



# **Collaborating towards a Lower-Carbon Future**

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Harry Brekelmans became Projects & Technology Director and a member of the Executive Committee of Royal Dutch Shell plc on October 1, 2014.

He joined Shell after graduating in 1990 with a degree in Petroleum Engineering from Delft Technical University in the Netherlands. He began his career in the research and development department of Shell's Exploration & Production (E&P) business in the Netherlands, followed by a variety of assignments in Egypt and the UK.

Harry was appointed Internal Audit Manager for Shell E&P Europe in 2003. In 2005, he became Global Audit Manager for both the E&P and Gas & Power businesses. From 2007, he was Chief Executive Officer of Salym Petroleum Development, a Shell joint venture in Russia. In September 2009, he became Executive Vice President (EVP) for Shell Group Strategy & Planning. In mid-2011, he returned to Russia as Country Chairman and EVP for Russia and the Caspian region. He moved back to his native city, The Hague, the Netherlands, in early 2013 to take up a new role as EVP for Upstream International Operated.

Harry is a member of the executive committee of the World Business Council for Sustainable Development and a board member of the Global Leadership and Technology Exchange. Both organisations seek to connect business, government and civil society in seeking more efficient, low-carbon growth.

Harry is married to Petra and they have two children. The family enjoy travelling and sports, especially tennis and running.

## Reaching the goals in the Paris Climate Agreement is only possible when society, markets and governments work together. Harry Brekelmans on what governments and companies like Shell can do to help the world reach the goals of Paris.

Ladies and gentlemen,

The Paris Agreement has sent a signal around the world... the time to act on climate change is right now. The Ministerial on Climate Action that concluded today amplifies this signal. The world needs to keep the global average temperature increase well below 2 degrees Celsius. But how can the people of the world do this?

Shell's latest scenario, called Sky, considers the mutually-reinforcing actions that society, markets and governments need to take to reach the goals of the Paris Agreement, which Shell fully supports. Sky is not a forecast, or a plausible route, nor is it a policy proposal. In fact, the Sky scenario, at this time, isn't even likely, it is a technically possible way towards meeting the goal of the Paris Agreement. It offers a description of what actions society might take.

These actions involve... a tripling of energy efficiency... an end to deforestation... and substantial technological advances to solve challenges like large-scale battery storage. Sky also relies on government-led carbon pricing mechanisms, like the EU Emissions Trading Scheme and the scheme being developed in China. These point consumers and businesses in the direction of lower-carbon solutions. Under Sky, every new passenger car could be electric by 2050... and the five-fold growth in electricity demand by 2070 could be met largely by renewables.

But some parts of the economy cannot be electrified, or at least not easily or affordably. Like heavy transport by air or sea and the production of iron, steel, cement, plastics and chemicals. The carbon emissions that inevitably remain from these sectors could be dealt with through solutions like carbon capture and storage and natural offsetting measures like new forests.

It is a lot of work to do... and that is just part of it... but the world can succeed if it wants to. Provided we work together. And this

brings me to this room. It brings me to us. We all have a role to play.

### What can governments do?

Before I talk about what companies like Shell can do, let us consider how governments can help. To start, governments can help by making sure that the Paris Climate Agreement works effectively. This means that this December, at the global climate summit in Katowice, Poland, the participating countries need to complete the Paris rulebook. The EU and China, the two most influential forces in support of Paris and focus for this evening's discussion, will play a crucial role in making this happen. This rulebook must enable countries to compare and verify emission cuts and other efforts to reduce greenhouse gases. And the rulebook can help to put an effective price on CO2 emissions by governments establishing clear rules on how carbon credits are granted, traded and accounted for.

This brings me to the second way governments can help to reach the goals in the Paris Agreement: by providing strong market signals. There have already been promising developments in this regard. For example, recent reforms to the EU Emissions Trading System – which Commissioner Arias Canete and his teams helped to introduce last year – have made a positive impact. The European carbon price has already trebled since last year. It stands at around 15 euros per tonne of CO2 right now. Many think this is still not high enough to stop emissions on a big enough scale, nor to encourage the right amount of innovation. But there is hope. Analysts forecast that the reforms will result in an average price per tonne of 25 euros in the next decade.

However, the effect of such a government-led carbon price can be diminished by other governmental policies. For example, by subsidies that coal plants receive for providing electricity that is used as back-up when renewables cannot produce enough power. Policies should reinforce and complement each other. This is why many believe the EU should implement the Commission's proposed emissions performance standard for the power

**"The European carbon price has already trebled since last year."**

sector, represented by the 550g CO<sub>2</sub>/kWh limit, as soon as possible. And no later than 2025.

Lastly, governments can be of huge help by encouraging innovation and incentivising companies to scale-up their cleaner energy products and services. That is what the Chinese government has done, and now: 40% of all wind turbines in the world are produced in China... one in every two electric cars in the world is in China... China produces 55% of global lithium-ion batteries.

The EU has plans for an EU Innovation Fund to demonstrate innovative low carbon technologies. This includes carbon capture and storage – or CCS. If introduced effectively, and at today's prices, this EU scheme could be worth some €6 billion in the 2020s. This could mean a big boost for Europe's ability to deliver CCS. According to the International Energy Agency, CCS is a vital technology if the world is to meet the Paris climate goals.

### What can companies do?

So, governments are of crucial importance to reach the goals in the Paris Climate Agreement. But governments cannot do it alone. That brings me to companies like Shell. How can we help in the transition to a lower-carbon future?

Shell is already active, and we are planning to do a whole lot more. Shell will aim to bring down the net carbon footprint of our energy products by around half by 2050. In other words, about 50% fewer greenhouse gases per unit of energy when used by our customers, and around 20% less by 2035. This covers not just emissions from our own plants and sites but also those produced by our customers when they use the energy products we sell. No other company in our sector has pledged to do this.

We will achieve this in a number of ways. By continuing to grow the role of natural gas as a partner to renewables. Because natural gas emits between 45% and 55% lower greenhouse gas emissions than coal when used to generate electricity... and less than one-tenth of the air pollutants.

Our New Energies business is also important to lower emissions of the energy products we sell. It focuses on new fuels and the power market. That includes producing solar and wind power, and trading and selling electricity to business and homes. We expect our investment in New Energies to be between \$1 and \$2 billion on average a year until the end of the decade. Take hydrogen, for example. As a transport fuel it produces no emissions, other than water vapor. In Germany, we are one of the partners in a joint venture aiming to set up a network of 400 hydrogen filling stations by 2023. Shell is also co-founder of the Hydrogen Council. This is a group of energy and car companies that wants to invest 10 billion euros in hydrogen over the next five years.

And, even outside New Energies, Shell is seeking to develop other new technologies. In Austria, for example, it is participating in a project with the Technical University of Vienna and others to implement a low-cost carbon-capture process at a biomass power plant. And looking further into the future, Shell is supporting scientific research into new modes of chemical production with academic institutes in China and the Netherlands. The starting point for this research is the view that CO<sub>2</sub> is not a waste product at the end of a chemical process, but a necessary input at the beginning. It could take years, perhaps decades, before these chemical-production techniques are perfected...but they offer tantalising opportunities.

The last way companies like Shell can help in the transition to a lower-carbon future, is by continuing to promote effective climate policies. Like our support here in the European Union for a well-functioning Emissions Trading System... innovation support for low carbon technologies... and sustainable and renewable transport solutions.

Ladies and gentlemen,

To conclude... As the Sky scenario shows, the world can meet the goals of the Paris climate agreement, but an awful lot still needs to be accomplished. It is encouraging that China and the EU have already shown leadership to meet these goals. The time to build on those efforts, with negotiations on the Paris rulebook just around the corner, is right now. We... all

**“Governments can be of huge help by encouraging innovation and incentivising companies to scale-up their cleaner energy products and services”**

of us... Shell included... have to work together. And if governments can work together... to create the landscape the world needs to succeed... a clear, defined, well-signposted landscape which both consumers and businesses find easy to read and

navigate... then we have a chance of getting to where we all want to be.

Thank you.

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