



Collective Approach in the New Paradigm

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Jeroen van der Veer is Chief Executive of Royal Dutch Shell plc. He joined Shell in 1971 and worked in manufacturing and marketing in the Netherlands, Curaçao and the United Kingdom. In 1992, he became a Managing Director of Shell Nederland. Three years later he became President and Chief Executive of the Shell Chemical Company in the United States. He was appointed a Group Managing Director in 1997. Jeroen was born in the Netherlands, and is married with three daughters. He has two degrees - one in mechanical engineering from Delft University and another in economics from Rotterdam University. He is a Non-executive Director of Unilever.

This text forms the basis of a speech delivered by Jeroen van der Veer at the 14th Asia Oil and Gas Conference in Kuala Lumpur on June 8th, 2009. It may differ from the spoken word.

In this speech, Jeroen van der Veer highlights the three hard truths about the first half of this century: rising demand for energy; dwindling supplies of easy oil, and rising CO2 emissions. These hard truths make a transformation of the energy system inevitable. But this transformation has to take place in a gradual and orderly way. Historically, it has taken 25 years for new energy technologies to achieve a 1% share of the global energy market. This also applies to renewable energy, and explains why fossil energy will continue to make up the lion's share of the global energy mix well into this century. That makes it crucial to reduce the CO2-intensity of fossil energy on a "well-to-wheel" basis. In the power sector, the best way to do this is through CO2 Capture and Storage (CCS). In the transport sector, we can reduce CO2-intensity through lighter vehicles, more efficient engines, high-performance fuels, blending in sustainably sourced biofuels and, in the longer term, by adding CCS to liquid fuels production.

With 38 years in Royal Dutch Shell, I have been part of about a third of the company's history.

I'm proud to have spent my professional career in the energy sector.

Without energy there would be no heating – and no airco! -, no light and no transport. Human civilization as we know it would not be possible. As the volatility in our industry increases, so does the need for partnership. The financial, technical, environmental and political challenges are so vast that it will require all of the industry's combined skills and capabilities to deal with them.

These challenges are not only vast – they are mounting.

Today, I'd like to discuss why these challenges make an energy transition necessary. But why, at the same time, such a transition must take place in a gradual and orderly fashion.

I will then make a few suggestions about what companies and governments could do to promote an orderly transition.

Royal Dutch Shell in Asia

But, before we do all that, let's take a step back. Royal Dutch Shell's involvement in Asia goes back more than a century.

In 1892, a Shell Tanker named the Murex carried the first shipment of kerosene, in bulk, from Baku through the Suez Canal to Bangkok,

opening up the Asian market to Russian petroleum.

In 1910 we discovered Malaysia's first oil in Miri Sarawak. In those days, 30 people produced 83 barrels a day.

Today 7,000 people work for Shell in Malaysia. Over 90 percent are Malaysian. And we are engaged in every aspect of Malaysia's oil and gas business. Our story of growth runs in parallel with Malaysia's own growth.

We have seen the birth of Petronas, one of the most successful national oil companies in the world. We work closely together with Petronas on many different fronts.

All over the Asia/Pacific region, Shell works in close partnership with national oil companies and others, in countries like Brunei, China, the Philippines and Australia. In Japan, Showa Shell is a leading oil distributor and player in thin-film solar technology.

In all these partnerships, the aim is to generate economic value over the long term, while sharing risks and rewards fairly, including when the going gets tough.

Tree Hard Truths

This quick scan of just one small part of our industry's history shows that making progress has depended on:

- a. recognising opportunities when they arise,

“The financial, technical, environmental and political challenges are so vast that it will require all of the industry's combined skills and capabilities to deal with them.”

- b. creating new options through technological innovation, and
- c. sharing risks and rewards through partnership.

These insights are also valuable as we confront the challenge of transitioning the global energy system. There are realities about the energy system that make such a transition both necessary and inevitable.

But they also dictate that change will come through evolution, not revolution.

I call these realities the three hard truths.

The first hard truth is that demand for energy will double during the first half of this century.

That's because 3 billion energy consumers will be added to the world's population during the first half of this century.

And it's not just about more people. In developing countries, future generations will have more money to spend than their parents and grandparents. And they will use more energy as they increasingly buy refrigerators, televisions, computers and cars.

Meanwhile, many producing oil fields are in decline. For every three barrels that come on line in new projects, two are needed to offset declines.

And so the second hard truth kicks in: which is that it will be very difficult for our industry to supply all that extra energy, even if we produce energy from all viable primary energy sources.

To make matters even more difficult, there's a third hard truth. Which is that greenhouse gas emissions will rise at a time when climate change is already a critical issue.

The science is saying that we are currently on an unsustainable pathway.

This is really a global challenge, not a petty concern of rich people in America and Europe.

A report published in April by the Asian Development Bank shows that Southeast Asia is likely to suffer more from climate change than the global average.

That's why we need effective, internationally harmonised climate policy frameworks – I will come back to that.

Recession impact

The economic recession temporarily masks the “hardness” of these truths by suppressing energy demand and moderating CO2 emissions.

But they will return with a vengeance when the economy recovers and demand for energy picks up. In fact, the recession makes it even more difficult to do what is necessary to meet the long-term challenge.

In particular, it has made it difficult to keep up investments in future supplies.

While Shell itself will keep investment at a relatively high level in 2009, the same may not be true for the sector as a whole.

The International Energy Agency warns that investment in the upstream sector will fall by more than 20% this year. And investments in renewables are falling even faster – by almost 40% compared to last year.

All this points to new price spikes and volatility further down the road.

Gradual energy transition

This brings us to the following question: How can our industry help to moderate volatility and work for an orderly energy transition?

Well, to begin with, we need to get our external communication right.

We must make clear that this is a collective challenge. And that a lot will depend on the choices consumers make. For instance, will people prefer smaller cars or SUVs?

We also need to make clear as an industry that we welcome the energy transition and intend to play a positive role in bringing it about.

Let's not paint ourselves into a corner as a dinosaur industry desperate to protect its core business and slow down the transition.

Instead, let's be participants! However, we don't want create false expectations either.

We must warn governments not to make big promises about renewable energy that can only lead to disillusionment.

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A good vision for the future takes into account facts. One of those facts is that hydrocarbons will remain a vital component of the world's energy mix for decades to come.

Without oil and gas, the world would face energy poverty. It's as simple as that.

Shell's scenario experts believe that renewable sources could provide around 30% of the world's energy by the middle of this century. That's impressive.

But it also means this:

- a. It will take forty years to get there;
- b. And that fossil fuels and nuclear will supply the remaining 70% even then.

Historically, it has taken 25 years for new primary energy sources to obtain a 1 percent share of the global market following commercial introduction.

And, before that, the transition from scientific breakthrough to commercial introduction itself may take decades.

For example, the first LNG plant came on stream in 1964, in Algeria, using Shell technology. Since then, the growth of LNG has been spectacular. But, today, four decades later, the share of LNG in the global energy mix is still only about 2%.

First-generation biofuels are just about becoming "material" today— taking up 1% of all liquid fuels sold worldwide. This is after 25 years of focused efforts and government mandates in many different countries, most notably Brazil and the United States.

If we wait for alternative energy to reach material scale, we will find it impossible to curb CO2 emissions in time.

People ask me: Why is that? A simple explanation goes like this: if we build a new wind farm, we add new, clean electricity, certainly. But we do nothing to reduce emissions from the coal-fired power station down the road.

And it's not the only coal-fired power station around. Asia alone will build some 800 gigawatts of new coal-fired generating capacity over the next 10 years, equal to the European Union's total electricity generating capacity

today. Once built, these plants will emit more than four billion tons of CO₂ each year – about the same as Europe's total energy-related emissions – and they will operate for 30 years or more.

So if the world is serious about preventing severe climate change, it will have to focus first on reducing the CO₂-intensity of fossil fuels. That's where the bulk of the emissions are – and that's where the largest cuts can and must be made. A gradual energy transition is the best way of preventing energy poverty and reducing greenhouse gas emissions.

And that should be one of our industry's key messages to stakeholders.

Industry contributions

Companies and governments can each make practical contributions to a gradual, orderly energy transition.

Let's start with companies.

The oil and gas industry has responsibilities in the following key areas:

- a. maximising hydrocarbon resources,
- b. reducing the CO₂-intensity of fossil fuels, and
- c. broadening the world's energy mix.

First, we must make the most of the world's hydrocarbon resources through new technology so we can meet the growing demand for energy.

Finding profitable ways to squeeze more barrels out of maturing fields is important. The same is true for the technologies that allow us to operate cost-effectively in the deep water, in the Arctic, or in unconventional plays like oil sands, shale and tight gas.

Another responsibility is to reduce the CO₂ intensity of fossil fuels, on a well-to-wheel basis. There are several ways to do this. One is to increase energy efficiency in our own upstream operations and refineries, for example, through cogeneration of heat, power and steam. And through the intelligent use of renewables, such as the unmanned monotowers I mentioned before.

Another crucial contribution to cleaner fossil fuels could come from CO₂ Capture and

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Storage, or CCS. In particular, CCS is the key technology for reducing emissions from coal-fired power.

Shell is involved in a number of potential CCS projects in Canada, Europe and Australia. In Germany, we're taking part in CO2 SINK, a public-private research project that began injecting CO2 in a saline aquifer in June 2008.

The IEA believes that in the period to 2030 the growth in CO2 emissions from coal fired power generation in just three countries China, India and the US could be double the growth in emissions from all the transport worldwide.

So the first priority should be to deploy CCS in the power sector. In the transport sector, we obviously can't capture emissions from billions of exhaust pipes. Rather, the challenge is to reduce the CO2-intensity of liquid fuels-based transport on a well-to-wheel basis.

In the coming years, adding CCS to liquid hydrocarbon fuel production could become a very important way of doing that.

In the short term, big gains are already possible by mixing in sustainable biofuels, by building lighter-weight vehicles, and developing more efficient engines.

Broadening the energy mix

The third responsibility is to help broaden the world's energy mix.

Many companies are already developing new areas of expertise outside of hydrocarbons. At least one IOC has expressed an interest in greater involvement in nuclear energy; another is a leader in geothermal energy.

Shell has serious involvement in wind, has proprietary thin-film solar technology, and is a leading player in biofuels.

We've invested some \$1.7 billion on alternative energy and CO2 Capture and Storage in the past 5 years. For the next few years, it's in biofuels where we will concentrate our additional efforts. Biofuels are a natural fit with our downstream capabilities in transport fuel. And, provided they are sustainably sourced, they can help the world to reduce CO2 emissions.

We also have a leading portfolio of next generation biofuels, in partnership with universities and other companies. This portfolio includes research positions in conversion technologies and small-scale projects in biofuel production from non-food feedstock.

However, whatever promise this next generation holds, it's important that we continue working with existing biofuel feedstocks and technologies. There is much that we can do to improve first generation biofuels, including careful choice of feedstock and land, and more efficient production and distribution. Shell will continue to work hard to advance sustainable practices at the international and company level.

For example, we require suppliers who wish to supply palm oil to Shell to join the Roundtable for Sustainable Palm Oil and work to comply with its principles and standards.

Government contribution

So much for companies. Now what about governments?

I see two priority areas for government policy:

- Fiscal stability,
- Climate policy frameworks that promote low-CO2 energy.

Fiscal stability

Apart from price volatility, high costs and the credit crunch, volatile tax regimes also impact on industry investment.

Governments often suddenly increase taxes when oil prices are high and then keep them there when the oil price drops and the business environment deteriorates.

This kind of approach reduces the amount of money that companies can invest.

We'd much prefer tax structures that remain stable through the economic cycle, and give us certainty over a longer period of time.

Stable tax regimes would increase investors' confidence and thereby reduce the cyclical nature of the energy sector.

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CO₂ policy frameworks

Climate policy is another area where we need effective government action, across international borders.

A well-designed and internationally harmonised climate policy framework is an important enabler of a responsible and gradual transition to a low-CO₂ energy system.

Shell favours cap-and-trade systems for setting the price of CO₂, and we have been a supporter of the European Union's Emissions Trading Scheme from the start.

That's because cap-and-trade sets a certifiable environmental outcome – the cap. It also provides the commercial incentive for companies to look for the lowest-cost reduction measures – the trade.

Within that context, we need specific government focus on CCS. Governments can enable the huge investment that will be required for CCS through robust CO₂-pricing through credits for the CO₂ that is sequestered underground, and good regulation.

In the transport sector, performance standards are key. Today, the average European car is around 40% more efficient than cars in America. That saves Europe around 3.5 million barrels of oil per day, the combined oil consumption of France and the UK. I see that China is tightening its performance standards – and so is the United States. These are important measures.

Similar performance standards can be introduced and tightened for buildings and consumer appliances.

But, ultimately, two things are essential:

- a. one: we need CCS to tackle emissions from power stations and big industrial installations;
- b. two: we as consumers need to better appreciate the true value and cost of energy – use less of it and save more of it.

Summary

Let me summarise.

Partnership will be vital to transition the energy system.

Such a transition has to be a gradual and orderly one, if we are to remain capable of meeting the world's growing energy needs and at the same time curb CO₂ emissions.

When I say partnership, I mean partnership between national and international oil companies, between government and industry, between universities and companies, and between countries and continents.

NOCs and IOCs must increasingly pool their skills and capabilities, and develop new ones.

The aim is threefold:

- a. improve recovery rates,
- b. reduce CO₂-intensity of fossil fuels on a well-to-wheel basis
- c. . . . and help the world to broaden the energy mix.

The oil and gas industry has more than a century of experience in delivering energy to customers. We can use that experience to help governments develop energy plans and CO₂ policy frameworks.

I am convinced that if we work together, a gradual and orderly transition of the world's energy system is possible.

Thank you.

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