



Energy Security and Climate Change – a Tough Balance

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Peter Voser was born on August 29, 1958. A Swiss national, he was appointed Chief Executive Officer of Royal Dutch Shell with effect from July 2009.

Prior to his appointment as CEO, he was Chief Financial Officer since October 2004 and up to July 2005 was Chief Financial Officer of the Royal Dutch/Shell Group of Companies. In 2002 he joined the Asea Brown Boveri (ABB) Group of Companies, based in Switzerland as Chief Financial Officer and Member of the ABB Group Executive Committee.

He first joined Shell in 1982 and held a variety of finance and business roles in Switzerland, the UK, Argentina and Chile, including Chief Financial Officer of Oil Products. He was a member of the Supervisory Board of Aegon N.V. from 2004 until April, 2006. He is a member of the Supervisory Board of UBS AG and a member of the Swiss Federal Auditor Oversight Authority.

In the coming decades, all countries, including the United States, must find more energy at a much-reduced cost to the environment. These twin demands will be extremely tough to balance. In this speech, Royal Dutch Shell’s CEO, Peter Voser, focuses on how governments and industry can build a secure, affordable and sustainable energy system. While the innovation of industry will be critical, much hinges on the implementation of a coherent policy framework, both domestic and international. Here, the leadership of the United States will be invaluable. By making domestic progress in the months ahead, the country can make a powerful contribution on the international stage.

Introduction

In recent weeks, we’ve seen the anniversary of those astonishing days last year when bankers and government officials fought to save the global financial system.

Today, I want to address another issue that could have an equally big say in determining global prosperity in the coming decades.

How the world can maintain a secure, affordable and sustainable energy supply. And why industry and governments should continue to treat the matter with urgency, even as divisions emerge and other issues command attention.

This is not an issue that will wait for more comfortable times.

The global energy challenge

As the global economy recovers, the long-term trend of surging energy demand will resume.

By 2050 global energy demand will double, with three billion energy consumers being added to the world’s population.

At the same time, the world will need to manage greenhouse gas emissions to avoid the worst effects of global warming, about which the scientific warnings are getting worse.

Put simply, the world must find more energy at a much-reduced cost to the environment.

All energy sources will be needed to maintain a secure supply, from nuclear power to natural gas, biofuels, solar and wind. And even then it will be extremely tough to meet the world’s growing energy needs.

Yet the world is merely at the early beginnings of an energy transition that will take place over decades.

Sometimes people forget the massive scale of the energy system, and what that means for how swiftly we can shift to something significantly different.

Historically, it has taken twenty-five years for new primary energy sources to obtain a one per cent share of the market.

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

Right now, biofuels are reaching a 1% share of the market. And wind could do so by the middle of the next decade, twenty-five years after the first large wind-parks were built in the US and Denmark.

Deploying new technology on a mass scale is no easy task.

Replacing all of the country’s coal-fired power stations with wind power would require 200,000 wind turbines, covering more land than the state of Washington. And that’s assuming an average turbine size of 4 MW, which is more than double the present average.

All this helps to explain why, even with rapid growth of renewable energy, fossil fuels and nuclear power will still supply at least 70% of the world’s energy in 2050.

And why heavy investment is required in all forms of energy production and low-carbon technology.

According to the International Energy Agency, energy supply investment of \$26.3 trillion will be needed by 2030, including \$5.5 trillion in renewable energy.

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Billions more will have to be spent on upgrading electricity networks to handle increased demand and the on-and-off power generated by wind and solar.

Yet the recession has slowed the pace of investment in the energy industry.

The International Energy Agency expects worldwide upstream oil and gas investment to fall by more than one-fifth this year, as well as a 40% drop in alternative energy spending.

This could be sowing the seeds of the next supply crunch when the long-term trend of rising energy demand resumes.

There are no easy answers, and no silver bullets that will shoot the world into a sustainable energy future.

But so long as governments and industry make the right calls, it should still prove possible to develop a secure and sustainable supply at an affordable cost.

The contribution of industry

For Shell, and the energy industry, that means maintaining investment in the face of strong volatility. And our focus should be three-fold.

First, we must expand the world's oil and gas resources.

With easily accessible oil and gas resources dwindling, we are working to develop our operations in the Arctic and expand them in deep waters, like the Gulf of Mexico.

Take Shell's Perdido Project in the Gulf, where we are tapping reservoirs that lie under nearly two miles of water, and that much further again below the seabed. Such is the depth that all the sub-sea equipment is built by robots in pitch-black, near freezing darkness. When finished, it will produce more than 100,000 barrels of oil per day.

The industry must also reduce the carbon dioxide intensity of fossil fuels. That calls for a relentless focus on energy efficiency across our own operations, and rapid advances in carbon capture and storage technology.

Thanks to the industry's longstanding expertise in injecting Carbon Dioxide into oil fields to boost production, we have the knowhow to do it on a large scale. However,

cost and public acceptance remain significant hurdles.

According to the Intergovernmental Panel on Climate Change, the technology could deliver around half of the total emissions reduction needed to stabilise atmospheric greenhouse gas levels by the end of the century. It would also build a bridge to a distant future when renewable energy can supply a significant portion of global energy.

CCS technology must first be deployed in the coal-fired power sector. 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 - will be double the growth in emissions from all the transport worldwide.

Which is also why the industry must continue to expand the global energy mix.

At Shell, we are growing our natural gas business. We expect that by 2012 it will account for around half of our production. Natural gas is the cleanest burning fossil fuel and a direct competitor to coal for power generation. When burned for this purpose, it emits half of the carbon dioxide of coal.

Thus, by replacing coal with natural gas, countries like the United States can deliver sharp emissions reductions before alternative sources are ready to meet a greater share of demand at the end of the next decade.

In the field of alternative energy, Shell is active in a number of areas, including wind, biofuels and hydrogen. In the next few years, we will concentrate on biofuels, an area that holds great promise and fits our core competencies.

In all these ways, Shell and the energy industry can support the transformation of the global energy system.

Yet we cannot do the job alone.

The role of governments

Much hinges on the swift implementation of a coherent policy framework.

As a first priority, Governments must give energy companies access to fresh oil and gas resources.

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The US is a potent example. It produces around seven per cent of the world's oil, but consumes more than one-fifth of the world's energy.

The government has been willing to take some of the tough decisions needed to secure the country's energy supply. Its recent approval of the Alberta Clipper pipeline will allow up to 800,000 barrels of fuel a day to be carried into the US from Canada's oil sands.

Yet until very recently, 85% of the country's offshore oil and gas resources were out of bounds.

To secure the world's energy supply, governments must allow energy companies to tap such resources. What is certain is that Shell will take every precaution in managing the environmental risks.

Climate change policy

A second priority for policy-makers is to agree a global framework for tackling climate change.

At Shell, we believe that should involve putting a global price on carbon dioxide. We think the best way to achieve that goal is to create a system to cap CO₂ emissions and trade emission allowances, which would channel resources towards the most cost-effective reduction measures.

As part of this, policy-makers should also use appropriate incentives to accelerate the rapid and large-scale deployment of Carbon Capture and Storage technology.

Copenhagen

This December in Copenhagen, governments will have an opportunity to drive meaningful progress on all these fronts.

190 countries will meet to negotiate a global framework for tackling climate change.

At Shell, we would like the agreement to recognise a full range of mitigation options, including energy efficiency, the promotion of alternative energy sources, reduced emissions from deforestation, and a clear pathway for the deployment of technology to capture and store CO₂.

An agreement could also sow the first seeds of a global cap-and-trade scheme, with some measure of co-ordination starting to link domestic schemes.

Yet the chill wind of realism must temper the more feverish speculation about what might be achieved in Copenhagen.

The negotiations are complex and detailed. And a positive outcome is far from assured.

The United States on the international stage

The US has a powerful contribution to make on the international stage. And it is important that it does so.

The energy challenge is truly global in scope, and co-ordinated action is required across developed and developing countries.

No country can make the journey alone.

Congress should be encouraged to find room for energy and environmental legislation alongside the healthcare reform programme.

By making legislative headway, the US can hasten the development of a global framework, whether at Copenhagen or further down the line.

Impetus could also come from the timely agreement of a technology partnership between the US and China. Working together, these two countries would quicken the pace of low-carbon innovation. And help smooth the path of co-operation between developed and emerging economies.

All of which would also help the US to capture the economic benefits of the transition to a low-carbon economy.

Cap and trade would generate massive opportunities for wealth-creation. On one estimate, American participation could send the annual value of the global carbon market beyond \$2 trillion by 2020.

The US has a powerful venture capital industry and an enviable history of innovation. With the right regulatory framework it could grab a sizeable chunk of the low-carbon market in the coming decades.

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Conclusion

Such moves would only be in keeping with the United States' legacy of environmental leadership.

Catalytic converters for cars were first developed and implemented in the United States, achieving a massive reduction in air pollution.

And, of course, cap-and-trade was also invented in America. By 2007, the US Acid Rain program, which adopted cap and trade in 1990, had reduced sulphur dioxide emissions from coal-fired power plants and other sources by 43%.

By taking a lead in the global energy challenge, the United States can strengthen this historic legacy.

And help set the US and the rest of the world on the path to a secure and sustainable energy future.

Thank you.

“By taking a lead in the global energy challenge... the United States can help set the US and the rest of the world on the path to a secure and sustainable energy future.”

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