



Securing the promise of natural gas

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Jeroen van der Veer is Chairman of the Committee of Managing Directors of the Royal Dutch/Shell Group of Companies and President of Royal Dutch Petroleum Company. He has been a Group managing director since 1997.

As a managing director he is responsible for Finance; Human Resources; International Directorate; Legal; and Strategic Planning, Sustainable Development and External Affairs. He also has regional responsibilities for the United States, Canada, the Middle East, Russia and South Asia.

He joined the Group in 1971 and worked in manufacturing and marketing in the Netherlands, Curaçao and the United Kingdom. In 1984, he returned to Shell Nederland as manager of Corporate Planning, and then of Pernis Refinery. After an assignment in Shell International, looking after Africa and Canada, he became a managing director of Shell Nederland in 1992. Four years later he became president and chief executive of the Shell Chemical Company in the United States.

He is a non-executive director of Unilever, serving as a member of the Nomination and Remuneration Committees.

He was born in Utrecht in the Netherlands. He has two degrees – one in mechanical engineering from Delft University and another in economics from Rotterdam University. He is married and has three daughters.

The world requires growing supplies of natural gas to meet expanding energy needs securely and sustainably. This will depend on a rapid increase in the scale and scope of the international gas trade. Reserves are abundant and the industry is cutting costs across the delivery chain. But this expansion will present great challenges for companies and governments, and will drive fundamental changes in an increasingly complex and demanding business. Resource holders and investors will continue to require long-term sales and secure market frameworks to justify costly and difficult projects. The companies that drive this expansion must be financially strong and have wide capabilities – including a commitment to meeting environmental and social responsibilities.

I am proud to have this opportunity of addressing such a distinguished audience on how to secure the promise of natural gas – perhaps the most important energy question.

In the short time available I will discuss

- the potential for growth in long-distance gas supplies,
- the challenges this presents,
- and the responses it requires.

Building on simple principles

We have good reasons to appreciate that promise here in the Netherlands.

Gas has been fundamental to the development of our economy since the discovery of the giant Groningen field in 1959. We produce over a fifth of Western Europe's gas – and rely on it for more of our energy than any other industrialised economy. A third of our production is exported.

The Dutch gas industry has a record of success:

- rapidly developing the production and distribution infrastructure,
- finding smaller fields to maintain reserves,
- setting high environmental standards,
- meeting the needs of our customers.

Speaking for Shell, we are committed to keep on developing the country's reserves – so they last for another 40 years.

In my view this success has a lot to do with the principles that have

governed the industry's operations since the 1960s:

- that gas should be developed for the long-term benefit of Dutch society,
- by harnessing the capabilities of the international industry,
- through a clear, consistent and commercial framework.

Jan de Pous – then Minister of Economic Affairs – is said to have written the memorandum laying this out over a weekend. Perhaps that contributed to its clarity and simplicity.

I believe such principles remain the foundation for securing the sustained expansion in gas supplies the world needs.

Expanding needs

The main driver of this expansion is the economic and environmental attractiveness of gas for power generation. There is also great potential to expand industrial and commercial use in developing markets.

Gas is vital for tackling polluted air and global warming. Diversifying supplies enhances energy security.

Reserves are abundant, despite limited exploration for gas so far. As well as the potential to find more conventional gas, there are also significant unconventional resources.

And the industry continues to drive down costs – across the gas delivery chain.

In Shell, we think there is the potential for gas consumption to grow

“Gas is vital for tackling polluted air and global warming. Diversifying supplies enhances energy security.”

by well over 3% a year over the next quarter of a century. But we're under no illusion that this is inevitable (figure 1).

Expanding the scale and scope of gas supplies presents challenges for all involved. Much more gas will have to be delivered across borders and over longer distances.

Both the United States and Western Europe will become increasingly dependent on imports as their indigenous resources are depleted. Meanwhile economic development is creating major new gas markets, particularly in China and India. And we shouldn't forget the continuing growth in traditional LNG importers, such as Japan and Korea.

There will be rapid expansion in both cross-border pipeline and maritime flows (figure 2).

In northern Europe, we believe that pipelines will remain the most competitive source for the next decade. Gas piped from Ormen Lange in Norway, for example, will supply a fifth of UK's current consumption. LNG will be important in Iberia and then, in due course, elsewhere in Europe.

I will focus on the maritime trade today, although much of what I say is equally applicable to cross-border pipelines.

Changing dynamics

LNG supplies are increasingly competitive – as we continue to reduce production, liquefaction and shipping costs. Demand has been growing rapidly and could more than double in 10 years. Over the first three decades of the century it could grow as much as fivefold.

But expansion won't mean just more of the same. It is driving fundamental changes in an increasingly complex and demanding business.

This includes massive investment – more than \$100 billion over the next decade just to develop supplies.

Expansion will mean new suppliers. In 10 years time, perhaps twice as many export schemes will be competing for customers. New customers will provide alternative markets, although with very

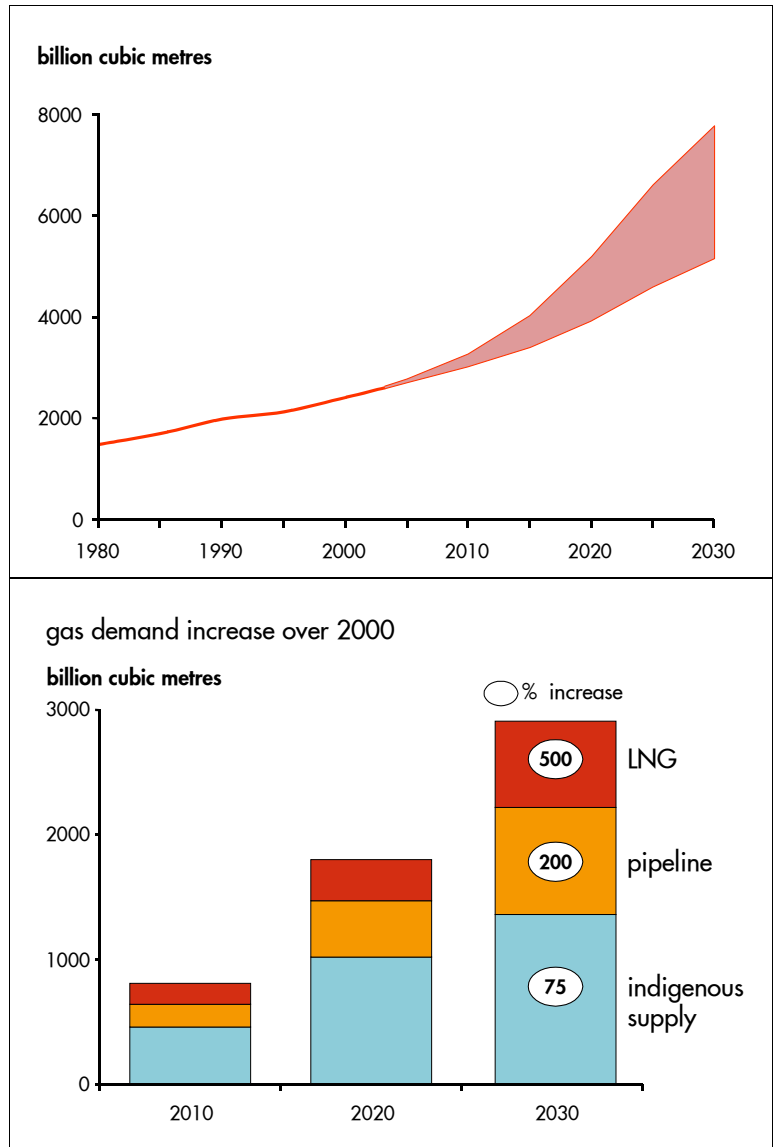


Figure 1: Shell scenarios: world gas consumption to 2030
Figure 2: Growth in gas supplies 2000-30

different dynamics from traditional ones.

The US gas market is, of course, unique – because of its size, liquidity, developed infrastructure, sophisticated financial systems and fierce competition. One of the recent US National Petroleum Council scenarios shows annual imports rising to 150 billion cubic metres by 2025 – the size of today's global LNG trade. Another suggests that difficulties in developing terminals – because of regulatory delay and public opposition – could restrict growth to half that rate.

Gaining terminal capacity will be a key test. Our proposed offshore terminal off the coast of Louisiana is one response (figure 3).

There is also the risk of low gas prices – which kept LNG out of the US

for two decades. But imports are increasingly competitive, as demand grows and domestic supplies mature.

In countries like China and India, gas markets have to be developed. Investing in developing markets requires careful judgement – as well as financial and commercial strength.

The development of diverse markets will have a profound impact on the LNG business.

But, first, let me say something about Gas to Liquids. Shell has been working to realise this promise for a long time.

Our Amsterdam laboratory has made a succession of breakthroughs in catalyst technology. And our pioneering Malaysian GTL plant began production a decade ago.

We see our planned 140,000 barrel a day plant in Qatar – with truly competitive scale and costs – as the coming of age of this industry.

GTL fuels could play an important part in cutting transport emissions. The potential market is very large and liquid – without the market constraints that challenge the introduction of new LNG capacity (*figure 4*).

We are working to build this market – with regulators, vehicle manufacturers and customers.

GTL will meet customers’ desire for cleaner fuels and provide suppliers with another way of commercialising their gas resources.

Combined with coal gasification, the technology could also do the same for coal – enabling countries like China and the United States to use their massive indigenous resources more cleanly and efficiently. With our experience of applying both technologies, we are also working to realise that promise – although there are many challenges to overcome.

New models

How will LNG markets evolve? That’s a difficult question in such an uncertain environment. So let me start by saying what won’t happen.

LNG won’t become a traded commodity like oil – at least not in the

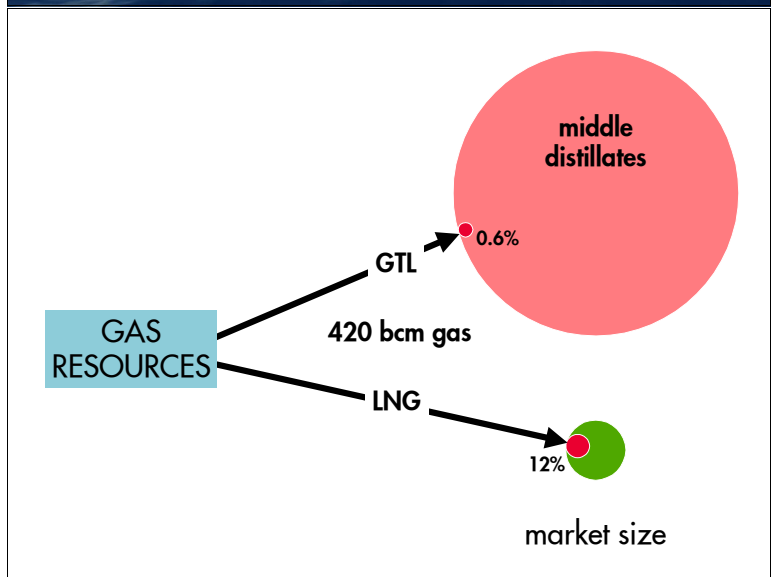
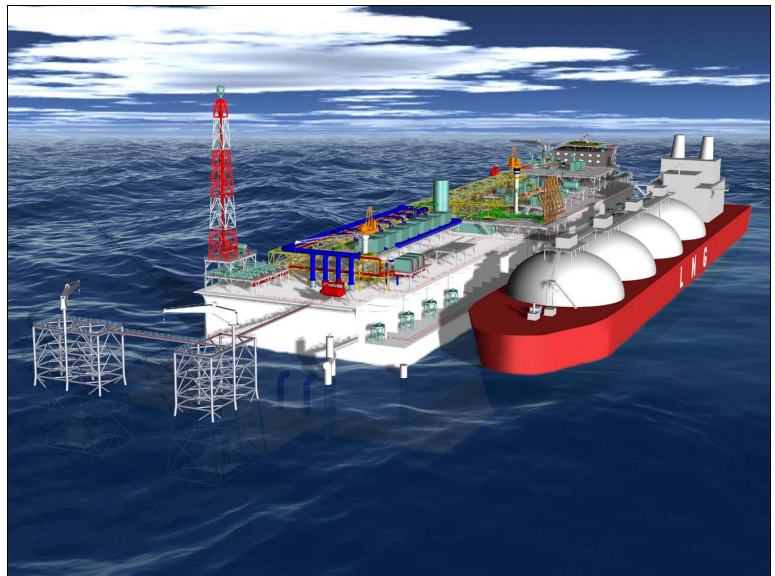


Figure 3: Planned Shell offshore LNG terminal in the Gulf of Mexico
Figure 4: Market options for gas resource holders

foreseeable future. Spot markets will develop – reflecting the increasing liquidity of larger and more diverse markets. But traded volumes are unlikely to exceed 10% of supplies.

Resource holders and investors will continue to require significant volumes of long-term, base-load sales to justify increasingly complex and demanding projects.

Where investors are confident about gaining markets – as in our Sakhalin development – they may commit to projects before selling all the output (*figure 5*).

There will also be more variation in sales contracts – with different timescales, greater flexibility and new pricing mechanisms.

And there will be an increasing role

for ‘supply-demand aggregators’ – strong and experienced companies with the portfolios of supplies, shipping, regasification capacity and marketing capabilities to respond flexibly to changing opportunities.

The traditional LNG project is a ‘tramline’ – with dedicated, jointly owned assets supplying long-term customers. Brunei LNG – the archetype – has been successful for 30 years.

But they are capital intensive for partners, who also bear downstream risks. And they are less suited to volatile open markets like the US, where there aren’t the monopoly utilities that underpin traditional Asian schemes.

Aggregators can support project development – reducing capital requirements and diversifying project risk – by committing to buy gas to meet demand positions they have developed.

Shell is already doing so from a range of projects to supply a portfolio of outlets in Europe and North America.

We believe that being able to offer both tramline and aggregator solutions – to meet the needs of our customers at both ends of the chain – will be a key competitive differentiator.

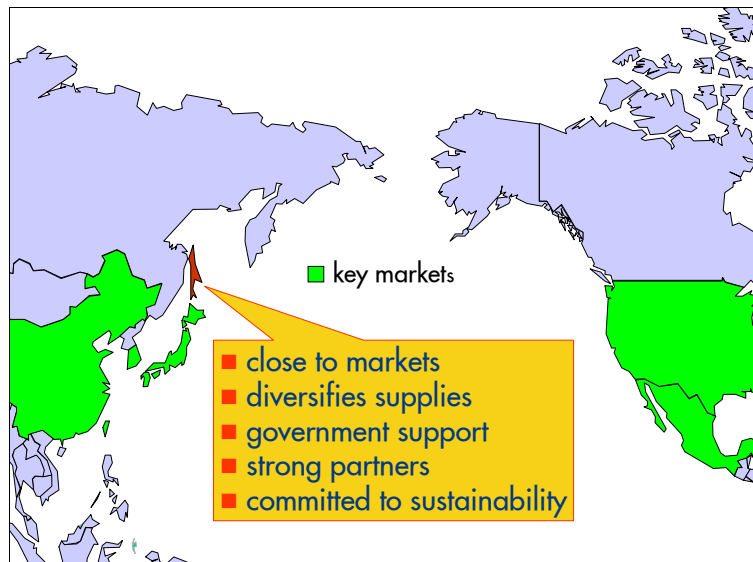
Meetings complex demands

Responding to these changes will be very challenging. So let me end by looking at the responses I think are required from different actors – companies, resource holders and consuming governments.

Much depends on the capabilities of the companies that drive the development of markets and supplies.

They must, for example, be able to:

- build strong partnerships,
- commit to major investments and take on substantial positions,
- execute very large and complex projects in difficult conditions,
- ensure reliable operations across a long delivery chain,
- meet the needs of diverse customers, and
- fulfil their environmental and social responsibilities.



Let me remark on two aspects.

First, I have stressed the increasing competitiveness of LNG – as the industry has driven down production, liquefaction and shipping costs. The challenge is to keep on doing so relentlessly – and the same is true for pipeline supplies.

Second, continued progress will depend on meeting those environmental and social responsibilities. Doing so is vital for the success of projects everywhere and for obtaining access to markets.

For businesses, of course, challenges are opportunities. In Shell, we are responding because we are determined to remain competitive in reaping the opportunities of expanding gas markets.

Gaining long-term benefits

Governments must ensure that their country’s natural resources are developed for the long-term benefit of society.

I referred to the importance of a clear, consistent and commercial framework for the success of the Dutch industry. This is even more necessary as business conditions become increasingly complex.

For LNG schemes and cross-border pipelines, it must provide secure access to cost-effective gas supplies. The terms should recognise the long-term potential – encouraging continued investment in project expansions.

Figure 5:
Competitive position of Sakhalin LNG

“There will be an increasing role for ‘supply-demand aggregators’ – strong and experienced companies with the portfolios of supplies, shipping, regasification capacity and marketing capabilities to respond flexibly to changing opportunities.”

The value of this can be seen in Nigeria where it took many years to agree the basis for the initial two-train LNG plant at Bonny. By the end of next year – just six years after it was commissioned – its capacity will have increased threefold – with further expansion planned.

For consuming governments, the challenge is to establish a market framework that ensures the benefits of competition for consumers while securing investment in long-distance supplies. This must recognise the risks and costs involved in developing

complex delivery chains, as well as the needs of gas resource holders. Relaxation of ‘open access’ requirements by US, UK and EU authorities are a welcome sign.

Gas has the potential to make a vital contribution to meeting our growing energy needs securely and sustainably. But this requires a rapid expansion in the scale and scope of the international gas trade.

It will be very challenging.

But – given the right conditions – the industry has shown it has the capacity to respond – here in the Netherlands and in many other places.

“The challenge is to establish a market framework that ensures the benefits of competition for consumers while securing investment in long-distance supplies.”

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