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With energy prices in a downward cycle and upstream economics grim, IOCs are increasingly under pressure to streamline and innovate. Gas Strategies discussed the challenging business environment with Shell's Neil Gilmour, who drew on decades of experience to provide an overview of Shell's upstream operations and the future role of gas in meeting global energy challenges. Gilmour also discussed LNG industry trends, potential centres of demand and the evolution of the energy industry in light of a possible global agreement on carbon emissions.

How would you describe your role at Shell?

I'm the vice president of development for the integrated gas business, which is the part of Shell's upstream business that basically takes gas from a rock and converts it into something else – freezes it or turns it into liquid products and then we sell it into markets.

I look after new integrated projects through the pre-FEED and into FEED stage. My colleagues in the execution organisation then take those on and build them.

I'm also in charge of the innovation programme for LNG, floating LNG and gas-to-liquids, hydrocarbon maturation and reserves booking for integrated gas, and commercial and stakeholder innovation.

What are the main challenges facing the industry?

I would say the two C's: cost and carbon.

Cost – how do we deliver gas that is plentiful? I'm a geologist and one of the great things about being a geologist in 2015 is that the world has a lot of gas – more than we would have thought 10-15 years ago. But how can we deliver that gas into markets that need energy at an affordable cost?

And the other – carbon – is how we transition to a low-carbon energy system. That's a transition that starts now. [Shell CEO] Ben van Beurden has been talking about that. It's one of our defining issues.

On the cost side, do you foresee high volatility in LNG prices over the next two to three years?

After almost 30 years in this business, I'm none the wiser. I don't like spending my money on steel or concrete, or large teams or complexity that I don't need.

For the first 40 years of the LNG industry we relentlessly got better at what we did. Project schedules got shorter, teams got smaller, trains got bigger and more efficient, the market developed and we did a great job of bringing more gas through.
I think that those fundamental characteristics are the ones that we need to have now.

**Is it true that Shell is pushing for standardisation of design?**

That depends. There are lots of cases where standardisation is the right way to go. But there are also moments when you get a leap in terms of a technology step, which changes everything.

I remember a ‘eureka’ conversation when a man ran into my office and showed me a well with a 90-degree bend in it. It was the first horizontal well we'd ever seen.

Or the first 3D time slice, or the first tension leg platform or the first fracked well. You have those moments when something really profound happens.

In all those cases, what happened was that we got access to more resources at a lower cost, higher value, and typically in sync with what governments and partners wanted. That's the trinity you need.

**What do you think will be the next game-changing technology?**

We're doing amazing things in the upstream and deep water. We're doing big LNG things – floating LNG like Prelude – and we're doing things at the molecular scale with catalysts.

With gas-to-liquids, we've got people in white coats literally scanning with electron microscopes. I like operating across these different scales.

The great thing about technology is not the development, but the implementation. It's really all about asking: “Can we get these brilliant ideas implemented and actually do something customers and stakeholders really value?”

It's not about intellectual property or the incredible pile of documents that we've made. It's really about the impact.

In gas-to-liquids, we've had amazing history. It started in the lab in Amsterdam, leading to our first commercial plant in Malaysia and ends up in Qatar with the world's largest GTL plant, and the conveyor belt keeps running. We're still innovating in the lab for catalysts.

**What is Shell’s view on a global agreement on emissions?**

Our CEO gave a great talk at the World Gas Conference that talked about the scale of the challenge. You don't want to emit carbon unnecessarily.

I think the 50% emissions gap between coal and gas is immensely important. There should be a step-change in the use of gas versus coal globally, but people are not going to do that for romantic reasons.

If coal is materially cheaper than gas, gas is disadvantaged. We need to get more gas into the mix. We also need to work in alongside a growing renewables
industry, because gas and renewables are very complementary to each other: gas can provide the electricity base load as efforts continue to improve the storage of electricity produced by intermittent solar and wind.

**Can gas really thrive as a companion to renewables?**

I don't see why not. Some people from the wind and solar industry may be looking at us somewhat ambivalently, but I think gas and renewables are entirely complementary – gas as both a backup for renewables and for supplying a lot of energy.

There are 3 billion people today who don't have reliable access to electricity. I was back home in Scotland recently, and if I think of having to say, “Mum, you won't get electricity at night” or “You can't keep the fridge running”, that is really intolerable.

There are 3 billion of our fellow human beings who don't have that right today. So I think renewables, which will grow from a small base, together with gas, is a fantastic combination.

**Which country will be first to successfully couple renewables and gas – Germany?**

Someone was talking the other day about Adam Smith, who wrote about the ‘invisible hand’ [the balancing forces of supply and demand]. I tend to have faith in that. A level playing field in terms of regulation and encouraging competition, and sensible tax treatment is right.

We certainly believe that carbon should have a cost and we detailed our view on carbon pricing in a letter to the UNFCCC executive secretary and COP21 president. We always work through governments. It's a mixture of policy and innovation and as I say, the ‘invisible hand’ is probably pretty helpful in that.

**What is Shell's best-case scenario for the global gas market in the next five years?**

We need to make sure that we get discovered resources developed and delivered in a cost-competitive fashion. My boss talks about Shell being the safest place on earth to work. That means that all staff and contractors turn up every day and go home every day completely safe.

I came to integrated gas in 2009. In Malaysia, in Sakhalin, in Qatar, we build and extend relationships that are decades long.

The potential for gas demand growth is there. If we deliver gas and LNG reliably and at a competitive cost there will be demand.

We've got great colleagues in market development, including LNG for transport and some more unorthodox uses for gas. It would be great if they pulled through the supply that our teams are working on.
On the flipside, what’s the worst-case scenario?

In 30 years, I don't know how many cycles I've gone through in terms of commodity prices – a whole bunch.

A lot of people have kind of apocalyptic views of what's happening. I know this [cycle] is different from previous challenges, but this industry has a brilliant record at responding.

Look at what American shale producers are doing today. They are amazingly flexible. Look at the US exporters, as well. We will get creative responses to this environment.

Do you see small-scale LNG playing a major role in the global gas industry as a bunker fuel or otherwise in the next ten years?

It shows great promise. The issue you have to overcome is not like putting a man on Mars, or some insurmountable technical issue. You've just got to have a combination of customers who will adopt it, either by switching or starting with LNG as a base – both in terms of safety and cost.

I think the scope is really substantial, especially in the marine industry. But early adopters are always going to need a little bit of courage. And if you look at road transport in China, they've gone a long way already with small-scale LNG plants and then using LNG in heavy transport.

The future will be really interesting. The defining issue isn't going to be how to make a little gas tank and keep it cold. We know how to do that perfectly well.

Some say small-scale LNG faces a chicken-and-egg dilemma. Does Shell have plans to invest in it, or must that come from individual states?

I go back to my Adam Smith point. You need to create the right circumstances. There are these moments... if you're the first company that has fracked a well, you then want contractors to work with you. But the contractors have a dilemma: partner up with this company? Or is this a one-off? What's the scope for this thing?

You really have to convince the customers and suppliers that it is going to work.

And you can certainly talk to Chinese truck drivers today and they'll tell you that they're very happy they've made the switch.
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