



# Sustainability of supply ?

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**Jeroen van der Veer** is Chief Executive of Royal Dutch Shell plc. He was a Managing Director of Royal Dutch Petroleum from 1997 until its unification with “Shell” Transport and Trading.

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.

In 2005 he was awarded an honorary doctorate from the University of Port Harcourt in Nigeria.

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.

**We can continue to meet our growing demand for energy. However, developing future energy resources is becoming more challenging and more expensive. That means that stable investment conditions will be needed to secure funding to develop those resources. It also means the energy industry will need to continue to develop and deploy new technology and good project management. In particular, it will need to ensure that it recruits and retains the people with the skills and expertise to meet those demands. The industry will also need to look at sustainability in the broader sense, exploring ways to tackle the carbon problem as well as developing renewable forms of energy. All these present challenges to the energy industry but also provide the opportunity for it to play its part in driving continuing progress in our world.**

The world worries about energy supply. It is perfectly understandable that it should do so. The increasing availability of affordable energy has been at the root of much human progress since the beginning of time. And the fear of the lights going out is a very powerful one that is deeply ingrained in our culture. Without energy, everything would stand still.

However, in my comments today I want to provide some reassurance that we can continue to meet our growing demand for energy and that supplies can be sustainable.

I will focus on three particular points.

The first is that there is still plenty of oil and gas, both conventional and unconventional although these resources will be difficult to develop and will require more investment to develop them.

In particular, Shell's most recent scenarios have highlighted the particular challenge the world faces in dealing with a dual crisis of security and trust.

In that context, stable investment conditions are going to be key factors in securing the funding we will need to develop our future energy resources.

The second point is that technology and project management will be the key to overcoming those difficulties.

And when I refer to technology I don't just mean the hardware but the software, in the form of the people with the technical knowledge and expertise to deploy the hardware.

And in Shell we have two particular initiatives to meet those challenges – the appointment of ten Chief Scientists and

the establishment of a Project Academy.

My third point is to underline Shell's focus on sustainability in the broadest sense.

This is illustrated by our appointment of a 'Mr CO2'. This is a senior role reporting to a Board director with a specific focus on accelerating our work on finding solutions to the CO2 problem.

### **Availability of oil and gas**

Let me start with the availability of oil. There are significant resources being developed or still to be discovered.

Last year more than thirty fields containing in excess of 100 million barrels of oil were discovered. However, discoveries are generally getting smaller and more difficult to develop. And I will return later to the particular challenges of developing these resources.

There is a huge amount of activity in the sector at the moment that will provide growing capacity in the years ahead.

Let me just give you a few examples. Work is underway in Kazakhstan on the giant Kashagan field and there are major new developments about to start production in countries ranging from Russia to Angola to Brazil.

Shell has made new discoveries in Nigeria this year and most agree that there could still be significant undiscovered deepwater potential in this area.

With the Libyan oil industry now opening up there is clearly potential both

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to rehabilitate existing fields and to explore for new capacity. And the lesson of mature areas like the North Sea is that, with the application of new technology, it is possible to extend the life of fields and to make the development of marginal fields viable.

Of course, these projects alone are not necessarily going to be enough to meet all of the rising demand over the decades ahead. This is where unconventional resources can play a role.

The IEA predict that un conventionals will meet 8 per cent of global oil demand by 2030, that amounts to 10 million barrels a day. And, if we can develop new technology to access more of these resources, this could be much higher.

For example, the US Geological Survey believes the US alone has more than thirty times the world's proved reserves of natural gas in the form of hydrates. Hydrates are ice like solids in which gas is trapped.

And these are in addition to coal bed methane and gas shales that can also be found in significant quantities in a number of countries around the world.

Of course there are huge questions about the extent to which any of these reserves are recoverable both technically and economically. However, we are seeing an increasing number of unconventional projects becoming viable.

Shell's Athabasca oil sands project has six billion barrels of ultimately recoverable resources. It currently has a design capacity of 155,000 barrels a day of production and we have now announced plans to expand the project to meet our long-term goal of reaching a capacity of 500,000 barrels a day.

### **Expanding gas demand**

Then there is gas. Demand for gas is growing at a faster rate than for oil, stimulated by a number of advantages it can offer, not least flexibility as it develops from being mainly a pipeline business to a mixed business that includes liquefied natural gas (LNG) and, looking further ahead, gas to liquids.

Equally, as gas is at an earlier stage of development than oil, it is clear that there

could be much more gas still to be discovered, with the US Geological Survey suggesting this could amount to 147 trillion cubic metres.

And there is increasing impetus to make those discoveries as resource holders see the growing commercial opportunities from rising demand.

Some of those resources will go into pipeline projects but it is the pace of change in the development of LNG that is most dramatic and which is going to be vital in meeting future demand.

We expect LNG demand to grow by 10 per cent a year over the period to 2010 and there is no shortage of projects being developed to respond to that growth.

Shell alone has seven new LNG trains under construction in Nigeria, Australia, Oman and Russia and a number of other projects at earlier stages of planning which will be developed over the next decade.

I think all this activity throughout the gas value chain, from exploration through to supply to the customer, means that gas will play an increasing role in providing secure, sustainable energy in the future.

### **Challenges of developing new projects**

The resources are there. There is a huge amount of activity going on to find and develop those resources. But, while securing our future energy supplies is possible, it will not be easy or cheap. There are major challenges ahead.

The first are the technical challenges. There will be more projects that push us to the limits of our capability whether they are in ever deeper water, in areas of the world where the climate is very hostile, or where the geology is difficult.

The energy industry's record in overcoming these challenges is a good one. For example, thirty years ago many people thought the North Sea was too difficult an area to develop on any scale because of the weather and yet it became one of the world's leading oil and gas provinces.

There was equal scepticism about our ability to develop deepwater fields but

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last year the Na Kika platform, in the Gulf of Mexico, started operating in a record water depth of nearly two kilometres.

We can build on that record but we should not underestimate the scale of the challenges ahead and the tests they will present to our technical and project management skills.

There will also be political challenges.

In Shell we use scenarios to explore alternative possible futures and our latest scenarios highlight the key challenges facing us as a result of a dual crisis of security and trust arising from the events of 9/11 and the collapse of major corporations such as Enron.

We face different trade offs between three societal aims: security, economic efficiency, and social cohesion. Different choices between these aims will produce different patterns of economic growth. And that, in turn, will affect energy demand growth and energy investment.

We outline three different scenarios.

The first is *Low Trust Globalisation* where globalisation of the world's economy continues but there is widespread distrust of companies and the market and only moderate economic growth.

In the second scenario, *Open Doors*, we see increasing economic integration and international cooperation and strong economic growth. In *Flags*, the third scenario, we see the global economy becoming more fragmented and growth and investment is slower.

This is just a very brief overview of the scenarios and more detail is available on our website [www.shell.com](http://www.shell.com).

Each of the scenarios tells a complex story but I think one lesson we can draw for sustainability of supply is that energy investment cannot be separated from the wider economic and political context. And that means stable, supportive investment climates are going to be essential to secure the future energy investment we need.

This will be a particular challenge as future energy resources are more likely to be found outside OECD countries. Some of those countries have barriers to

entry to international oil companies. Some are politically unstable. Some have unpredictable tax and regulatory regimes. That means the risks are higher for project developers.

And that in turn means that investors are likely to want higher returns on their investment and greater assurance that risks are being managed. That makes projects, and the oil and gas they produce, more expensive.

At the same time, we are seeing resource holder governments looking for higher returns from their oil and gas resources as the demands on their domestic budgets grow.

We know that this means governments are likely to negotiate even harder with international companies. But there will need to be understanding on both sides of the pressures each face and a recognition that, because the risks are higher, development costs are going to be higher.

It also means that investors will be looking for strong guarantees that any agreement will be stable and endure for the lifetime of the project. The reality is that major investment will not be forthcoming if there is any chance that the arrangements might be changed unexpectedly.

All this means that a supportive regulatory and commercial climate is vital. The royalty and tax regime can be just as important as the oil price in making projects viable.

These factors mean that financing projects, whether by shareholders or banks, is going to be increasingly challenging.

So how are we to meet these challenges?

At the heart of our response must be technology. We are a technical industry and throughout our history technology has made projects possible that were once thought impossible.

We have seen how smart wells and enhanced oil recovery can extend the life of fields. We have seen how advanced seismic techniques are helping us to discover new resources and how a range of technology means we can operate in

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ever-deeper water. For example, the energy consultancy CERA forecasts that production from deepwater fields could triple by 2010 to about 9 million barrels a day.

It's vitally important that we maintain that momentum and ensure that we create an environment that supports new technical developments whether they come from our own internal resources or from universities or small companies.

I have set out at Shell our commitment to the technology and innovation agenda. I've made it clear that we want new ideas and that we will provide the investment to develop those ideas. If we are to achieve sustainability of supply it is essential that we do so.

### **A skilled workforce**

I want now to spend a few minutes on one aspect of technology that is often ignored.

Technology is not just about the hardware, not just about the equipment. It is also about having the skilled professionals to develop and deploy that technology to interpret the data from the seismic imaging, to monitor the smart wells, to operate the deepwater drilling.

The sustainability of our industry depends on having the skilled human resources as well as the hydrocarbon resources.

We face a particular challenge in this respect in that a significant part of the workforce is nearing retirement and we need to replace their skills. That means we need to generate enthusiasm for science and the energy industry in universities. This is a particular need in Europe where the numbers enrolling for science courses are declining.

In Shell I have put in place a number of initiatives to underline how much we value our scientists. We are to appoint ten Chief Scientists and those roles will offer an alternative career path for experts who want to continue to work directly in their area of expertise rather than enter more general management. I believe this means we will retain, value and develop that expertise and that must

be good for the individuals but also for our business.

As I have outlined, developing energy resources is becoming ever more challenging and it is vital that we provide our people with the skills to meet those challenges.

That is why we have set up a Project Academy, which will focus specifically on providing training and development in the management of major projects. It will provide both formal training and mentoring and coaching to ensure we capture and transfer knowledge from experienced staff to those earlier in their careers.

This is just one example of the kind of training and skills development an international energy company can offer. We also have focused training programmes in many of the locations in which we work.

In Nigeria we have a scheme called the Shell Intensive Training Programme, which prepares young graduates for work in the oil industry. Then once they are working for Shell they have further opportunities to develop their skills, not least by working elsewhere in the world deepening and strengthening their knowledge and expertise.

Equally, the focus on teamwork and the opportunity work at the leading edge of new technology and innovation are aspects of a career in the energy industry that we need to highlight. And, of course, as I mentioned at the beginning of my speech energy is so important to society that those working in the industry can feel that their work is very worthwhile.

We do not always shout these advantages loudly enough but we will need to make sure we make these points vigorously if we are to ensure we attract that high quality workforce to meet the challenges ahead.

### **Becoming sustainable**

I want to come now to my third point that sustainability in the oil and gas industry is also about developing our energy resources in environmentally acceptable ways. In particular, that

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means addressing the CO2 problem.

And, at Shell, we fully recognise we have a particular role to play in taking action on climate change.

I am convinced that if we can find solutions for CO2 we take the main disadvantage of fossil fuels away. And that would allow us to continue to enjoy the benefits of fossil fuels – their efficiency and convenience.

And we need to see this as an opportunity rather than a cost. If we can find better solutions for CO2 than our competitors then there are real business advantages to be gained.

As I mentioned at the beginning of my speech, we have appointed a ‘Mr CO2’. This is a senior role that really underlines our commitment to playing our part on this issue.

Graeme Sweeney has taken on this role and he will bring a sharper focus to monitoring and reducing our own greenhouse gas emissions, including through energy efficiency programmes. He will also accelerate work to develop the commercial opportunities from dealing with carbon.

There is already a range of activity going on relating to carbon sequestration and, if we show the same ingenuity in this area as we have in the rest of our industry, I believe we may be able to reach that prize of green fossil fuels.

### **Energy in Africa**

Before I close my remarks I just want to spend a few minutes talking about what sustainability of supply means here in Africa. Shell is very active in Africa.

We have a presence in 36 countries, invested two billion dollars last year, and continue to look for opportunities to develop that business and investment.

One of the biggest challenges facing Africa is the fact that far too many people still do not have access to modern energy. That affects their economic opportunities and their health and if we are to make progress tackling poverty we need to invest in ways of bringing that modern energy to more people.

Shell will continue to play its part in supporting this work. That includes developing Africa’s role in supplying world’s future energy.

Africa is already an important part of our business making up more than 15 per cent of our total oil production and amongst our operations in Africa are some truly world scale projects.

In Nigeria, the Bonny Island liquefied natural gas plant is the largest single industrial enterprise in Africa. And exploration and development continues across Africa with many promising areas of future potential.

### **Conclusion**

Let me now conclude by restating my key arguments. They are that oil and gas can play a major part in meeting the world’s future energy needs in a sustainable way. However, accessing those resources is going to get more difficult and will require ever more sophisticated technological and project management expertise.

That means, while I am not going to predict future oil prices, the era of cheap oil is over. However, the demand for our products will remain huge.

So those of us working in the industry will face a challenging but exciting time. And the energy industry will continue to transform lives and continue to drive human progress.

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