Responsible energy

The Shell Sustainability Review 2007
Welcome to The Shell Sustainability Review, a summary of our 2007 Sustainability Report. This review provides an overview of our efforts in 2007 to live up to our commitment to contribute to sustainable development. For us, that means helping meet the world’s growing energy needs in economically, environmentally and socially responsible ways. This includes both running our operations responsibly today and helping build a responsible energy system for tomorrow.

Our latest Strategic Energy Scenarios make clear – and events in 2007 reconfirmed – that the world faces increasingly difficult energy choices. This means that tomorrow’s projects will be even more difficult and capital-intensive, bringing environmental and social challenges, with climate change foremost among them. Shell’s ability to manage these projects in ways that reduce impacts and deliver local benefits in the communities where we work will be vital to winning new business and delivering existing projects. I am convinced that acting responsibly is the key to unlocking the door to do the more difficult projects that companies like Shell are naturally driven to.

We are starting from a position of strength. In 2007, we reported record income of $31.9 billion. We are reinvesting record amounts back into the business and strengthening our capacity to manage environmental and social impacts. Our safety performance – always our first priority – improved, though it must get better still. Our greenhouse gas (GHG) emissions continued to fall. We decided to quadruple our rate of investment in transport biofuels, and continued our push to provide products that help our customers improve their fuel efficiency.

I hope this review – along with our full-length Sustainability Report and supporting materials on the Shell website – will help you judge for yourself how well we are living up to our commitment to contribute to sustainable development. I also hope it encourages you to reflect on the part you play in the energy system, and the changes all of us need to make to build a responsible energy future.

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Jeroen van der Veer
CHIEF EXECUTIVE

The Shell Sustainability Review 2007

How the world’s energy system changes over the next half century will matter a lot to all of us, and to our children and grandchildren even more. We are committed to playing our part in building a responsible energy future.

The world will need vast amounts of extra energy in the coming decades to support economic growth and reduce poverty. Supplies will have to be kept secure from disruption. And this energy will need to be produced in environmentally and socially responsible ways, including dealing with GHG emissions. This is the energy challenge. Meeting it is fast becoming one of the defining tests facing society – and our industry – this century.

TWO FUTURE ENERGY SCENARIOS

So, how will the world respond to the energy challenge? Shell’s latest Strategic Energy Scenarios – “Scramble” and “Blueprints” – describe two plausible routes between now and 2050.

In the Scramble scenario, countries rush to secure more energy for themselves. Political responses to the energy squeeze and to climate change are often knee-jerk and severe, leading to price spikes, periods of economic slowdown and increasing turbulence. By 2050, GHGs are heading towards concentration levels in the atmosphere far above the levels that scientists indicate are safe.

TheBlueprints scenario is disorderly at first, as local initiatives result in a patchwork of different policies and approaches. But a global policy framework emerges – and with it a global cost for emitting GHGs – that spurs innovation, increases energy efficiency and helps maintain steady economic growth. By 2050, GHG levels in “Blueprints” are on track to stabilise at levels far lower than in “Scramble”.

In both scenarios, energy use grows rapidly, though quicker in “Scramble”. More of everything is needed and fossil fuels continue to provide more than half our global energy, though far less than the more than 80% they represent today.

WORKING FOR A BLUEPRINTS WORLD

We have been using scenarios for 30 years to test our business strategy, without expressing a preference for one over another. But the need to help manage climate risk for our investors and our descendants, and to live by our commitment to contribute to sustainable development, means we strongly prefer the approach described in “Blueprints” to the one laid out in a “Scramble” world. We are advocating the policies the “Blueprints” scenario describes and working on a number of the technology improvements needed.
We are determined to use our technical expertise and business skills to help build a responsible energy future. Our efforts are evolving but a number of the parts are already clear. One is a wide-ranging advocacy effort to encourage governments to develop an effective policy framework for CO₂.

Another part is the push we are making, as one of the world’s largest suppliers of transport fuels, to help drivers use less by offering advanced fuels and lubricants, and to develop more sustainable, low-CO₂ second-generation biofuels (see page 6).

A third part is building our capability in CO₂ capture and storage (CCS), developing the expertise and coalitions needed to move this critical technology from a demonstration phase to large-scale deployment within a decade (see page 5).

A fourth is helping provide lower emission electricity by producing cleaner-burning natural gas and by working to reduce the cost of renewable energy sources so they can compete (see page 5).

And a fifth is by finding environmentally and socially responsible ways to produce the oil and gas the world needs from remote locations like the Arctic and from unconventional sources like oil sands (see page 5).

Building a more sustainable energy system starts at home today, with our existing operations. It includes continuing to improve our health and safety performance; actively working to employ more local people and buy from local contractors and suppliers (see page 4); managing our emissions; and reducing our use of resources like energy and water.

Our efforts are yielding results. For example, our injury rate, has fallen by more than 50% since 1998, and was our lowest ever in 2007. This performance confirmed the importance of the big push we are making to change behaviour by simplifying safety rules and strengthening our safety culture (see page 4).

We have also reduced GHG emissions from our facilities by nearly 25% compared to 1990.

Since 1997, we have been steadily reducing the amount of oil and oil products spilled from our operations for reasons we can control, like corrosion or operational failures. Operational spills have fallen mainly due to improvements in pipeline inspection and maintenance in our upstream business, and more concentration on fixing the causes of minor leaks in our downstream business.
We first made our commitment to contribute to sustainable development a decade ago, including it in our General Business Principles in 1997. Since then, its importance to us has grown further.

For us, contributing to sustainable development means helping meet the world’s growing energy needs in economically, environmentally and socially responsible ways. In short, helping secure a responsible energy future.

In practice, this means reducing impacts and delivering benefits – both through our portfolio and products, and through our operations. This includes a commitment to finding and delivering energy products that help meet the rapidly growing need for affordable, convenient and cleaner energy. This is also a commitment to responsible operations: building our projects, running our facilities and managing our supply chain safely and in ways that reduce their negative environmental and social impacts and create positive benefits.

Meeting this commitment requires a particular mindset: one in which we consciously balance short- and long-term interests; integrate economic, environmental and social considerations into business decisions and regularly engage with our many stakeholders.

We remain committed to contribute to sustainable development because it is aligned with our values and because it makes us a more competitive and profitable company. It brings us closer to our customers, employees and neighbours, reduces our operating and financial risk, promotes efficiency improvements in our operations and creates profitable new business opportunities for the future.

**HOW WE WORK**

Sustainable development is integrated into our standards, processes, controls and governance. All companies and joint ventures we control must apply the Shell General Business Principles, Code of Conduct, and our Health, Safety, Security and Environment (HSSE) standards. These include requirements for biodiversity, managing greenhouse gas emissions, environmental management, health management, road and process safety, and ship quality.

Following our environmental and social standards is part of the duties of staff and line managers. We monitor compliance through an annual assurance letter process and internal audits. Sustainable development also contributes to performance appraisals and pay, accounting for 20% of the Shell Scorecard.

Each of our oil and gas projects is now required to identify its environmental and social risks systematically before the technical design or commercial conditions for the project are cast in stone. How well the project has understood and integrated these risks into its approach is then regularly checked. We have improved the training available for project developers and review teams to help them know what to look for, and how to change their projects to address these issues. As well, the most senior sustainable development managers from the business and corporate centre now review our more than 70 largest early-stage projects twice a year. All major new investments must also include the expected future costs of emitting CO₂ in their project design and decision-making.
Safety is always our first priority. We aim to have zero fatalities and zero significant incidents. To make “Goal Zero” a reality, we are rewarding good safety performance and getting better at checking that safety rules are being followed. Our process safety standards contain company-wide rules on how to design and maintain complex installations like refineries or oil production sites. And a new team of independent, senior internal auditors has been put in place to check that these standards are implemented across Shell. Getting road safety right is another priority – approximately 60% of our fatalities in 2007 happened on the road.

Our mandatory road safety standard covers areas such as route planning and driver training. It also bans all use of mobile phones when driving.

Earning the trust of our neighbours starts with listening to the different points of view in a community. We typically use contributions from community panels and open days to understand what our impacts are and what matters most to the community. We then work closely with communities to reduce the negative impacts from our operations and produce local economic benefits through our business activities and social investment. We have a structured, company-wide approach. All our major refineries, chemicals facilities and upstream operations where social impacts could be high, have social performance plans in place. These plans spell out how the operation will manage its social impacts and generate benefits for the local community. Across Shell, the priority now is to improve the engagement skills of our staff and increase their commitment to social performance, particularly in teams developing major new projects.

Finding ways for our operations to help development and reduce poverty in the communities where we operate is an important part of our commitment to sustainable development. Contributions to government finances is one way we help. In 2007, we paid governments over $19 billion in corporate taxes and $1.8 billion in royalties. We also support government efforts to turn these funds into social benefits. We are strong supporters of the Extractive Industries Transparency Initiative (EITI), which requires mining and oil companies to publish their payments to host governments and encourages those governments to be open about how the funds are spent. Hiring local staff and buying from local suppliers is another important way we can help. In 2007, we spent approximately $17 billion on goods and services from locally-owned companies in developing countries where we operate, and had programmes in place in nearly 90% of these countries to promote local sourcing.

Nigeria’s challenges are familiar: widespread poverty and corruption, and organised crime fuelled by crude oil theft in the oil-rich Niger Delta. We have been a major investor in Nigeria for over 50 years and remain determined to stay and help the country increase energy production and bring development. In 2007, we paid $1.6 billion (Shell share) to the government in taxes and royalties from Shell-run operations. Onshore in the Delta, the government received 95% of the profits from each barrel of oil. Unfortunately, the security situation remained serious in the Delta, preventing access to some facilities. Under funding of the Shell-run joint venture by the government partner added to the difficulty. As a result, there were further delays both to our programme to end continuous flaring and to our maintenance plans to reduce operational oil spills. Efforts to improve the effectiveness of our community development programmes made some progress.
Both our scenarios suggest that a gap in supplies of conventional oil and gas could open up around 2015. Harder-to-extract oil from the deep ocean, remote areas such as the Arctic, and from oil sands will be needed as a result.

**DEEP WATER**
Shell pioneered deep-water production in the 1970s, and remains a technology and commercial leader. In 2007, we began work on new offshore projects off the coast of Brazil and in the US Gulf of Mexico, and we decided to develop a field off the coast of Malaysia.

**ARCTIC**
Our technology and experience is also helping us operate responsibly in Arctic and sub-Arctic regions where conditions can be extreme, the environment fragile and where the traditional way of life of local communities must be respected. We are beginning an important exploration programme off the Alaskan coast. In early 2008, we were the highest bidder for 275 exploration leases in the Chukchi Sea and we hope to resume exploring in Alaska’s Beaufort Sea before the end of 2008.

**OIL SANDS**
The Athabasca Oil Sands Project (Shell share 60%) in Canada is our first minable oil sands operation. Turning oil sands into transport fuel requires a lot of water and more energy than conventional oil. The current operation’s advanced design has reduced energy use compared to competitors. It is working towards meeting an aggressive voluntary target to reduce its CO₂ emissions by 50% by 2010, and is considering a project to capture and store more than one million tonnes of CO₂ per year from the operation’s Scotford Upgrader.

Natural gas is the cleanest burning fossil fuel. Shell produces around 3% of the world’s natural gas. Investing in natural gas production is an important part of our strategy. Today, roughly 40% of our production is natural gas.

**LNG LEADER**
We’re a global leader in liquefied natural gas (LNG), holding the largest share of LNG capacity of any international oil company. By 2010, we aim to have almost doubled our capacity since 2004 through expansions in joint ventures we are part of in Australia, Nigeria and Sakhalin Island.

**CO₂ CAPTURE AND STORAGE (CCS)**
CCS will be a critical technology for managing GHG emissions from electricity. In our “Blueprints” scenario, for example, 90% of all coal- and gas-fired power plants in developed countries are using it by 2050. Today, because of costs and permitting issues, no power plants use CCS. We are encouraging governments to create the incentives and regulations needed to get CCS demonstration plants running. We are already supplying CO₂ from our Pernis refinery to greenhouses in the Netherlands and are involved in a number of large-scale demonstration projects, like the ZeroGen power project in Australia.

**RENEWABLE ELECTRICITY**
We are working on the technological breakthroughs needed to reduce the costs of wind and solar power. As a major wind power developer, we are participating in projects with a capacity of over 1,100 MW (Shell share approximately 550 MW), enough to power more than half a million homes. This includes the Mount Storm wind project in the USA, launched in 2008. Our solar business is focused on advancing our proprietary thin-film solar technology.
We are one of the largest providers of transport fuels. We are committed to helping drivers use less energy and reduce their emissions with advanced fuels and lubricants; to leading the search for better biofuels; and to promoting government policies to reduce CO₂ emissions from transport.

**LESS LOCAL POLLUTION**
We continue to reduce sulphur levels in fuels and see great promise for Shell’s gas to liquids (GTL) Fuel, made from natural gas. Colourless, odourless and virtually sulphur-free, GTL Fuel is the most cost effective alternative for reducing local air emissions. Shell is building the world’s largest GTL plant in Qatar.

**SHELL FUEL ECONOMY FORMULA – GOING FURTHER, USING LESS**
Shell’s Fuel Economy formula fuels contain blends of advanced additives and cleaning agents that can help improve drivers’ fuel efficiency by reducing energy loss in engines. By the end of 2007, we were selling these Fuel Economy formula blends in 18 countries. We also launched the Shell FuelSave Challenge campaign in eight countries. Its aim is to help drivers improve their fuel economy by adopting fuel-saving driving habits and by using Shell’s Fuel Economy products.

**BUILDING A BETTER BIOFUEL**
We see leadership in second-generation biofuels as strategically important. We are quadrupling our rate of investment in this area. These biofuels do not compete with food production for agriculture land, and emit up to 90% less CO₂ on a lifecycle basis than conventional diesel or petrol. We are also collaborating with producers, governments and non-governmental organisations like the Round Table for Sustainable Palm Oil, to raise awareness and develop industry-wide sustainability standards for first-generation biofuel production.

**BETTER ROADS**
We are helping our customers in the construction sector use less energy and emit less CO₂ when laying roads. Shell WAM Foam Solution – a blend of two types of bitumen – can be laid at temperatures 50°C cooler than traditional asphalt, reducing CO₂ emissions during laying by 30%.

We also pioneered Shell Instapave Solution, an alternative to gravel or concrete roads that makes better, all-weather roads more affordable in the developing world. These roads increase driver fuel efficiency compared to gravel roads, and help give rural areas access to markets, schools and hospitals.

**BETTER LUBRICANTS**
Our advanced lubricants keep engines and machinery running more efficiently, saving customers money on their fuel bills and reducing their GHG emissions. Our range of premium lubricants, for example, uses friction-reducing additives and engine-cleansing technology to improve vehicle fuel efficiency by up to 5%. Our advanced industrial lubricants help machines run more efficiently, and help some operate for up to twice as long between maintenance stops.

**CHEMICALS**
Shell is providing advanced chemicals made from oil and gas that consumer goods manufacturers use to make everyday products. For example, Shell’s scientists have developed critical ingredients for washing powders and liquids that work at lower water temperatures, cutting the energy used by washing machines by more than half. We’ve also helped develop more concentrated laundry detergents – significantly reducing packaging, transport costs and energy use.
Reporting environmental and social data differs from financial data in a number of important ways. There are inherent limitations to the accuracy, precision and completeness of environmental and social data. These limitations stem from the nature of the data. Certain parameters rely on human behaviour and are affected by culture and personal perception. Other parameters rely on complex measurements that require constant tuning. Still others rely on estimation and modelling.

We accept that our published environmental and social data will be affected by these inherent limitations. We continue to improve data integrity by strengthening internal controls. We have summarised our performance below, but more details can be found at www.shell.com/performancedata.

<table>
<thead>
<tr>
<th>GREENHOUSE GAS EMISSIONS[A]</th>
<th>FLARING – Exploration &amp; Production</th>
<th>ENERGY INTENSITY – Refineries</th>
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<tbody>
<tr>
<td>Million tonnes CO₂ equivalent</td>
<td>Million tonnes hydrocarbon flared</td>
<td>Energy Intensity Index [EII™]</td>
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<tr>
<td>Actual</td>
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<td>90</td>
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<tr>
<td>1000 tonnes CO₂ equivalent</td>
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</table>

[A] Target and baseline adjusted to reflect portfolio changes.

GHG emissions were lower than in 2006 – and nearly 25% below 1990 levels – mostly from reduced flaring in our Exploration & Production business.

Total flaring dropped again in 2007 mainly as a result of closing onshore production wells in the Niger Delta due to the security situation. Outside Nigeria, we effectively met our goal of ending continuous flaring by 2008.

Dedicated programmes have improved the energy efficiency at our refineries by almost 2% since 2002. But efficiency has dropped over the past two years because of more shutdowns.

Energy intensity at our chemicals plants has improved by 9% since we launched our energy efficiency drive in 2001.

Our upstream energy intensity has risen by nearly 30% since 2000 as fields age and harder-to-reach oil is produced. This is part of a wider industry trend. In response, we launched a major energy efficiency programme in 2007.

Producing petrol from oil sands requires significantly more energy than producing it from conventional oil. Energy saving technologies were designed into our Athabasca oil sands operation.

Our total spill volume rose in 2007, mainly because more spills, due to sabotage, occurred in Nigeria. Spills from corrosion or other operational problems fell again thanks to continued improvements in our downstream business.

Sadly, two employees and 28 contractors lost their lives in confirmed incidents while working for Shell in 2007. Our fatal accident rate has continued to improve since 1997.

Our injury rate – down by more than 50% since 1998 – was our lowest ever in 2007. This performance reflects the big push we are making to strengthen our safety culture.

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**ADDITIONAL WEB CONTENT**

**www.shell.com/responsibleenergy**

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**INJURIES – Total Recordable Case Frequency**

Per million working hours

- 8
- 6
- 4
- 2
- 0

- 1
- 2
- 3
- 4

- 98 99 00 01 02 03 04 05 06 07

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**SPILLS[A]**

Volume in thousand tonnes

- 20
- 15
- 10
- 5
- 0

- 98 99 00 01 02 03 04 05 06 07

[A] 2006–7 data restated since the publication of our 2007 Annual Report and Form 20-F as a result of investigations into incidents in a difficult to access area that were completed in the interim.

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**SAFETY – Fatal Accident Rate[A]**

Per 100 million working hours

- 8
- 6
- 4
- 2
- 0

- 98 99 00 01 02 03 04 05 06 07

[A] 2003–5 figures adjusted to reflect the removal of oil sands activities from Exploration & Production data.

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