsibility for the greenhouse gases in our atmosphere which translates into a responsibility to act today.

But, demographic realities alone mean that it is not enough to consider these areas. If Norway, or Germany, or California were to switch entirely to battery electric cars that would be progress. But nobody should believe it would be progress enough.

What happens in England is important, but what happens in Ethiopia is at least as important. From Denmark to the DRC, from the US to Uganda, to India, to China, there is a lot of work to do.

Bridges

This World Petroleum Congress has been assembled under the theme of “Bridges to our Energy Future”. Bridges must be solid and reliable if they are to do their job of getting us to where we want to be.

I note that there is now a stunning third bridge crossing the Bosphorous Strait, so let me offer up three solid, reliable “bridges” that I think can help the world to reach the energy future it needs.

First, the bridge of perception.

The energy transition is regularly portrayed in terms that compare it to a revolution – a moment in time when everything changes. In truth, different countries and different sectors will advance at different speeds. In truth, we are not talking about a moment in time, but of change that will take place over generations.

A country in Europe, for example, will have to renew and evolve its infrastructure to be much cleaner and achieve great efficiencies – to bring down the amount of energy used per capita and to cut the emissions associated with that consumption.

A country in another part of the world which starts with minimal infrastructure, limited financial resources and a rapidly growing population will have an entirely different task.

When you consider the areas of the world where energy demand is still to expand, like Asia and sub-Saharan Africa, there is a huge opportunity here. These are areas that are not, on the whole, locked in to a coal-driven system. There is the potential for them to shift more directly onto a less energy-intensive pathway to development.

Even so, these growing countries will still require hydrocarbons to develop their industries. Not least because there are some sectors of the economy that are just not yet able to achieve zero carbon.

The industrial sector emits as much CO₂ as the power sector, but much of it cannot just switch to electricity. Light industry? Yes. But there are no easy replacements yet for hydrocarbons that can provide the intensity of heat required for heavy industry like steel, cement and many chemical processes. The basic chemical reactions involved in making steel and cement also create CO₂.

So, there is not one, single energy transition underway, but many, all running alongside each other. These are happening right now, but they will take many decades to play out.

That is the bridge of perception.

Solutions

Next, there is the bridge of solutions.

Different challenges throughout this energy transition will require different solutions. There is no one, single answer to all these challenges, and that means there will be many winners.

Take transport, for example. In some parts of the world we are beginning to see battery electric cars starting to gain consumer acceptance. This has to happen as part of society’s push to decarbonise. But the weight and capacity limits of batteries still mean there is no immediate zero-carbon solution for air travel, for shipping and for heavy freight.

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So the world will need hydrogen fuel cell vehicles, it will need liquefied natural gas as a transport fuel... and it will need the next generation of sustainable biofuels.

Different challenges, different solutions.

The same can be said for power generation.

Wind and solar are contributing more and more to the global energy system and this must also happen if the world is to decarbonise. But the intermittency of renewables – both day by day and also season by season – means there will be a long-term role for natural gas power generation. New energy storage technologies will, in time, help the intermittency issue, but they do not exist yet.

Investment

Creating the investment landscape in which all these different solutions, and many more too, can be developed and deployed at scale is one of the great challenges for the world.

With so many different solutions needed it should not be about picking “winners”. Instead, the market should be incentivised and enabled to act in the way that it should: creating customer-focused products through the pure heat of commercial competition.

Some of that will involve well-targeted regulation to mandate things such as efficiency improvements. Part of it will mean consumer incentives to pull people into new habits and behaviours. Other initiatives, like that of the Taskforce on Climate-related Financial Disclosures, can play their part. Shell signed up to that two weeks ago.

And there is also a role for government-led carbon pricing mechanisms such as the cost neutral system proposed by the Carbon Pricing Leadership Coalition, and supported by Shell. Such mechanisms have the effect, over time, of pulling both consumers and industry towards low-carbon products.

Such carbon pricing could also make progress possible in other areas that are essential to a successful transition. Not least

among these would be carbon capture and storage facilities. Until there is a market for carbon the economic justification for such facilities is hard to make.

Yet this is a technology which is ready to deploy today and which the UN’s Intergovernmental Panel on Climate Change believes is necessary if the world is to achieve its climate goals.

With the right investment context, there is much commercial opportunity in this world of many solutions. Shell is determined to find solutions and will be spending up to \$1 billion a year on our New Energies division by the end of the decade.

So, different sectors and different countries mean different speeds. Different challenges mean different solutions. That is a lot of difference. It is a lot of complexity.

And that brings me to the third bridge: the bridge of commitment.

Because, even as the world moves forward with different solutions and at different speeds, it must commit to moving in one direction.

Unity

We have one planet and, for good or ill, a shared destination. The agreement reached in Paris shows that there is a global desire to make sure that our destination is one that ends with a healthy planet, a world in which warming has been restricted to under 2C.

The agreement reached a few months earlier in New York on the UN’s Sustainable Development Goals also demonstrates a global desire for that destination to be a place in which the people of this planet have a better life.

It would be a good destination to reach. The world must continue to work together to get there.

To do so will require the global perspective embodied in this wonderful city of Istanbul. With that perspective, the world can hope to shape the future of energy in the right way for the planet.

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And not by grasping for a simple solution,
but by engaging in a transition involving
many journeys, taken along many paths at
many different speeds.

But if the world can work to ensure that all
paths can lead to the same place, then we
can get to where it need to be.

Thank you.

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