



Growing Gas Together

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

He 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, he 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, he 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 and has three daughters and a son.

However well-documented the benefits of natural gas may be, a golden age of gas is not a given. The natural gas industry, argues Ben van Beurden, will have to work hard to achieve it. Especially since governments continue to promote the use of coal to power electricity in many countries. Along with investments, at least three things are crucial to a sustainable energy future: fewer emissions from the energy system, better energy and environmental policies, and lower costs of gas developments. The industry should work towards these goals collectively.

Ladies and gentlemen,

The benefits of natural gas are well-documented.

It is flexible. Its supply is abundant and diverse. Its range of uses is still expanding. It is a low-carbon, clean-burning ally to renewables such as solar and wind. And it makes economic sense.

Gas plants are cheaper to build and quicker to build than coal plants. And gas-fired power becomes even more attractive when you take the costs of tackling climate change and air pollution into account. The quicker the world turns from coal to gas and renewables, the lower these costs will be.

But, however well-documented its benefits may be, a golden age of gas is not a given. We will have to work hard together to achieve it. Especially since governments continue to promote the use of coal to power electricity in many countries.

Along with investment, at least three things are crucial for a sustainable energy future.

Firstly, fewer emissions from the energy system – including gas. Secondly, better energy and environmental policies. And thirdly, driving down costs of gas developments.

1. Fewer emissions

Let me start with emissions.

One of the world's toughest challenges is meeting greater long-term demand for energy. According to the International Energy Agency, IEA, demand is expected to be 37% higher in 2040.

Population growth, economic development and the need to provide access to modern energy to more people – these are critical factors in bolstering demand. But this is only one part of the picture.

Another big part of the picture is the role our sector can play in building a sustainable energy future... if we reduce the impact of energy production and use on the environment.

Reducing emissions from power generation should be a priority.

Critical is a shift from coal to gas. When burnt for power, gas produces around half the CO₂ and one-tenth of the air pollutants that coal does. A switch saves lives today and ensures a sustainable energy system tomorrow.

And, as I said, natural gas is also flexible. A gas-fired plant takes less time to start and stop than a coal-fired plant. This makes gas an ideal partner to intermittent energy sources like wind and solar.

Renewables are crucial to the future of the energy system. But they still depend on flexible back-up when the wind doesn't blow or the sun doesn't shine.

Pairing gas-fired power with renewables will be the fastest and cheapest route for many countries to lower emissions while maintaining a reliable energy system.

The impact of coal-to-gas switching is clear, for example, in the US. There, replacing gas with coal in power generation – mainly as a result of shale gas developments – has tempered the growth of greenhouse gas emissions in the power sector.

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Still, in order to make natural gas as attractive as possible, our industry should continue to lower the carbon intensity of the supply chain. From production, processing and transport, to distribution and end use.

Promoting carbon capture and storage... CCS... is one way of doing that; reducing methane emissions is another. Shell acknowledges the importance of these challenges, and we take our responsibility seriously.

In Canada, for example, we're helping to develop a large-scale CCS project called Quest – which is expected to come on-stream in the coming months. Shell also has research partnerships with leading academic institutes, for instance in Norway.

Many initiatives to reduce methane emissions are already in place at Shell, such as leak detection and repair ... energy-efficiency measures ... flare-reduction programmes... and venting-reduction programmes.

And we will continue to focus on further reducing emissions. Shell has recently signed up to the World Bank's initiative to end routine flaring by 2030.

2. Better policies

As I said, ladies and gentlemen, making more use of gas is crucial to safeguarding the environment while meeting the world's energy needs. If gas is to realise its full potential, however, the right policies and regulatory structures are needed.

There are some encouraging signs. China, for example, has special tariffs for gas-fired generation and is setting up emissions trading systems in six provinces. But globally we're still a long way from having the right policies and structures in place.

Key gas and LNG markets have, for example, failed to create carbon pricing systems that lead to a switch from coal to gas in power generation. Such a switch would seriously support a reduction in emissions.

In Europe, gas-fired power-plants have been mothballed or decommissioned over the last few years. Why? Well, a large amount of subsidised renewables has entered the energy system. And, from a short-term financial perspective, coal-fired power has been cheaper than gas.

But a short-term financial perspective doesn't tell the whole story. The emergence of a coal-plus-renewables energy system could see emissions in countries like Germany either reducing too slowly or even going up.

As a result, the long-term costs of tackling climate change and air pollution will grow. It's like the approach of a car salesman: buy now, pay later – with huge interest. Hopefully, the welcome reform of the EU's Emissions Trading System will change things for the better.

Without good policies, a coal-plus-renewables system could also emerge in North-east Asia. Take Japan. Here, we see an energy market liberalisation.

We also see generous subsidies for renewables, the removal of regulatory obstacles to coal-fired plants, and uncertainty about the future of nuclear power after Fukushima. This, and the lack of a carbon pricing mechanism, sets the stage for a coal-plus-renewables future.

These developments in two major gas and LNG markets... Europe and North-east Asia... again show us that we cannot take it for granted that gas will play an important role in tomorrow's world.

So what to do, ladies and gentlemen? At the end of 2015, the UN's Climate Change Conference, COP21, will be held here in Paris. Let's take the chance it offers to engage with governments to discuss the policy instruments they will use to reduce emissions in a cost-efficient way.

Yesterday, Shell announced a joint call to governments together with BG Group, BP, Eni, Statoil and Total. We need governments to provide clear, stable, long-

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term, global policy frameworks for a transition to a low-carbon economy.

This would reduce uncertainty and help us to invest in the right low-carbon technologies and the right resources at the right pace.

The six companies think that an effective price on carbon should be at the centre of these frameworks. If governments act to make industrial users pay for carbon, this discourages the use of coal and other high-carbon options. It also encourages the most efficient ways of reducing emissions widely.

I urge governments and the UN – at COP21 and beyond – to introduce well-implemented carbon-pricing systems where they do not yet exist at the national or regional levels. And I urge them to create an international framework that could eventually connect the national systems.

Policies, by the way, are also important with regard to opening up new markets for natural gas. It seems that our industry has been more successful at creating new supply than creating new demand. This raises a few challenging questions.

How can we encourage governments in opening up to LNG?

How do we seize the opportunities that local markets in countries rich in gas resources have to offer?

How can we ... along with innovating in liquefaction as an industry ... encourage governments to adopt policies that will enable the greater use of LNG as a cleaner transport fuel for ships and heavy-duty trucks?

In short, how to make sure that natural gas plays the critical role it deserves in giving more people access to energy.

3. Lower costs

The title of this session, ladies and gentlemen, is “natural gas as a core pillar for a sustainable future of the planet”.

Environmental and social sustainability clearly also requires economic sustainability. It is of course true that effective carbon-pricing systems would level the playing field for natural gas. A downside, however, is that overall energy costs could increase. As a result, it is possible that economic growth in emerging economies will slow down.

Eventually, this would be bad news for everybody – including our sector. So cost will be critical in making natural gas a natural choice for as many countries as possible.

And frankly, the cost trends our industry has experienced over the last two decades are unsustainable. So as an industry we need to get better at driving down capital costs.

The most important focus areas are design, engineering and construction. Gas plants got more expensive largely because we make them more complex ... because we take more time to engineer them ... and because we face lower productivity when we build them.

So the core challenge is driving down cost inflation in design, construction and engineering. This won't be easy, but it's not impossible. Standardisation and supply chain integration are key factors.

Shell is stepping up its game in this field.

For example, we're working to create an Integrated Engineering Environment. This is called Project Vantage.

We expect key savings in design and engineering to come from the single-source availability of up-to-date design information ... semi-automated data validation ... and consistency checking across disciplines, locations and contractors.

Another example is Shell's floating LNG project Prelude.

Prelude is the world's largest floating offshore facility. It will be used to help open

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up new natural gas fields at sea that in the past would have been considered too costly or difficult to develop.

We are well into the construction phase of this pioneering project. We've taken the learnings from this and applied them to potential projects for the future.

We now have a standardised design. And we can add different pre-designed topside modules and offloading systems, depending on the composition and location of the gas reservoir.

Working with our strategic suppliers on topics like replication, standardisation and scope rationalisation, the Prelude project led to spin-offs like FLNG Lean.

In locations where liquid production ... resulting in condensate and LPG... is expected to be low, FLNG Lean facilities are designed to process additional gas and produce more LNG instead. We expect it to be very cost-competitive for larger, lean gas fields.

These examples show that Shell is playing its part in lowering costs. But there's a long way to go – both for Shell and the industry.

The key point, in my view, is the need to drive down cost inflation in design, construction and engineering.

Conclusion

Ladies and gentlemen – judging from Shell's energy scenarios and the IEA's most recent outlook, the demand for gas will continue to grow at rates above 2% a year. And LNG will continue to increase its share of the gas business.

But we cannot sit back and relax. At least three things are crucial for meeting the world's energy needs while safeguarding the environment.

Fewer emissions. Better policies. Lower costs.

Let's work towards these goals collectively. Working together offers us the best chance of firmly establishing gas as a core pillar of a sustainable energy future. Let's grow gas together.

Thank you.

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