



SUSTAINABILITY REPORT

Royal Dutch Shell plc
Sustainability Report 2014

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Cover photo

Our scientists and engineers have been improving fuel efficiency for over a century. Amsterdam, the Netherlands.

New Lens Scenarios disclaimer

This publication contains data from Shell's New Lens Scenarios. The New Lens Scenarios are a part of an ongoing process used in Shell for 40 years to challenge executives' perspectives on the future business environment. We base them on plausible assumptions and quantification, and they are designed to stretch management to consider events that may only be remotely possible. Scenarios, therefore, are not intended to be predictions of likely future events or outcomes and investors should not rely on them when making an investment decision with regard to Royal Dutch Shell plc securities.

Cautionary note

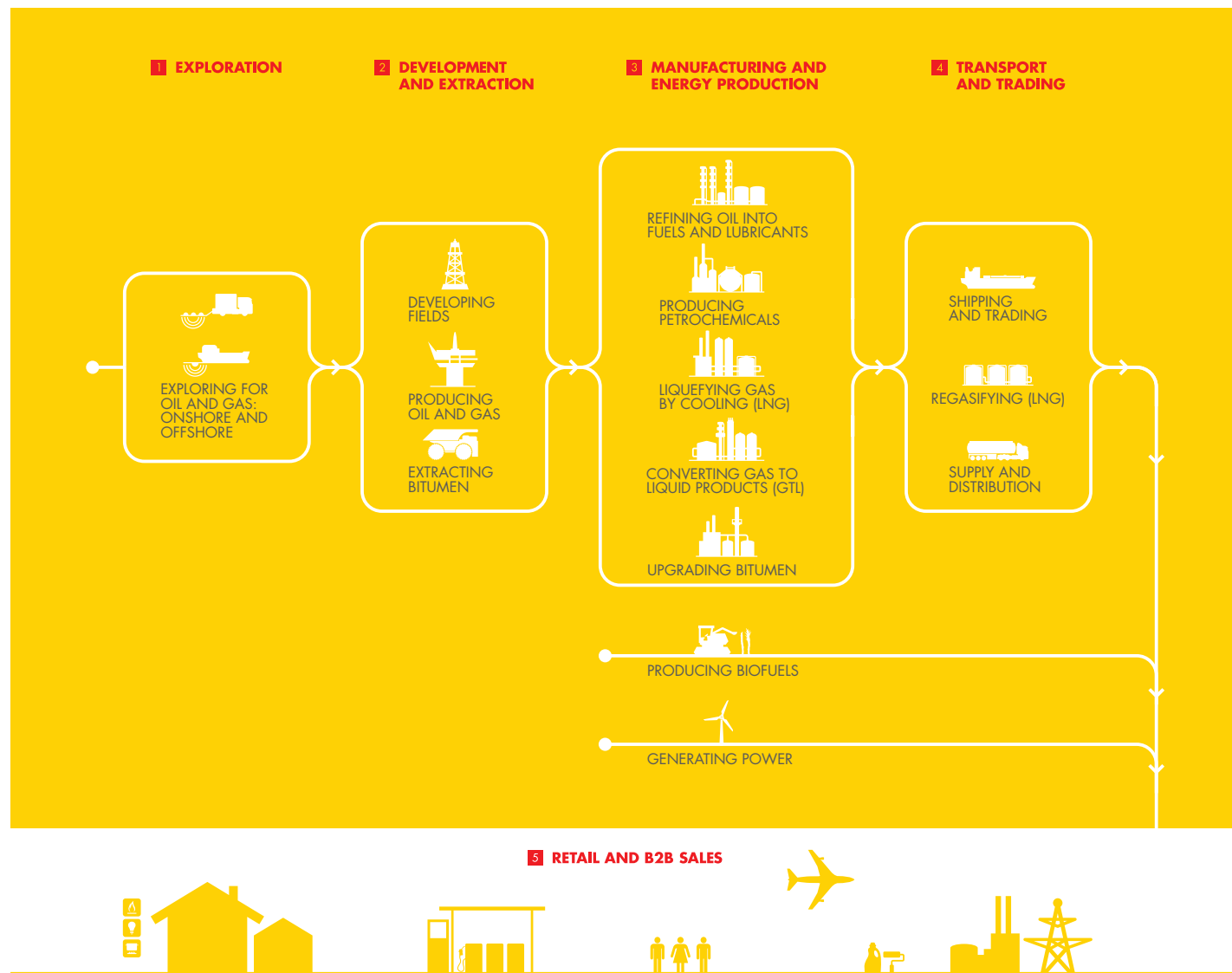
The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate entities. In this publication "Shell", "Shell group" and "Royal Dutch Shell" are sometimes used for convenience where references are made to Royal Dutch Shell plc and its subsidiaries in general. Likewise, the words "we", "us" and "our" are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. "Subsidiaries", "Shell subsidiaries" and "Shell companies" as used in this publication refer to companies over which Royal Dutch Shell plc either directly or indirectly has control. Companies over which Shell has joint control are generally referred to "joint ventures" and companies over which Shell has significant influence but neither control nor joint control are referred to as "associates". In this publication, joint ventures and associates may also be referred to as "equity-accounted investments". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in a venture, partnership or company, after exclusion of all third-party interest.

This publication contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as "anticipate", "believe", "could", "estimate", "expect", "goals", "intend", "may", "objectives", "outlook", "plan", "probably", "project", "risks", "schedule", "seek", "should", "target", "will" and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this publication, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures

addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. All forward-looking statements contained in this publication are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Royal Dutch Shell's 20-F for the year ended December 31, 2014 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward looking statements contained in this publication and should be considered by the reader. Each forward-looking statement speaks only as of the date of this publication, April 10, 2015. Neither Royal Dutch Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this publication.

We may have used certain terms, such as resources, in this publication that United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. US investors are urged to consider closely the disclosure in our Form 20-F, File No. 1-32575, available on the SEC website www.sec.gov.

ABOUT SHELL



Shell is an integrated energy company that aims to meet the world's growing demand for energy in ways that are economically, environmentally and socially responsible.

UPSTREAM

Upstream explores for and produces natural gas, crude oil and natural gas liquids by developing onshore and offshore fields. It also mines and extracts bitumen from oil sands and converts it into synthetic crude oil. Natural gas may be liquefied, transported as liquefied natural gas and then regasified where it is needed or it may be converted from gas to liquid fuels. Upstream also operates the infrastructure necessary to deliver oil and gas to market. Wind power activities are also a part of Upstream.

DOWNSTREAM

Downstream is the business that manufactures oil products, biofuels and chemicals, which are then distributed and sold. Downstream trades Shell's hydrocarbons and other energy-related products and manages our fleet of natural gas carriers and oil tankers.

PROJECTS & TECHNOLOGY

The Projects & Technology organisation works across Downstream and Upstream driving research and innovation to create technology solutions for finding and developing oil and gas. It manages the projects that turn oil and gas fields into profitable assets and is the engine through which Shell creates value for the future.

www.shell.com/about

MATERIAL TOPICS

The Shell Sustainability Report 2014 focuses on the sustainability challenges and subjects that matter most to people who have an interest in our activities.

We use a structured process to select the report's content. This includes contributions from non-governmental organisations, investors, media, rating agencies and public opinions as well as from teams and individuals within Shell. The information is gathered in different ways including formal meetings, workshops and online feedback. The material topics detailed here have been collated from this process.

The selected topics are relevant to the 2014 full year reporting period. The topics included in this year's Sustainability Report were rated as a priority by one or more of the contributing groups or individuals. We have listed the selected topics in alphabetical order, rather than giving them an overall weighting; this is due to the number of contributors who participated and the different ratings that were given to the topics.

HOW TO NAVIGATE THIS REPORT

As readers have particular interests, this report can be read in sections, as articles or as a single report. We have grouped the selected topics within four sections:

- **Our approach** discusses Shell's position in working towards a lower-carbon future. It includes an introduction from Ben van Beurden, Chief Executive Officer, and an introduction to Shell's view on the energy sector. This section also defines the principles and governance structures that apply to all Shell's employees and activities.
- **How we operate** details the fundamental principles that apply across our business, such as our approach to keep our people and facilities safe, to reduce our impact on the environment and to engage with communities. Our collaborations and our work with partners are also detailed here.
- **Our activities** reviews our key activities in 2014, including our operations in countries that were prioritised in our materiality review. It also covers developments in 2014 that can support the transition towards a lower-carbon future – this includes our work in gas, biofuels and our research on future technologies, such as hydrogen for mobility.
- **Our performance** covers our performance data for 2014, including revenue transparency, environmental and social data.

Further information about the materiality process can be found on [page 56](#).

ARCTIC

- Climate change
- Communities
- Ecosystems
- Future plans
- Improvements to operations

[Pages 32 and 33](#)



BIOFUELS

- Advanced biofuels
- Partners
- Standards
- Sustainability clauses

[Page 41](#)

CLIMATE CHANGE

- Carbon capture and storage ([page 16](#))
- Carbon pricing ([page 16](#))
- Energy efficiency ([page 17](#))
- Greenhouse gas (GHG) emissions ([page 48](#))
- Lower-carbon technologies ([page 42](#))



CONTRACTORS, SUPPLIERS AND JVs

- Local economic development
- Local employment
- Sharing knowledge
- Supplier Principles
- Worker welfare and labour rights

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CORPORATE GOVERNANCE

- Anti-bribery and corruption ([page 10](#))
- Business Principles ([page 10](#))
- Corporate Social Responsibility Committee ([page 11](#))
- Revenue transparency ([page 46](#))
- Standards and assurance ([page 11](#))



DEEP WATER

- Communities
- Emergency response
- New projects
- Safety

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- Biodiversity (page 14)
- Decommissioning (page 15)
- Flaring (pages 34, 36 and 48)
- Oil spills (pages 30, 36 and 46)
- Performance (page 48)
- Water (page 14)



GAS

- Carbon dioxide emissions (pages 6 and 16)
- Floating LNG (FLNG) (page 26)
- Gas to liquids (GTL) (page 27)
- Liquefied natural gas (LNG) (page 26)
- Liquefied natural gas for transport (page 27)



HUMAN RIGHTS

- Code of Conduct (page 10)
- Communities (pages 10, 18 and 50)
- Indigenous peoples (page 10)
- Labour rights (page 10)
- Security (pages 10 and 50)
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IRAQ

- Community investment
 - Employment and suppliers
 - Flaring
 - Security and safety
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NIGERIA

- Communities
 - Crude oil theft and spills
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PARTNERS AND COLLABORATION

- Community partners
 - Employee programmes
 - Environmental partners
 - Industry bodies
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SAFETY

- Asset integrity (page 16)
- Assurance (page 11)
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- Response capability (page 13)

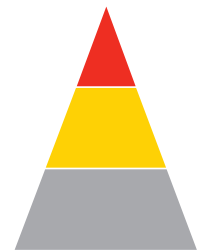


SOCIAL PERFORMANCE

- Community engagement (page 18)
- Community feedback mechanisms (pages 10, 18 and 50)
- Community investment (page 50)
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SUSTAINABILITY IN SHELL

- Our principles (pages 5, 6 and 8)
- Sharing benefits (page 8)
- Sustainability in projects (page 9)
- Sustainability strategy (page 9)
- The energy future (page 6)



TECHNOLOGY AND INNOVATION

- Eco-marathon (page 40)
- New and advanced technologies (page 42)
- New fuels (page 40)
- Renewable energy (page 42)

TIGHT GAS

- Environmental standards
 - Methane
 - Safety of communities
 - Water use
- Pages 28 and 29

FOR MORE INFORMATION

- www.shell.com/sustainability
- sustainabilityreport@shell.com



OUR APPROACH

Shell works to help meet the world's growing demand for energy in a responsible way. This means operating safely, reducing our impact on the environment and sharing benefits with the communities who are our neighbours.

This section outlines our sustainability principles, governance and standards that underpin our operations. It also describes our role as the world transitions towards a lower-carbon future.



Pearl GTL Plant; a world-scale operation located in Ras Laffan, Qatar.



INTRODUCTION FROM THE CEO



“As we work towards a lower-carbon future it will be necessary to rely on a variety of energy sources.”

Welcome to Shell's Sustainability Report for 2014. It has been a year of uncertainty, with a falling oil price towards the end of 2014 and geopolitical instability in regions such as the Middle East. We continue to take a long-term view of our business and remain in a strong position commercially.

The international dialogue about how to address climate change gained pace during the year, particularly with the joint announcement by the USA and China to set emissions targets. Climate change remains one of the most pressing challenges facing the world.

THE ENERGY TRANSITION

Today, an energy transition is taking place: a slow but steady shift from a predominantly carbon-based system towards one of net-zero carbon emissions. At the same time, there are more than 1.2 billion people globally who still lack access to modern energy. For these people, the availability of affordable energy is a basic need. Energy can help people move out of poverty, support businesses and grow local economies. This poses a challenge for policymakers and others, including the oil and gas sector: how to provide people with affordable energy while reducing carbon emissions.

The world needs to meet the energy demands of a global population projected to reach nine billion by 2050. This will require continued growth in renewables and improvements in energy efficiency. As we work towards a lower-carbon future it will also be necessary to rely on a variety of energy sources. This includes fossil fuels with technologies that reduce emissions such as carbon capture and storage (CCS).

There is no simple answer or single approach to this energy transition. The world needs tailored policies appropriate for countries at varying stages of development. Advanced economies will need to review their energy mix to ensure they make the best use of all options, including renewables and lower-carbon energy solutions, whereas emerging economies may need to make use of their own resources, if available.

To meet these differing needs and move towards a lower-carbon future, we need policy frameworks that support more energy-efficient systems; lower-carbon options such as gas; CCS to reduce CO₂ emissions; and renewables – areas in which Shell is already working. Innovation will play a key role in making this happen. We are developing advanced biofuels and looking closely at future technologies such as hydrogen-based fuels. Governments can also support progress by introducing effective carbon trading systems and carbon pricing mechanisms to encourage investment in lower-carbon technologies.

OPERATING RESPONSIBLY

At Shell, we have long been known for our strong focus on safety with the goal of no harm and no leaks in our operations. Respect for people, their safety, their communities and the environment remain top priorities.

Sustainability at Shell includes our being a respected and valued member of society, which is essential to the longevity of our business. It informs our business decisions and is embedded in our company culture and has long been part of our Business Principles and our day-to-day operations.

At every stage of our operations we seek to reduce our impact on the environment and listen to the communities with which we work. This helps us to understand the indirect effects of our operations, both positive and negative, and to contribute where possible to the communities' needs. The Arctic is a case in point, we will only go ahead with exploration when we are fully prepared and ready to do this responsibly.

Within Shell, we need to do more to reduce our emissions and energy use within our operations. We are taking steps to reduce our

flaring and fugitive methane emissions. We have signed up to the World Bank's initiative to end continuous flaring by 2030 and are collaborating with partners in the oil and gas industry to design and implement common standards on methane emissions. This work is critical if cleaner energy from oil and gas is to be part of a lower-carbon future.

MORE COLLABORATION

As a global energy company, we have a significant role to play in the energy transition. Shell's ability to innovate combined with our experience of working in partnership with others means that we can be essential participants in the emerging energy system. We are already working with governments in countries that include China and the Netherlands, to help design policy frameworks for developing their energy systems. This approach could be replicated in other countries. All must work together to create effective policies and solutions that provide communities with the energy they need.

Our Sustainability Report details our activities during 2014. The report builds on our commitment to sustainability and transparency over the years – we were a founding member of the United Nations Global Compact and continue to support its principles on human rights, labour, the environment and tackling corruption.

I would like to thank the members of the External Review Committee, consisting of leading sustainability experts, for their input to the report this year. Their contributions are highly valued.

I invite your comments on the report. Please send them to sustainabilityreport@shell.com

Ben van Beurden
Chief Executive Officer

WHY ENERGY MATTERS

Energy is essential to growth in today's world. It serves the needs of a growing population and is a tool to help people out of poverty.

Today's global energy system is under pressure from the need to tackle climate change. There is an urgent need to reduce global carbon dioxide (CO₂) emissions. In 2014, a report by the Intergovernmental Panel on Climate Change (IPCC) stated that the "warming of the climate system is unequivocal and unprecedented, with emissions rising faster than ever before." The IPCC has called for a global ambition to reach net-zero CO₂ emissions by 2100.

At the same time, energy demand is increasing. In some countries, energy access can mean the difference between prosperity and poverty, and sickness and health. By 2060, Shell estimates that energy demand could rise by two-thirds from its level today, with much of the growth coming from emerging economies.

MORE ENERGY, LESS CO₂

As the world reassesses the way in which it produces and consumes energy, the challenge is how to provide more energy with less CO₂ and to move from a predominantly carbon-based system towards one of net-zero carbon emissions. Our Shell New Lens Scenarios (see disclaimer), published in 2013, show that net-zero annual energy system emissions is achievable by 2100. The scenarios analyse current economic trends and projects plausible pathways into the future.

The role of renewables

Renewable energy – including wind, solar, biomass and hydropower – will play a key role in the transition towards a lower-carbon future. It will eventually become the largest component of the global energy system. Our scenarios show that by 2060 renewables could supply at least four times more energy than they contribute today.

In advanced economies there is already an increase in renewables and natural gas as sources of power generation.

The role of hydrocarbons

Despite this strong rise in renewables, a mix of energy sources will be needed to meet growing global demand. It is possible to have an energy mix that includes oil and gas, along with biofuels and solar and wind power, as part of the transition to a lower-carbon future. Hydrocarbons will be part of this energy transition. The key is to reduce the associated emissions with carbon capture and storage (CCS), energy efficiency and a shift from coal to gas.

If we are to maintain a continuous supply of energy, there will need to be ways to support the shortcomings of renewables, such as their intermittency in producing power and the high cost of investment currently required.

WHAT SHELL IS DOING

Gas is the cleanest burning fossil fuel and can be used as a reliable back-up energy source for solar and wind. Shell currently supplies gas to more countries in the world than any other energy company.

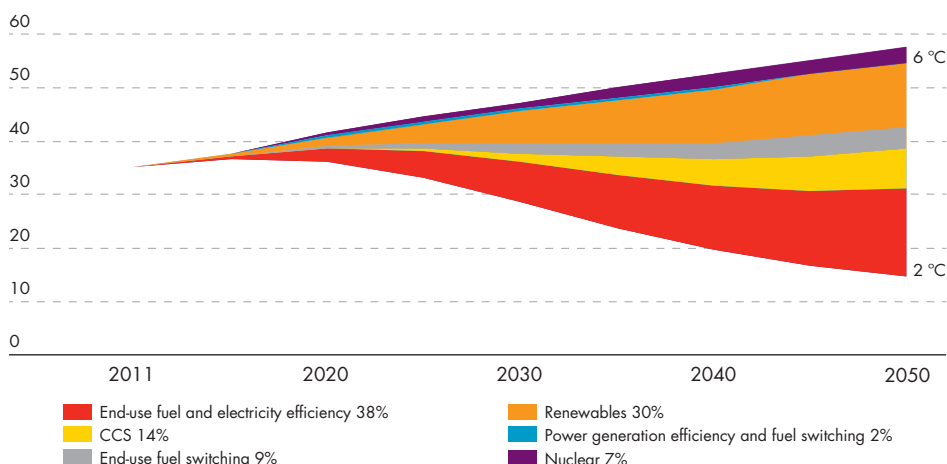
Technology innovations, such as CCS, can also play a critical role in combating climate change. CCS is an important technology as it has the potential to help reduce cumulative CO₂ emissions from power generation. In 2015, Shell's first CCS project is scheduled to start operating in Alberta, Canada. It will capture up to 1 million tonnes of CO₂ a year and store it underground. (See [page 16](#)).

Shell is one of the largest producers of biofuels in the world through our joint venture Raizen in Brazil. (See [page 41](#)). We are also developing advanced biofuels that convert plant waste into low-carbon fuels. These advanced biofuels could have lower CO₂ emissions than the biofuels available today.

Since 2009, we have invested more than \$1 billion annually in research and development – a part of this includes investments in renewable energies such as solar, wind power and hydrogen storage as well as new, cleaner transport solutions such as hydrogen fuels and infrastructure for electric vehicles. (See [page 42](#)). Technology also helps us to improve energy and water efficiency within our own operations. For example, we are reducing our use of fresh water by finding new ways to reuse and recycle waste water. (See [page 14](#)).

ACHIEVING A 2 °C SCENARIO

Gt CO₂ sectors and technologies



Source: International Energy Agency (2014), *Energy Technology Perspectives 2014*, OECD/IEA, Paris

ACHIEVING A 2 °C SCENARIO

To limit the global average temperature increase to 2 °C the deployment of a range of technologies will be required: energy efficiency; fuel switching; renewables; nuclear; and CCS.

The graph from the International Energy Agency (IEA) shows the current projections if there is no reduction in CO₂ emissions, leading to a 6 °C global temperature rise. It also shows the potential contribution of the most relevant technology options for an 80% chance to reduce emissions to achieve the globally agreed limit of 2 °C. (See [page 16](#)).

IEA analysis offers strong evidence that the role of CCS will be significant, with a cumulative contribution of 14% up to 2050.

COLLABORATING FOR A LOWER-CARBON FUTURE

Technological developments will help the energy transition but effective energy policy in countries will be essential. Policies need to be created that recognise both economic development and environmental objectives by encouraging renewables as well as cleaner hydrocarbons.

Meaningful carbon pricing can promote energy efficiency, stimulate the development and deployment of lower-carbon technologies and create change in the energy mix. Shell publicly advocates for the introduction of effective carbon pricing on CO₂ emissions to drive investment in this area. (See [page 16](#)).

We are also collaborating with governments and civil society to develop and implement cleaner energy solutions. Shell encourages an informed debate towards making real progress to reduce CO₂ emissions.

URBANISATION

Cities are a primary focus for Shell's work on future scenarios in the global energy system and environment, as they are where the most energy is consumed. By working with authorities and planners in some of the world's largest cities, we are able to explore new ways of energy use and new technologies and systems to create better resilience and minimise emissions.

By 2050, two-thirds of the world's population could be living in cities according to the United Nations Department of Economic and Social Affairs. Urban populations will increase most in China, India and Nigeria – accounting for 37% of the projected growth of the world's urban population between 2014 and 2050.

Today, the majority of global CO₂ emissions comes from cities, even though urban areas only occupy around 3% of the earth's total land surface. In 2014, Shell published its *New Lenses on Future Cities*, which explores the energy resource implications of urbanisation. It states that cities consume 66% of the world's total energy. Therefore, as smaller and medium-sized cities grow, local governments and authorities face the challenge of maintaining a quality of life for the people who live there, while addressing resource challenges and pollution.

Shell's work with governments, businesses and civil society is helping us to better understand how cities develop, and their impact on energy supply and demand. We are conducting studies to determine how cities can adapt to the increasing pressure on their resources and systems. We are also trying to understand how the rapid growth of certain cities will impact infrastructure and energy requirements: these studies are taking place in India, Indonesia and the Philippines.

The effective planning of local infrastructure could help create conditions needed to reduce energy use and emissions, for example, by building better transport infrastructure that has less impact on the environment.

Urban populations will increase most in China, India and Nigeria. Below is Chongqing, China.



1 MILLION

Tonnes of CO₂ each year is expected to be captured by the Quest CCS project in Alberta, Canada

2/3

Shell estimated rise in energy demand from today's level by 2060

66%

Of the world's population could be living in cities by 2050

SUSTAINABILITY AND OUR BUSINESS STRATEGY

Our role in sustainability is to help meet current energy needs in a responsible way. We do this by operating in line with international standards, our own stringent frameworks and best practice. We also participate in shaping a path towards a lower-carbon energy future.

Our core values of honesty, integrity and respect for people are the foundation of our Shell General Business Principles and have been applied across our business operations for many decades. These principles require us to comply with strict health, safety, security, environmental and social guidelines in all of our projects. Our standards evolve from experience as well as changing expectations. For example, in the late 1990s we added a commitment within our Business Principles to contribute to sustainable development.

When we invest in energy projects we seek to balance the short- and long-term interests of our business – the energy business requires long-term investments and there are many countries where we have operated for decades. We seek to balance a broad range of risks in our portfolio choices to consider the economic, social and environmental risks as well as political and technical. Our investment decisions are taken after we assess a range of risks that includes financial, environmental and our potential impact on the neighbouring communities.

Project delays can occur if our potential impacts on the environment or communities are not fully considered as part of our planning. Our commitment to safety, the environment and to communities plays a crucial role in how we think, plan, design and

operate projects. For example, we are working to reduce our environmental impact in areas such as water use. (See [page 14](#)).

In the coming decades, we believe that more and lower-carbon energy will be required to meet the needs of a growing population. Natural gas, the lowest-carbon fossil fuel, accounted for over half of our energy production in 2014. Our commitment to technology and innovation continues to be at the core of our strategy. Since 2009, we have invested more than \$1 billion each year in technology research and development which is more than any other international oil and gas company. (See [page 42](#)). During that time period around \$1 billion of our research and development investment has been in lower-carbon technologies.

INTEGRATING SUSTAINABILITY

Our approach to sustainability works across our activities on three levels:

Running a safe, efficient, responsible and profitable business

This is the foundation of our approach. It enables us to deliver sources of energy to our customers and to earn the trust of people who are affected by our business. We have standards, processes and tools to manage safety, reduce our

environmental impact and involve communities. Respecting and safeguarding people – including our employees, contractors and neighbours – is fundamental to how we conduct business.

Sharing wider benefits where we operate

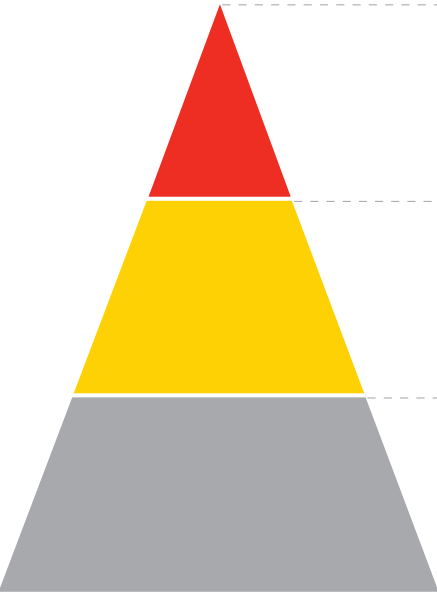
We aim to bring benefits to communities and local economies by creating jobs, procuring local services and goods, supporting business development, and paying taxes and royalties. Our social investment programmes focus on road safety, access to energy and skills development in the communities where we operate. (See [page 18](#)). We engage with communities and work to address any concerns they may have about our operations so that we can reduce any negative impacts.

Helping to shape a more sustainable energy future

At Shell, we aim to be essential participants in the energy transition. This includes promoting thought leadership and collaborations in areas such as our work on cities and resilience. We also advocate on carbon pricing and invest in lower-carbon portfolio choices that include carbon capture and storage, advanced biofuels and alternative technologies, such as hydrogen-based fuels. We also contribute to public debates and discussions on climate and energy policy, including advocating for higher standards across areas such as safety and environmental management.

INTEGRATING SUSTAINABILITY

REPORT AREAS AND EXAMPLES



Helping to shape a more sustainable energy future

- Why energy matters
- Partners and collaborations
- Energy and climate change
- Future technologies
- Gas and biofuels

Sharing wider benefits where we operate

- Investing in communities
- Local employment and industry development
- Health and education
- Road safety improvement experience sharing

Running a safe, efficient, responsible and profitable business

- Governance and standards
- Human rights and community engagement
- Oil spill prevention and emergency response capacity
- Safety and asset integrity
- Environment

ENVIRONMENTAL AND SOCIAL RISK SPECIALISTS

HOW WE EMBED SUSTAINABILITY IN OUR PROJECTS

When we plan or develop new facilities, or make changes to existing ones, we apply a staged project development process (see coloured arrows below) that is consistent around the world. We embed sustainability across our projects by:

- conducting integrated assessment on the potential environmental, social and health impacts;
- conducting specific risk assessments or specialist studies in areas that may affect the project, such as water, cultural heritage or security; and
- engaging with and assessing concerns from communities.

These assessments help us to manage and reduce impacts at all stages of the project. The results are made publicly available where we are legally permitted to do so.

Our process

At each review stage in the project development process, we decide if and how we move forward with the project. This includes balancing the short- and long-term interests, and integrating economic, environmental and social considerations when taking business decisions.

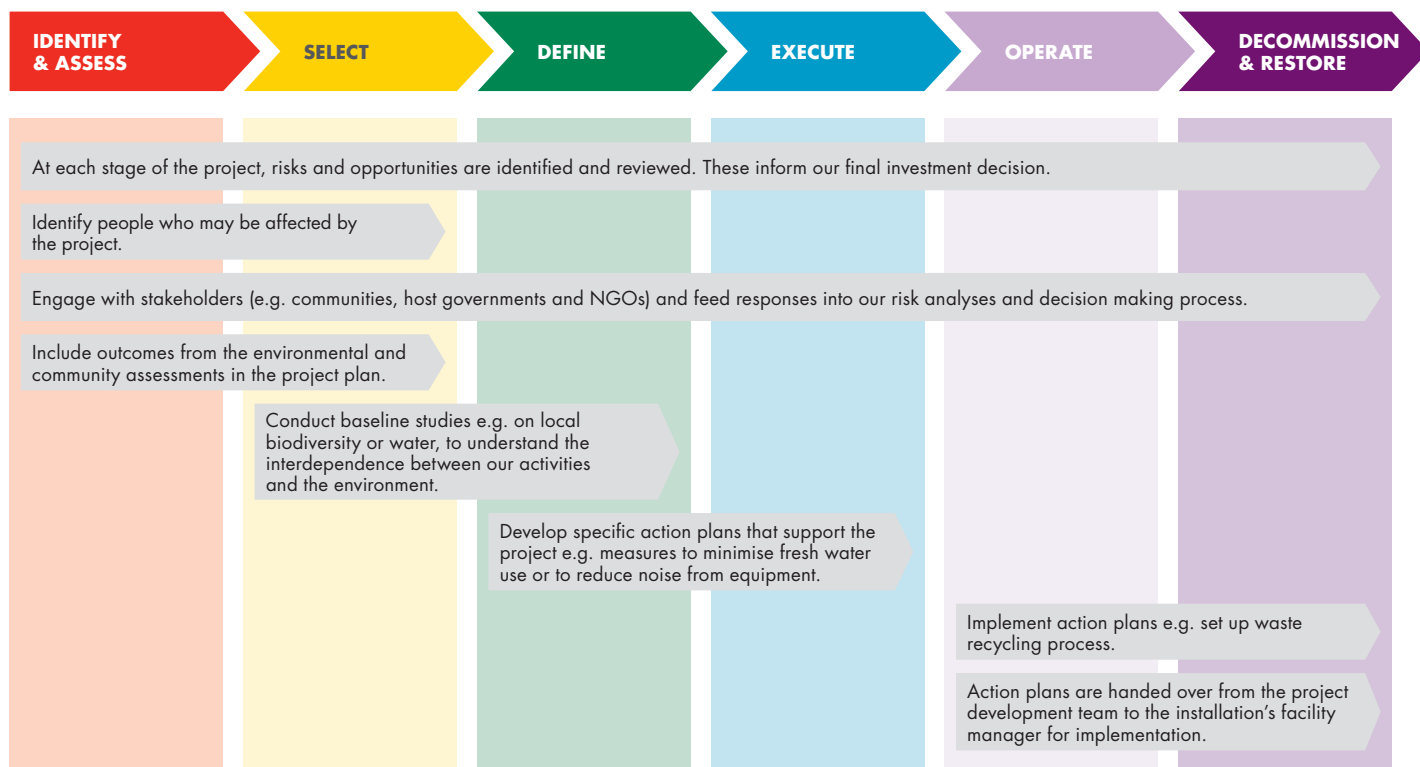
The results of these assessments are documented in an integrated project management plan which is signed off by the business manager who has overall accountability for the project. The plan is monitored and reviewed throughout the life cycle of the project.

Our people

We train teams to help them understand how to embed sustainability into our projects. They are supported in the project development process by specialists in the areas of environmental management (see [page 14](#)) and social performance (see [page 18](#)) including:

- biodiversity, waste management, energy management and water management specialists; and
- indigenous peoples' rights, cultural heritage and resettlement specialists.

The specialists work with the project team to ensure that potential impacts on local communities and the environment are considered in project design, construction and during operations.



LIVING BY OUR PRINCIPLES

The core values of honesty, integrity and respect for people are reflected in our business principles, which govern the way we work. These principles are applied to the environment and in all our relationships with business partners and neighbours.

OUR BUSINESS PRINCIPLES

The Shell General Business Principles (SGBP) detail our responsibilities to shareholders, customers, employees, business partners and society. They set the standards for the way we conduct business with integrity and our respect for the environment and local communities. All Shell employees and contractors, and those at joint ventures we operate, are expected to understand and behave according to our business principles at all times. We encourage suppliers and joint ventures that we do not operate, to apply equivalent principles.

OUR CODE OF CONDUCT

The Shell Code of Conduct guides individuals on how to behave in accordance with the SGBP. It outlines specific individual responsibilities in areas such as safety, anti-bribery and corruption and fair competition. Shell provides mandatory training and regularly reminds employees and contractors about the importance of both the business principles and the Code of Conduct. All Shell employees, contractors and anyone acting on behalf of Shell must follow the Code of Conduct.

We encourage employees and contractors to seek advice and report concerns of any potential breaches, anonymously if they wish. Reported concerns or allegations are investigated by specialists within Shell and if a violation is confirmed we take appropriate action. This may involve serious consequences, up to and including dismissal or contract termination. We maintain a stringent no retaliation policy to protect any person making a good faith allegation.

Antitrust

We aim to do business fairly, ethically and in accordance with applicable laws that promote and safeguard fair competition among businesses. Our commitments include the prohibition of practices such as price-fixing and market sharing. We provide guidance, advice and training to help employees understand their responsibilities and how to act in full accordance with the law.

Anti-bribery and corruption

Anti-bribery and corruption is mandated in Principle 10 of the United Nations (UN) Global Compact of which we are a founding member. Our business principles are clear: we do not tolerate the direct or indirect offer, payment, solicitation or acceptance of bribes in any form, including facilitation payments.

Our anti-bribery and corruption programme applies to all Shell employees and contractors, and those at joint ventures we operate. The programme includes mandatory requirements in areas such as conflicts of interest and offering or accepting gifts and hospitality.

HUMAN RIGHTS

We have the responsibility and commitment to respect human rights. Our human rights policy is informed by the UN Guiding Principles on Business and Human Rights, and applies to all of our employees and contractors. Since 2010, we have been working to integrate human rights into existing policies, systems and practices. We embrace a diverse and inclusive work force and have an equal opportunities policy. (See [page 51](#)).

We consult with international organisations, companies, civil society and relevant bodies to understand and respond to current and emerging human rights issues. We also work with oil and gas industry bodies to help other companies adopt human rights practices. For example, in 2014, we helped IPIECA (the global oil and gas industry association for environmental and social issues) develop a manual about community grievance mechanisms to offer practical tools for the industry to implement mechanisms for communities. Our human rights approach focuses on four key areas:

Communities

We assess the potential environmental, health and community impacts of our projects. (See [page 18](#)). We have community feedback mechanisms in place to enable people neighbouring our operations to raise concerns about the impacts of our activities and remedy any issues.

Security

We aim to keep employees, contractors and facilities safe, while respecting the human rights and security of local communities. We implement the Voluntary Principles on Security and Human Rights (VPSHR) and include them in our private security contracts and in our engagements with public security forces. We conduct annual risk assessments in our relevant operations and provide training to relevant employees and contractors.

Labour rights

The UN Global Compact, of which we are a signatory, details labour rights within its principles. We apply the core International Labour Organisation conventions on workers' rights and respond to current and emerging issues on the implementation of the Global Compact principles. We also work to reflect this throughout our supply chain. (See [page 21](#)).

Supply chain

The Shell Supplier Principles were introduced in 2011 and apply to all our suppliers and contractors. They set out the expectations we have of our suppliers and contractors about labour conditions as well as business integrity, health, safety and social performance. In 2014, we developed a guide on worker welfare for our projects. (See [page 21](#)).

INDIGENOUS PEOPLES

Our activities have the potential to affect indigenous peoples who hold specific rights for the protection of their cultures and traditional ways of life. We consult and engage with indigenous communities to understand how our activities may impact upon their rights. We then find ways to mitigate any negative impacts and to benefit the communities. For example, in Canada we have several agreements in place that describe our intent to work with many First Nations and Métis communities to strengthen relationships, consult and engage on our projects.

We also train our employees to understand how to work and engage with indigenous peoples. We continue to work with IPIECA to develop a consistent approach and best practice across the oil and gas sector for free, prior and informed consent.

CODE OF CONDUCT

This describes the behaviour expected of our employees and how they relate to our business principles and core values.

OUR CORE VALUES



Honesty



Integrity



Respect

OUR BUSINESS PRINCIPLES

- economic
- competition
- business integrity
- political activities
- health, safety, security and environment
- local communities
- communication and engagement
- compliance

GOVERNANCE AND STANDARDS

Effective governance, standards and controls within Shell help to ensure good sustainability performance, in health, safety and the environment, and in our work with communities.

Our governance procedures are applied to all areas of decision making across Shell. This involves the Board of Royal Dutch Shell plc, four Board Committees, the Executive Committee, and the teams and individuals who work in our operations. We take rigorous care to ensure that decisions are cascaded within the business.

The Corporate & Social Responsibility Committee (CSRC) is one of the four Board Committees. Their views and findings about our sustainability practices are integrated into Shell's business to strengthen our procedures and operations within countries.

THE CORPORATE & SOCIAL RESPONSIBILITY COMMITTEE

The CSRC was established in 2005. The Committee's role is to review and advise on policies and performance against the Shell General Business Principles, the Shell Code of Conduct and mandatory Health, Safety, Security, Environment and Social Performance (HSSE & SP) standards.

The Committee met five times in 2014 and currently consists of four Non-executive Directors. They bring experience from industry and national government. The Chairman of the CSRC during 2014 was Charles O. Holliday, former CEO and Chairman of DuPont. He is assisted by: Sir Nigel Sheinwald, a former British diplomat; Patricia A. Woertz, a business leader with extensive experience in the oil sector; and Gerrit Zalm, a former Minister of Finance from the Netherlands.

"The Corporate and Social Responsibility Committee plays a crucial role in governance by reviewing sustainability performance," says Charles O. Holliday. "We are here to help Shell's executive management to achieve the

continual improvements in safety, environmental and social performance that are so essential to the energy sector."

Activities in 2014

The CSRC undertakes regular in-depth reviews of key parts of our business and monitors any major issues of public concern that are relevant to Shell. They review a broad range of sustainability topics, including environmental, social and health impacts of our projects and operations drawing on performance updates and data that are gathered from across Shell. In 2014, topics included climate change, human rights and process safety management. The CSRC assesses Shell's sustainability performance, audit results and the sustainable development metrics that apply to the Executive Committee. (See [page 46](#)).

Each year, the Committee visits locations to speak with Shell employees, contractors and suppliers and to help assess whether we are putting our standards into practice. During these visits, they also meet with members of the local community and other interested parties, such as non-governmental organisations (NGOs). After each visit, the Committee shares its observations with the Board and with the management responsible for that project.

In 2014, the Committee visited Shell's operations in Canada, including the oil sands in Alberta, the Groundbirch tight gas and oil field, and the site of the proposed liquefied natural gas development at Kitimat. They also met several NGOs in Washington, DC, USA and visited research facilities at Rijswijk in the Netherlands. In 2013, the CSRC visited Shell sites in Alaska and South Africa.

OUR STANDARDS

The overall accountability for sustainability within Shell lies with the Chief Executive Officer (CEO) and the Executive Committee. Our standards are established by our Health, Safety, Security, Environment and Social Performance (HSSE & SP) Executive team, chaired by our CEO, which shapes, drives and assesses how we manage our performance in these areas.

The HSSE & SP Executive team includes members of the Executive Committee and the HSSE & SP leaders across the business. The full committee meets twice a year, while the leaders meet regularly throughout the year to review performance, agree plans and to discuss specific issues. This includes the review and approval of any changes proposed to our standards.

Our standards are set out in our HSSE & SP Control Framework and are supported by a number of guidance documents. They apply to every Shell company, including all employees and contractors, and to Shell operated joint ventures (JVs). The Control Framework defines standards and accountabilities at each level of the organisation, and sets out the processes and procedures that people should follow.

HSSE & SP ASSURANCE

The process safety and HSSE & SP assurance team, with a mandate from the CSRC, provides independent assurance on the effectiveness of HSSE & SP controls. This includes testing the compliance with the HSSE & SP Control Framework and reviewing the effectiveness of other assurance activities operating within Shell.

This assurance is provided against Shell's broad mandatory requirements which are outlined in the HSSE & SP Control Framework. It applies to all operated JVs and non-operated JVs where agreed. The mandated requirements cover risk areas within health, personal safety, process safety, environment, security and social performance.

The process safety and HSSE & SP assurance team develops and executes an assurance programme of compliance audits that covers a variety of risks identified at assets and projects. In 2014, the team conducted 105 audits.

Outcomes from these audits and the response from Shell's management are shared with the relevant parts of Shell and the CSRC. The actions taken to address the audits' findings are also monitored within Shell.

In 2014, the CSRC visited the site of the proposed LNG development at Kitimat, Canada.



HOW WE OPERATE

Shell develops energy resources to meet rising global demand. Our aim is to do this safely and responsibly, by bringing benefits to people in places where we operate and to manage any impacts on communities and the environment.

This section details some of our work in areas such as using energy and water more efficiently, our engagements with communities and managing our carbon dioxide emissions. We also ensure that our employees, contractors, suppliers and partners follow stringent standards.



Everyone working for Shell must adhere to our health, safety and environmental standards. An employee working at Scotford, Alberta, Canada.



SAFETY

Safety is critical to the responsible delivery of energy. We develop and operate our facilities with the aim of preventing any incidents that may harm our employees, contractors or nearby communities, or cause environmental impact.

Our safety goal at Shell is to achieve no harm and no leaks across all of our operations. We refer to this as our Goal Zero ambition. We approach safety across the areas of personal, process and transportation safety (for more on road safety, see [page 20](#)). In 2014, we achieved our best ever safety performance record. (See [page 45](#)).

We apply consistent standards around the world to which everyone must comply – whether they work in a refinery, on a drilling rig or in an office. These can be found in our HSSE & SP Control Framework. They describe what is required to maintain the safety of facilities that we operate, throughout their life cycle from design, construction and operation to decommissioning.

All Shell employees and contractors, and those at joint ventures we operate, must follow our safety rules, intervene in unsafe situations, and respect our neighbours and the environment.

“Our safety goal at Shell is to achieve no harm and no leaks across all of our operations.”

PERSONAL SAFETY

To meet our safety goal, it is critical that we maintain a culture where our employees and contractors understand their own role in making Shell a safe place to work. In 2014, we reinforced the importance of the role of leaders to instil a culture of safety across Shell. We want our workforce to feel looked after and motivated. This helps to ensure they understand and minimise the safety risks associated with their work. We expect people to take personal responsibility for their own safety and intervene to protect others.

Each employee and contractor must also adhere to our mandatory 12 Life-Saving Rules that cover the most critical safety risks. Since their implementation in 2009, there has been a notable reduction in the number of fatalities in our operations. We reinforced these Life-Saving Rules during 2014 through a campaign involving all Shell employees and major contractors.

Our annual global Safety Day is an opportunity for all employees and contractors to spend the day sharing ideas, best practice and planning ways to improve our performance in safety. We also have annual CEO awards to recognise outstanding HSSE & SP performance. (See [page 21](#)).

PROCESS SAFETY

Process safety is making sure the right precautions are in place to prevent unplanned releases of hydrocarbons and chemicals. We seek to ensure that our facilities are well designed, inspected, maintained and operated.

Shell has defined global technical safety standards for all projects and facilities. These are based on industry standards as well as best practice. If an incident takes place, we learn from the outcomes and embed any new knowledge into our technical safety standards and practices.

We ensure that plans are in place and adequate resources are maintained for responding to incidents, such as spills, fires and explosions. We routinely practise and review our emergency response plans for potential incidents in exercises with the local services and regulatory agencies that would be involved if an incident took place. This helps to test and improve our plans.

Our ability to manage oil spills has been enhanced by our global response network that can attend to an oil spill anywhere in the world. We also have a global centre that tests our oil spill response capabilities.

RAISING INDUSTRY STANDARDS

Shell is committed to improving the safety performance of the energy industry. For example, we have a partnership with the Energy Institute (EI), based in the UK where we share our safety experience with other operators in the energy industry. Together, Shell and the EI have advanced research on organisational safety culture, safety leadership and learning from incidents. To read more about our collaborations, see [page 23](#).

JOINT VENTURES

We often work in joint ventures with national and international energy companies. When we operate the venture we apply Shell standards that cover HSSE & SP. The standards for these joint ventures also include our Shell General Business Principles and the Code of Conduct. Where we are not the operator and have no controlling interest we encourage our partners to apply materially equivalent standards.



Louise Kingham,
Chief Executive,
Energy Institute,
London, UK

External opinion

“The Energy Institute (EI) in the UK promotes sound science and develops knowledge, skills and good practice in energy management. Shell is an important and long-standing partner in helping the EI achieve this.

One result of our collaboration is our ability to communicate knowledge that has been developed within Shell to a wider audience. For example, the Hearts and Minds toolkit, created by Shell to help all employees to manage health, safety and environment is now available to wider industry through the EI website. A willingness to collaborate and share knowledge is an essential element in our relationship.”

7

Years since we first introduced Goal Zero

5

Years since we first introduced the 12 Life-Saving Rules

2014

Our best ever safety performance

ENVIRONMENT

We carefully consider the potential environmental impact of our activities and how local communities might be affected, both before projects begin and during operations.

Our environmental standards focus on key areas such as managing emissions, reducing our energy use, flaring less gas produced with oil, preventing spills and leaks, minimising our use of fresh water and conserving biodiversity. (See [page 48](#)). We work to manage and minimise environmental impact from our operations.

We use energy-efficiency technologies and processes to reduce our carbon dioxide (CO₂) emissions and are also working to advance carbon capture and storage (CCS) technologies which could reduce cumulative global CO₂ emissions by around 15% by 2050. (See [page 16](#)).

OUR STANDARDS

Our approach is to comply with environmental regulation, to continually improve our performance in line with best practice, and to prepare for future risks and opportunities. We draw on external standards and guidelines such as those developed by the World Bank and International Finance Corporation to inform our approach. Our own strict environmental standards are designed to meet or exceed regulatory requirements – they are detailed in our HSSE & SP Control Framework. (See [page 11](#)). Shell standards are applied to joint ventures that we control. We also encourage our joint-venture partners to apply materially equivalent standards for those we do not control.

Detailed assessments of the potential environmental, social and health impacts are carried out when we plan new projects. These assessments help us to manage and reduce impacts on the environment or on communities during construction, operation and, when relevant, at the decommissioning stage of projects. The results are made publicly available where we are legally permitted to do so. Our Control Framework requires all of our major

installations including refineries, chemical plants, gas plants and permanently staffed oil and gas production facilities to be certified to ISO 14001.

Our environmental performance is managed in the following ways:

Air quality

Emissions of nitrogen oxides, sulphur dioxide and volatile organic compounds from the production and processing of fossil fuels can affect air quality. We work to reduce air pollution from our operations. We also help customers, including shipping and industrial customers, to reduce their impact on air quality by using our products. (See [page 40](#)).

Sensitive environments

Our projects can affect local biodiversity and dependent communities. When we operate in critical habitats – that is, those that are rich in biodiversity and important to the conservation of endangered species – we apply stringent mitigation standards. This includes reviewing how local people may depend on biodiversity and ecosystems for essentials such as fresh water and food for their subsistence. We partner with major conservation organisations – Earthwatch, the International Union for Conservation of Nature (IUCN), The Nature Conservancy and Wetlands International – to help us improve our performance. We also develop biodiversity action plans for major operations in sensitive environments. (See [page 22](#)).

Our approach is to identify and minimise any impacts during planning, operations and at decommissioning. We implement measures to restore habitats or ecosystems that are close to our operations. For example, we are working on marshland restoration in Iraq, near our Majnoon operations, with Wetlands International. (See [page 34](#)).

The biodiversity of the world's oceans is at risk from overfishing, climate change, pollution from plastics, and other challenges. Protecting this biodiversity will be an increasingly important priority for the world. Shell collaborates with governments, non-governmental organisations and other experts to identify measures to conserve the marine environment.

Waste management

We aim to reduce the amount of waste we generate and reuse or recycle where possible. Our main sources of non-hazardous waste include soil from excavations and drill cuttings (materials removed from the ground during drilling such as rock and soil). Where possible, hazardous waste – such as process water from our chemical plants and refineries – is treated on-site or removed for treatment or safe disposal.

The decommissioning of retired platforms and infrastructure is also potentially a major source of waste. Where possible, we recycle part of the platforms once they are brought to shore. (See [page 15](#)).

GREEN INFRASTRUCTURE

We are looking into ways to integrate natural systems into the design of our projects. This approach, known as green infrastructure, benefits the environment by creating or improving habitats, while increasing the resilience of our facilities and reducing costs.

For example, coastal erosion can be a threat to the stability of pipelines as well as to people's homes and livelihoods. In Louisiana, USA, we are exploring the use of nature-based solutions to stabilise the embankments near our pipeline and to prevent erosion. Over time, these pipeline corridors can create new habitats for water organisms which will also benefit fishing communities.

WATER

Water scarcity is a growing challenge in many regions and the availability of fresh water is a key global issue. It is important that Shell and others in the oil and gas industry manage water in a responsible and sustainable manner to protect and preserve this valuable resource.

Our approach

Our water management approach is based on complying with local and international regulations, on improving our performance and preparing for the future. Across the world, water constraints tend to affect people at the local or regional level. Therefore, the way in which Shell manages our use of fresh water is often tailored to the local situation.

Water use in our operations

In water scarce areas near our operations or projects we develop water management plans. These assess the risks of water availability and help us to monitor and reduce our water use. We also work with parties in water scarce areas, such as communities, municipalities and local government, to understand broader issues around water availability and to create appropriate solutions.

Over the past two years we have established a global centre of excellence for water at the Shell Technology Centre in Bangalore, India. This enables us to share ideas, innovations and technologies on water issues across Shell.

Collaboration

We work with industry bodies, such as IPIECA, the World Business Council for Sustainable Development and the World Resources Institute and our environmental partners on a number of programmes for water recycling, natural infrastructure and water accounting practices. These relationships enable us to improve our current performance and help us prepare for the future.



Our Brent field in the North Sea is scheduled for decommissioning. Scotland, UK.

FOCUS ON DECOMMISSIONING

At Shell, decommissioning is an intrinsic part of the life cycle of any asset and must be done safely and responsibly.

When we decommission a refinery, we safely remove the equipment and restore the land. We use expertise from the existing decommissioning industry to help us with this work. However, like much of the oil and gas industry, some of our more complex decommissioning projects take place offshore.

We take time to identify an appropriate solution to decommission an offshore facility, balancing environmental, safety and economic factors. This involves working with a range of specialists to understand what is technically possible and with regulators such as the OSPAR Commission to agree what is acceptable. We also engage with interested parties to ensure that a wide range of implications of the decommissioning process are considered.

Our largest decommissioning activity, to date, has been the preparation for decommissioning our Brent oil and gas field, which lies in the North Sea between Scotland and Norway. Brent has four platforms, called Alpha, Bravo, Charlie and Delta – they and their related infrastructure are scheduled for decommissioning over the next 10 to 15 years.

DECOMMISSIONING THE BRENT FIELD

Decommissioning the Brent field poses several challenges due to the harsh conditions of the North Sea and the age and design of the platforms, which were built around 40 years ago. Brent was constructed to withstand these conditions, with large concrete legs and base structures under the water on three of the platforms. Newer platforms – those built after the mid-1990s – have base structures that can be refloated and towed away at the end of their life.

The preparation for the decommissioning of the four Brent field platforms started more than eight years ago. During this time, Shell has received expert advice and has consulted with more than 180 interested parties. These include fishing communities, environmental organisations and academics. This engagement has been critical to help shape, inform and gain public support for our recommendations submitted to the UK's Department of Energy & Climate Change (DECC).

An important factor in our decision process is validation by an independent review group of the science that underpins our decommissioning recommendations. The group was established in 2007 and consists of nine eminent scientists.

Recycling

Offshore platforms tend to consist of a topside – the part above the water – which includes the processing facilities and accommodation. It sits on a supporting structure. In late 2014, Shell submitted a recommendation to DECC to decommission the Brent Delta's topside and take it ashore for recycling.

The traditional approach to decommissioning is to dismantle the topside at sea piece by piece. Shell's proposal is to cut the topside free from the legs and remove it in a single lift, using a specialist vessel. It will then be taken to ABLE Seaton Port in Teesside, UK, for dismantling. This method is safer and will use less energy.

Shell has set a 97% recycling target for the topsides – a figure we already achieved when decommissioning the structures at the Shell Indefatigable gas field in the North Sea.

Balancing environmental factors

We continue to work on our recommendations for decommissioning the rest of the Brent field and to consult with parties outside of Shell. Our recommendations will be submitted to DECC when we are confident that the proposals are safe, technically achievable, environmentally sound and financially responsible. They will include details on drill cuttings, pipelines, the concrete legs and the contents of the base structures.

CREATING A DECOMMISSIONING INDUSTRY

A large number of platforms in the North Sea are scheduled for decommissioning by the oil and gas industry by 2040. The removal and recycling of these installations presents an opportunity for a decommissioning industry to grow in Scotland and north-east England.

Oil & Gas UK, the representative organisation for the UK offshore oil and gas industry, forecasts that more than £40 billion will be spent on decommissioning assets in the North Sea over the next 30 to 40 years. The work on the Brent platforms – as one of the first major UK oil and gas fields to be decommissioned – will enable us and other companies to develop specialist skills and expertise that we can use on decommissioning projects around the world.

www.shell.co.uk/brentdecomm

97%

Decommissioning recycling target for Brent topsides

130

Approximate number of installations to be decommissioned by the oil and gas industry in the North Sea in the next decade

ENERGY AND CLIMATE CHANGE

International climate experts state that greenhouse gas emissions are rising faster than ever. The Intergovernmental Panel on Climate Change's *Fifth Assessment Report* recommends carbon dioxide emissions to be net-zero by 2100.

As early as 2040, the cumulative release of carbon into the atmosphere could pass 1 trillion tonnes of carbon or 3.7 trillion tonnes of carbon dioxide (CO₂) – the greenhouse gas that is the main cause of climate change. This is likely to lead to an increase in global surface temperature exceeding 2 °C – the goal in average global temperature rise that was agreed within the United Nations Framework Convention on Climate Change (UNFCCC). Shell's approach to climate change is based on understanding and addressing this challenge.

The global economy is substantially dependent on carbon-based fuels. Despite the acceleration in the uptake of renewables, they will be unable to meet the full breadth and diversity of uses of energy needed to meet the growing demand by mid-century. The International Energy Agency's (IEA) *World Energy Outlook 2014* estimated that fossil fuels are still likely to make up around 75% of the energy mix in 2040 (based on the IEA's *New Policies Scenario*). Shell's scenarios state that 60–75% of energy will remain fossil fuel-based in 2050.

At Shell, we advocate for changes in policies that could lead to a reduction in the level of CO₂ in the atmosphere. This is focused on three key areas:

- encouraging countries to switch from coal to gas which could slow the rate of CO₂ accumulation in the atmosphere;
- encouraging policy makers to set effective and meaningful pricing on CO₂ emissions; and
- encouraging governments to provide support over a limited amount of time for all lower-carbon technologies including carbon capture and storage (CCS) and renewables.

Shell is working on the development of biofuels, hydrogen solutions and wind energy projects (see pages 41 and 42) and to reduce emissions from our existing oil and gas projects, refineries and chemical plants. We have emissions management plans in place but we recognise that we need to do more to reduce both our energy use and emissions.

GAS AS AN ENERGY SOURCE

Shell believes that natural gas is a versatile, abundant and cleaner-burning fuel. (See page 25). Natural gas, the lowest-carbon fossil fuel, accounted for more than half of our energy production in 2014. A natural gas-fired power plant produces around half the CO₂ emissions of a coal-fired plant.

Natural gas can also serve as a back-up system for intermittent renewable energy, such as solar and wind, to maintain a steady flow of electricity, as gas-fired plants can start and stop quickly. Gas is,

"Shell supports the introduction of effective carbon pricing."

therefore, ideally positioned to play a key role in the energy transition as a complement to renewables.

EFFECTIVE CARBON PRICING

Shell supports the introduction of effective carbon pricing as a way to reduce global CO₂ emissions. An effective carbon price means that all that release CO₂ into the atmosphere, such as heavy industry and the power sector, would pay for every tonne emitted.

Carbon pricing systems have the potential to encourage energy efficiency and deploy a range of low-carbon technologies, including renewables.

CARBON CAPTURE AND STORAGE

The world needs CCS as part of its efforts to decarbonise the global energy system. CCS is the process of capturing CO₂ from large industrial sources and permanently storing it deep underground. It is estimated that CCS could remove up to 90% of CO₂ emissions from power generation.

The IPCC *Fifth Assessment Report* demonstrated the importance of CCS. The report notes that without widespread implementation of CCS and other technologies such as biomass, the world is unlikely to reach its desired 2 °C scenario. It also states that without CCS the cost of achieving a 2 °C scenario will be around 138% higher.

CARBON CAPTURE AND STORAGE

The International Energy Agency has estimated that, if widely deployed, carbon capture and storage (CCS) could reduce global CO₂ emissions by around 15% by 2050. CCS demonstration projects are needed to show how existing technologies can work together at industrial scale.

Shell's CCS projects are being developed to test the use of CCS in different settings, with input from local communities and environmental groups. We will be sharing our findings to show the benefits of CCS, to improve technical understanding and to reduce the cost of implementing CCS in the long term.

During 2014, we made significant progress at some of our CCS projects:

Peterhead

Preparations continue toward taking our final investment decision for the Peterhead CCS project in the UK. Since late 2013, Shell has

been in public consultation with key parties. This included local public exhibitions and tours of the Peterhead power station. Other informal engagement with people from the surrounding area is ongoing.

Quest

Quest at the Athabasca Oil Sands Project in Alberta, Canada will be the first use of CCS on an industrial scale in an oil sands operation. When the project starts operating in 2015, emissions will be captured from the site's Scotford Upgrader. Quest is expected to capture more than 1 million tonnes of CO₂ a year.

In our engagement with the local community, concerns have been raised relating to the security of the stored CO₂ and whether the project could impact water quality. We have a monitoring programme that is agreed with the government, to measure and monitor elements that could potentially impact communities or the environment. We share the baseline results with the community

and will continue to share our results once Quest starts operating.

Shell Consolv CCS technology

CCS technology developed by Shell Consolv is now in use at the Boundary Dam power station in Saskatchewan, Canada. Boundary Dam is SaskPower's largest coal-fired power station and a significant source of power for the region. This is the first time CCS has been used on a commercial scale in a coal-fired power station, using post-combustion technology. CO₂ is captured after the coal has been burnt for energy generation.

CCS has been installed in one unit of the plant and will be able to capture around 1 million tonnes of CO₂ a year. Most of the CO₂ will be used for enhanced oil recovery to improve efficiency in nearby oil fields and then permanently stored underground. Sulphur dioxide emissions will also be captured and processed into sulphuric acid for industrial use.

Shell's first demonstration project, called Quest, is expected to start in 2015 in Canada. Over time, wider take-up of CCS is likely to drive down costs. However, increased collaboration is needed now between the energy industry, government and society to ensure that CCS is commercially deployable by 2030 if we are to make a difference to global emissions reduction. Shell plans to freely share knowledge and data derived from the Quest CCS project. (See box, page 16).

ADAPTATION

Adaptation reduces the vulnerability of assets, infrastructure, environmental systems and societies to climate change, and is a response to the risks associated with changes in weather patterns. Governments, communities and businesses will need to prepare for severe changes in the weather. Shell is currently identifying our facilities and locations that are most exposed to the physical impacts of climate change.

INVESTING RESPONSIBLY

We have always taken into account potential risks and threats to the viability and profitability of major projects, to ensure the robustness of our portfolio. Some external parties say that fossil fuel reserves could become stranded, due to government policies to reduce CO₂ emissions.

At Shell, we assess the CO₂ risks on all our planned ventures using a CO₂ project screening value (PSV). A value of CO₂ has been applied to all of our projects since 2000. Since 2008, our CO₂ PSV has been \$40 per tonne. This means that new projects are assessed for the financial impact should a price of \$40 for CO₂ emissions be implemented. For projects with a high exposure to carbon pricing or legislation, we consider the impact of higher CO₂ prices.

The screening value can influence the design and operations of projects to increase their resilience to future CO₂ regulation. For example, at our Carmon Creek project in Alberta, Canada, the CO₂ screening value led to the inclusion of process equipment to use energy more efficiently, as well as the capture and disposal of CO₂.

COLLABORATION AND ADVOCACY

Shell collaborates with a number of organisations and industry associations to move the energy and climate change discussion forward. In 2014, Shell's Chairman, Jorma Ollila, attended the United Nations Climate Summit in New York to support the World Bank's statement on carbon pricing, along with other leaders from business and government.

We also work with organisations such as the International Emissions Trading Association to support the inclusion of carbon pricing within a future international agreement on climate change. In 2014, we signed the Trillion Tonne Communiqué which makes the case for a strong carbon price.

This continuing work supports our preparations for the 21st session of the Conference of the Parties to the UNFCCC (COP 21) in Paris in late 2015.

\$150 MILLION

Fuel consumption savings by our LNG fleet in 2013 and 2014

\$40

CO₂ price per tonne factored in for project screening

Nathaniel Keohane
Vice President,
International Climate,
Environmental Defense Fund,
New York, USA

External opinion

"Shell's public calls for governments to put a price on carbon have been a welcome private-sector voice in support of a strong, sensible climate policy."

However, to show future leadership, Shell can – and should – do more to reduce its own emissions. A good place to start is to end venting and any methane leaks. As a greenhouse gas, methane is 84 times more potent than carbon dioxide over a 20 year time span; it also accounts for about 25% of the warming that our planet is experiencing today. Oil and gas production is a leading source of methane emissions but there are existing cost-effective steps that can be taken to reduce emissions and improve safety.

Shell needs to adopt a zero tolerance policy towards methane emissions in its own operations as well as push for sound government regulation to make this approach standard across the oil and gas industry. Shell can lead by its own actions as well as its advocacy."

To read more about methane emissions, see page 29.

ENERGY EFFICIENCY IN OUR OPERATIONS

We continue to work on improving the energy efficiency of our existing operations. Reducing heat loss and power use also helps to reduce our own CO₂ emissions.

In 2014, we continued to improve our energy intensity (the amount of energy consumed for every unit of output). This is the result of work within our operations to improve the reliability of equipment and undertake energy efficiency projects. Emissions from our Downstream business continue to decline. A 1% improvement in energy efficiency across our manufacturing sites is equal to \$5–7 million savings per site, depending on the oil or gas price. In 2014, our 20 global manufacturing sites were able to make energy consumption savings of around \$16 million. This was largely due to our CO₂ and energy management system, which enables us to identify equipment and processes where we can improve energy efficiency.

We are also making efficiency improvements to our shipping operations. For example, we piloted a scheme for our fleet of 54 liquefied natural gas (LNG) and oil vessels by improving in areas such as reducing fuel consumption and loading and discharging times. In 2013 and 2014, the scheme reduced emissions and generated savings worth more than \$150 million. We are now implementing these changes in other parts of our shipping fleet.

COMMUNITIES

Community engagement is fundamental to our approach to sustainability. It helps us to find better solutions, build people's trust and is the basis for operating responsibly.

Many of our operations have neighbouring communities. While this can bring benefits to communities, it can sometimes have negative impacts. It is critical that we assess the potential impacts of our business activities and engage with communities.

We work closely with communities to understand their concerns and decide how to best address them. This can cover issues relating to how our projects may affect their lives, such as increased traffic or water use (see [page 14](#)). We work to reduce any negative impacts on the people who live near our facilities and to manage those impacts that may be unavoidable.

This community engagement also helps to identify where we can bring benefits to communities. This includes supporting social investment programmes, employment and contractor opportunities, training and ecosystem restoration.

We develop a social performance plan for all our major projects and sites. These plans follow the HSSE & SP Control Framework which governs how we plan and operate. (See [page 11](#)). We also use international standards as our benchmark, such as the International Finance Corporation's Environmental and Social Performance Standards. Our engagement with communities and our social investment projects are measured against our social performance indicators and then analysed within Shell.

ENGAGING WITH COMMUNITIES

The first stage of planning projects involves carrying out an impact assessment to understand the potential effects on local communities, including people's health and the environment. The Shell team may include people with specialist skills in areas such as working with indigenous peoples, land and resettlement, or cultural heritage. Their work will highlight potential risks that may affect a project, such as a site containing an area of cultural significance.

At every review stage of the project we consider environmental, social and health impacts and decide whether and how best to move ahead. The assessment of these risks may lead to the revision of project plans, such as rerouting pipelines or working with contractors in a different way. (See [page 9](#)).

There are many ways in which community members can contact Shell if they have concerns, for instance, we host community meetings, conduct surveys, have community advisory panels and employee telephone hotlines. We also inform people of any impacts that may affect them during our operations, such as higher levels of traffic.

Concerns from the community can also be raised through our community feedback mechanisms or shared with a community liaison officer based in the area. (See External opinions for community views). Our community feedback mechanisms are designed to capture and resolve concerns

Wang Dingping

Former Deputy Director, Economic and Information Bureau, Luxian county, Sichuan province, China

External opinion

"Shell's and PetroChina's Fushun shale gas project has gradually brought benefits to Luxian county. The development of shale gas is in line with our national energy strategy and also provides energy security for Sichuan province. In the past, we relied on gas supplied from Luzhou City; now, we have started to export gas to Luzhou.

Yet there are downsides, such as a lack of communication about the project's environmental impacts on villagers. Though the impacts of shale gas development on ground water remain hotly debated, Shell still needs to convey any relevant information to villagers as they have an increasing expectation of greater disclosure of information."

to prevent them from escalating. Concerns include levels of local employment, human rights and issues such as noise and dust. We are implementing these mechanisms across our operations.

This closer dialogue with communities can help to remedy grievances. For example, at the Shell-operated Jinjiu tight gas project in China's Sichuan Province, which started in 2011, there was a direct link between a reduction in blockades by the community and the introduction of a community feedback programme by Shell and our partner, PetroChina. The project was developed over three stages. During the first stage, there had been concerns among community members about increased traffic and compensation for land access resulting in 238 days of delays. Community liaison officers were hired locally and feedback mechanisms introduced in each community. In the final phase of the project, completed in 2014, only seven days were lost due to disruptions.

INVESTING IN COMMUNITIES

Social investment is an important part of being a good neighbour in the countries where we operate. Each country develops its own social investment strategy, working within a common global framework and direction.

Energy generated by the football players' movement is used to power the lights in this soccer pitch, supported by Shell LiveWIRE. Rio de Janeiro, Brazil.



SOCIAL PERFORMANCE INDICATORS

Our social performance indicators monitor the progress of our community engagement and where we share benefits with communities where we operate. The indicators include:

- community complaints based on the category of complaint, acknowledgement of the issue, resolution time and whether a resolution was achieved;
- disruption of operations from community unrest;
- local spending on goods and services for use within our operations, particularly in lower-income countries;
- the amount spent on voluntary social investment; and
- number of people from the country who are employed on the project.

We continue to work on indicators to help us better assess the effectiveness of our community engagements.

Our approach to social investment is to understand the local context and then invest in areas that complement Shell's business and the needs of that community. In some cases, we also contribute to communities through philanthropy. In 2014, we spent around \$160 million on voluntary social investment projects around the world. In addition, more than \$100 million was spent on social investment in line with contractual requirements in some projects.

We have updated our global social investment strategy with a view to achieving more impact. Shell's three core themes of social investment are in areas that are relevant to our business and where we can offer business expertise: access to energy as an enabler to social development; improving road safety; and supporting local enterprise and sustainable employment within communities. Shell teams in different countries work in consultation with communities to choose the most relevant themes in which to invest.

The teams may also implement locally tailored programmes on community development, education, biodiversity and conservation. (See [page 50](#)). We often form partnerships with other parties in countries to implement our programmes, including development agencies and non-governmental organisations (NGOs). (See [page 22](#)).

We are currently implementing a common global framework to measure the impact of our investments. The measurement of each programme will be based

on assessing our contribution to society while meeting our business goals. The results help us to understand the effectiveness of our social investment over the long term.

Access to energy

The World Bank states that globally nearly 1.2 billion people live without access to electricity and around 2.7 billion people rely on wood or other types of biomass to cook and heat their homes. Shell is the largest private-sector supporter of the Global Alliance for Clean Cookstoves, which encourages the use of clean stoves in Africa, Asia and Latin America. We have pledged \$12 million since 2010 to this partnership and provide additional in-kind support with business skills and expertise, advising on carbon financing and impact investing. Our countries of focus are China and Nigeria.

We are also supporters of United Nations Sustainable Energy for All (SEFA) that promotes energy as a means to help countries develop. SEFA's goals include universal energy access, improving energy efficiency and doubling the proportion of renewable energy use. In 2014, we tested a new toolkit to understand the local energy needs of particular communities, such as fishermen or indigenous peoples. This will help us design ways to address the energy poverty challenges faced by local communities.

Improving road safety

Road traffic is a major cause of casualties in countries where we operate. We have been running road safety programmes to help reduce the number of road deaths, including promoting safety awareness in communities. (See [page 20](#)). We are a lead partner in the Global Road Safety Partnership (GRSP), a global alliance that creates road partnerships across sectors and brings together government, civil society and businesses to improve road safety. We also have a technical partnership with GRSP where they help us to improve our own road safety community programmes.

Shell chairs the Global Road Safety Initiative, a private sector collaboration with GRSP that works to improve road safety in cities and communities. It works across eight countries, involving local organisations to implement programmes. Its "Safe to School – Safe to Home" projects focus on making sure that children travel or walk safely to and from school. We have replicated this programme close to our operations in Nigeria and Vietnam.

Encouraging local enterprise

Our LiveWIRE programme helps entrepreneurs start their own businesses, build skills and turn their ideas into long-term sources of income. The programme is active in 15 countries where we operate. Each country develops its own programme, working with local businesses, non-profit organisations and chambers of commerce. Programmes include



Reverend
Albie Martin
Chairperson of
the Taranaki
District Māori
Wardens,
New Zealand

External opinion

"At the opening of the Māui natural gas field in New Zealand in 1979, the Māori elders expressed the importance of conserving the environment. Shell assured them that safety and environmental protection was its first priority.

Over the last 35 years, I have witnessed many successes and some hard times. Two fatalities more than 20 years ago devastated our community and I have seen how Shell has learned enormously from that tragic day.

In southern New Zealand, Shell has recently been questioned by the Māori people about the potential environmental impacts of a proposed deep-water exploration. The Shell team spoke about the extensive prevention measures taken and the meticulous daily processes to ensure the workers, rig and the environment are safe.

Shell's approach has reassured me. They are relentless to ensure continuous safety improvements are made each day. I ask that Shell shares its safety leadership across the industry and more broadly. I can vividly recall the opening of Māui in 1979: the same assurance given then has been upheld today, nearly 35 years later."

an online advisory service, mentoring from Shell employees, grants, access to finance and workshops to help people develop their business plans.

For example, our LiveWIRE programme in Pakistan works with CARE International to support women from rural areas to set up businesses. In 2014, we trained around 950 participants in Pakistan leading to 35 business start-ups. In 2014, 450 persons were trained in the Niger Delta, including 180 people living with disabilities. In Saudi Arabia, around 1,380 people took part in business training which led to 184 female-owned businesses being created.

COMMUNITIES CONTINUED

ROAD SAFETY

Each year, our employees and contractors around the world drive almost 1 billion km in more than 70 countries – a distance equivalent to 70 times around the world every day. Shell is always working to improve on road safety with ongoing training, the sharing of best practice and by developing programmes in countries that may lack the adequate laws, enforcement or infrastructure. We also work to enhance road safety in communities where we operate and share our knowledge across other sectors.

Improving road safety at Shell

Across Shell, we have a global mandatory road safety training programme that drivers and their supervisors must attend on a regular basis. They are taught to recognise hazards, anticipate errors from others and focus on individual behaviour. Our drivers must follow Shell's Life-Saving Rules. This includes following a prescribed plan for their journeys; wearing a seat belt; not using mobile phones while driving; and adhering to speed limits. We also use technology such as monitoring systems inside vehicles to further improve driver behaviour and recognise drivers for good practice. Where possible, we try to reduce our use of road transport: the safest journey is the one not taken.

Sharing safety experience

We share our road safety knowledge with other companies and NGOs. For example, we are a board member of the Network of Employers for Traffic Safety (NETS) that aims to improve road safety via employees. We helped to create the NETS' *Comprehensive Guide to Road Safety™* to assist employers to progress their global road safety programmes. Shell has also shared best practice with other companies such as Abbott and Unilever, regarding road safety programmes, including mobile phone bans while driving.

Shell has a global road safety training programme.



Shell Foundation

Shell Foundation (SF) is an independent charity that applies a business approach to global development challenges, such as creating jobs, improving access to energy and urban mobility. Since 2000, SF has worked with long-term partners to create new solutions that can help make social and environmental improvements on a global scale. SF provides business support, grant funding and market links to help social enterprises prove their models, achieve financial independence and expand into new markets.

Once a social enterprise model has proved viable and able to scale, SF creates intermediary businesses and industry associations to support market growth. Over the past 15 years, SF partners have created 35,000 jobs, avoided 6.2 million tonnes of CO₂ emissions and secured around \$5 billion of investment. In total, SF's work has benefited 22.6 million people. In 2014, SF developed partnerships with the UK's Department for International Development (DFID) and the United States Agency for International Development (USAID) to enhance energy access in emerging markets and support job creation in the Middle East.

Increasing energy access

More than 2 billion people lack access to reliable, affordable and modern energy, according to the United Nations Development Programme. This affects their health, education and earning potential. One of SF's core programmes focuses on increasing access to affordable and reliable energy. In 2014, SF published *Accelerating Access to Energy*, that outlines its work in this area since 2000.

SF's work includes a long-term partnership with d.light, a company that designs, manufactures and distributes affordable solar lighting and power products for low-income households and small businesses.

d.light is now established in over 60 countries after receiving business and financial support over six years from SF. In 2014, it doubled its sales to more than 6 million solar light products and attracted \$11 million of investment from social investors to fund its expansion.

Affordable solar products

In 2010, SF partnered with M-KOPA Solar, a social enterprise based in Kenya that combines solar and mobile technology to provide low-cost energy to villages in East Africa. The company has merged solar and mobile payment technology to provide credit to people on a low income. This means they can access solar energy products which they pay for in daily instalments using their mobile phone. This includes a solar-powered system for lighting homes and for charging phones and radios.

In 2014, M-KOPA Solar received \$20 million of funding to help its growth. This came from social and commercial investors including the Bill & Melinda Gates Foundation and the Commercial Bank of Africa. By the end of 2014, M-KOPA had sold more than 100,000 solar-home systems and is now expanding across Kenya, Tanzania and Uganda.

www.shellfoundation.org

CONTRACTORS, SUPPLIERS AND JOINT VENTURES

Our projects provide opportunities to build local economies through employment, skills development and training. In 2014, we spent more than \$67 billion on goods and services around the world and around 240,000 contractors were employed by Shell in 2014.

When we operate a joint venture, we apply the Shell General Business Principles, the Shell Code of Conduct and Shell standards that cover health, safety, security, environment and social performance. In non-operated joint ventures, we seek to influence our partners to apply materially equivalent principles and standards. We also work with industry partners to share safety standards and knowledge.

WORKING WITH SUPPLIERS

The building of strong relationships with our contractors and suppliers is essential to delivering our projects and running our operations. When we select our suppliers we look at their commitment and expertise in areas that include innovation, safety, quality and labour rights.

All suppliers and contractors are required to conform to the Shell Supplier Principles. These principles are based on Shell's General Business Principles. They cover: business integrity such as anti-bribery and corruption; health, safety and environmental (HSE) management; and labour rights. We have a Supplier Qualification System that is used to assess suppliers and identify any potential risk in these areas. This is a service run by an independent company to assess a supplier's ability to manage its health, safety, ethics and sustainability risks.

Certain areas of our supply chain will pose a higher labour rights risk, based on a combination of their location and the category of goods or services that are being procured. We supplement this with

The Accommodation and Welfare Guide will help establish consistent accommodation standards.



independent analysis to help us identify areas of risk. In 2014, we assessed 1,073 of our suppliers and contractors on their level of compliance with our Supplier Principles.

HUMAN RIGHTS AND WORKER WELFARE

In 2014, a new supplier auditing programme was introduced for merchandise suppliers as part of our risk-based approach. This helps Shell to understand and mitigate labour rights risks associated with merchandise manufacturing.

We conduct ethical audits in factories that are being considered as a supplier to Shell. Each audit reviews a supplier's labour practices, HSE conditions and general business practices. In 2014, audits were carried out in 17 factories, covering 91 products, based on locations that we consider of risk. The audits highlight any areas that do not comply with our standards. Suppliers may have to improve conditions before they can be accepted by Shell.

Thousands of our contractors work on construction sites away from home. Good working and living conditions for our employees and contractors helps to bring about a safer and more productive working environment. In 2014, we published our *Accommodation and Welfare Guide* that provides tools and management guidance relating to the living conditions for employees and contractors who work away from home. It defines the conditions for safe, secure and comfortable accommodation to meet the physical, mental, cultural and social needs of workers. The guide will help to establish a consistent global standard across Shell for those who build our facilities around the world. It applies to all ventures operated by Shell and should be used by all Shell contractors that provide worker accommodation.

BUILDING LOCAL OPPORTUNITIES

Shell contributes to local economic development in the countries where we operate, directly or through our partners. We work with governments and partners to help create jobs and support the development of local businesses. At the start of a project we consider how we can best make use of local suppliers and individuals, helping them to build capabilities that meet our safety and quality standards.

For example, in Iraq, we selected five local companies in 2014 to take part in a pilot programme to train suppliers to meet international standards. We currently have 350 local suppliers registered with us in Iraq. In Oman, we work with



Internal opinion

"The Shell Bukom manufacturing site in Singapore has grown significantly over the last 50 years. Today, there are 1,100 employees and around 3,000 contractors. The site management has a safety programme which included a number of interventions, such as making sure that team leaders had the right skills to promote job safety. A video on Shell's Life Saving Rules was also produced as part of the induction process.

As a result, despite the increased level of activity in 2013 to 2014, the safety performance on the site improved. In September 2014, Bukom achieved a milestone of two years with no process serious safety incidents at the site. We won a Shell CEO Safety Award in 2014 that recognises this achievement." (See page 13).

government-owned Petroleum Development Oman (Shell interest 34%) to increase local opportunities in the energy sector. Since 2011, around 10,000 jobs have been created for Omanis.

In Nigeria, we have developed a partnership with five banks to assist Nigerian contractors to access finance. Those who are awarded contracts with Shell are offered favourable funding terms from the participating banks in Nigeria. In 2014, the funding scheme enabled 27 contractors to access loans worth more than \$175 million.

In Qatar, Shell signed a strategic partnership agreement with Qatar Development Bank to offer business opportunities to the small and medium enterprise (SMEs) sector and local companies. Shell awarded three contracts to SMEs in 2013 and five new contracts during 2014.

PARTNERS

We have a long track record of building partnerships with environmental and development organisations to bring insights to our work.

The aim of the partnerships can vary from helping to reduce our environmental impact, improve the land around our operations and to implement social investment programmes. For example, we partner with organisations that can advise us in specific areas such as biodiversity and human rights.

ENVIRONMENT PARTNERS

Shell has four main environmental partnerships with Earthwatch, the International Union for Conservation of Nature (IUCN), The Nature Conservancy (TNC) and Wetlands International. Working with our partners leads to improvements in our projects and operations and can help to advance science and conservation knowledge.

We have been involved in more than 50 initiatives with IUCN, the world's largest conservation network, over the last 15 years. Our joint work includes a focus on conserving biodiversity and strengthening the management of protected areas. We also fund the work of IUCN and the United Nations Environment Programme's World Conservation Monitoring Centre to maintain the free and publicly available World Database on Protected Areas.

IUCN and one of its member non-governmental organisations, Nigerian Environmental Study Action Team, have been working with Shell in Nigeria to support the IUCN Niger Delta Panel. Now in its third year, the panel has been recommending approaches to oil spill remediation, biodiversity rehabilitation as well as improving Shell operational procedures. The panel will prepare recommendations on biodiversity conservation to Shell and other parties in 2015.

Wetlands International has been a partner since 2008. We have worked together on several joint projects across the world, from the critical habitats in the Arctic to the peat swamp forests in Brunei. In Iraq, Wetlands International worked with us to develop a biodiversity and sustainable livelihoods action plan to work on the sensitive marshlands near our Majnoon project. Restoration of these marshlands will help the environment and the communities who depend on this resource for their livelihoods. In 2014, Wetlands International developed several guidance documents establishing wetlands criteria that are being used by Shell in the design of its projects.

Our work with TNC has continued for more than 14 years. A current project focuses on preventing coastal erosion in the Gulf of Mexico. The work creates living shorelines by using natural sediment, vegetation and oyster reefs to improve the resilience

of the Louisiana coastline. A natural buffer is created to protect both the shoreline and Shell pipelines from erosion. These living shorelines also preserve or create habitat for marine organisms, which can benefit local fishing businesses.

In Colombia, TNC has been working with Shell at the Magdalena River watershed – a place of important environmental and cultural significance. We are evaluating the potential impact of our operations on local ecosystems with a particular focus on biodiversity. A pilot conservation area has been selected to analyse the environmental impacts.

Project Better World, our employee volunteering partnership with Earthwatch, is now in its 17th year. Shell sponsors employees to take part in scientific expeditions in which they deepen their understanding of sustainability in areas such as climate change or water. We also continue to run a business mentoring programme with Earthwatch in which Shell employees provide mentoring to managers in organisations that look after protected areas. These programmes offer opportunities for Shell employees to apply sustainability principles in practice.

COMMUNITY PARTNERS

We work with both international and community-based organisations that focus on development issues and challenges in society such as unemployment. These collaborations can help to address a specific need in a community where we operate and also to raise operational practices within our business.

For example, we continue to work with the Danish Institute for Human Rights (DIHR) in Iraq and Nigeria. This partnership helps us to integrate human rights practices into the areas of labour practices, procurement, security and community impact. We also work with the United Nations Development Programme (UNDP) on projects in Iraq and Somalia. Shell's shipping business, UNDP and other companies have a programme in Somalia to help steer young people away from piracy – nearly 67% of young people are unemployed in Somalia. A \$1 million donation by Shell has been used to expand infrastructure in central Somalia to create better road access between communities.

We also have a global strategic partnership with Mercy Corps, an international organisation that helps people to recover from crisis, build better lives and transform their communities. The partnership with Shell and Mercy Corps focuses on bringing benefits to people in some areas where Shell has

Dr Pieter Venter
CEO, Global Road
Safety Partnership,
Geneva, Switzerland

External opinion

"Shell provides a visible example of how non-negotiable values and a high priority for safety can be successfully transferred from a company to communities and families. Shell provides an example of road safety excellence from which Global Road Safety Partnership (GRSP) and its members have benefitted.

A representative from Shell is a GRSP Executive Committee member, another is the Chairperson of the Global Road Safety Initiative (GRSI) – a flagship project supported exclusively by corporate members of the GRSP. This reflects Shell's commitment to road safety.

Shell's membership of the United Nations Road Safety Collaboration has led to the planning and development of several new country projects that support national governments' road safety strategies. Its work to improve the knowledge of Shell employees about road safety is an important tool and should be offered to all employees and contractors who oversee road safety community programmes."

activities. An example is a project based in Sichuan province, China, aimed at improving practices among smallholder farmers to have a positive effect on their lives.

Shell is also a lead partner and funder of the Global Road Safety Partnership (GRSP). Local road safety programmes, set up as initiatives under the GRSP, are implemented in various countries where we have operations. (See [page 20](#)).

COLLABORATIONS

We work with many different organisations. These relationships help us to build trust among our stakeholders which include non-governmental organisations. The table below shows some of the organisations we collaborate with at a global level in sustainability and technology. Shell also collaborates with local organisations around the world.

These collaborations fulfil different purposes. For example, they can offer expertise for our business, inform us of developments and issues that affect our industry, share experiences and best practice and also enable us to participate in discussions concerning the future of energy. Our work with the organisations listed below contributes to our thinking on sustainability.

We define collaborations in the broadest sense to mean all forms of working with others. For example, Shell works with organisations, such as IPIECA, to develop good practices across a range of environmental and social issues for the oil and gas industry. With others, such as the International Emissions Trading Association, we advocate the importance of carbon pricing.

Shell may not always agree with all of the views of the organisations with which we work. For example, as we further develop our own position on climate change, our views may differ from those of other organisations. However, we believe it is important that we remain involved with these organisations to inform our thinking and to influence. We also stay involved to take part in other key industry work, such as helping to improve safety and environmental standards and practices. We constantly review our relationships through this lens.

Shell volunteers take part in an Earthwatch expedition to research and measure flora and fauna in the Atlantic Forest, Brazil.



COLLABORATIONS OVERVIEW

	Environmental sustainability and climate change	Human rights and social responsibility	Safety and technical standards	Technology and innovation	Transparency and governance
American Petroleum Institute (API)	■		■	■	■
Bonsucro	■	■			
Canada's Oil Sands Innovation Alliance (COSIA)	■			■	
Center for Sustainable Shale Development (CSSD)	■				
Danish Institute for Human Rights (DIHR)		■			
Energy Institute (EI)			■	■	
Extractive Industries Transparency Initiative (EITI)					■
Global Alliance for Clean Cookstoves		■			
Global Business Initiative on Human Rights (GBI)		■			
Global Gas Flaring Reduction Partnership (GGFR)	■				
Global Road Safety Partnership (GRSP)			■		
International Association of Oil and Gas Producers (IOGP)	■		■		■
International Emissions Trading Association (IETA)	■				
IPIECA	■	■	■		■
Roundtable for Responsible Soy (RTRS)	■	■			
Roundtable on Sustainable Palm Oil (RSPO)	■	■			
UN Global Compact	■	■			■
UN Sustainable Energy for All (SE4All)	■	■			
World Business Council for Sustainable Development (WBCSD)	■	■	■		■

OUR ACTIVITIES

We produce more cleaner-burning natural gas than oil and are working on developing advanced biofuels. We continue to research and develop new technologies, to help bring about a lower-carbon energy transition that meets future energy demand.

This section describes some of our activities in locations around the world. It details what we did during 2014 to balance economic, environmental and social considerations in a responsible way, with safety as our first priority.



Our first floating liquefied natural gas facility is under construction in the Samsung Heavy Industries yard. Geoje, South Korea.



GAS

Natural gas produces significantly lower carbon dioxide (CO₂) emissions than coal for power generation and is the cleanest-burning fossil fuel. It is an essential energy source in the transition to a lower-carbon energy system.

The International Energy Agency says that there are enough recoverable natural gas resources to last around 230 years at current consumption levels. Natural gas can play a significant role in reducing CO₂ emissions in the coming decades. It produces around half the greenhouse gas emissions of coal throughout its life cycle, from production to its use as fuel in generating electricity.

The CO₂ emissions from gas can be further reduced with carbon capture and storage (CCS). CCS could remove up to 90% of CO₂ emissions from power generation and play a key role in moving towards a lower-carbon future. As more countries make commitments to cut CO₂ emissions, displacing coal with natural gas in power plants can be the most affordable route to achieving CO₂ reduction targets.

The Intergovernmental Panel on Climate Change's *Fifth Assessment Report* states that global CO₂ emissions can be reduced significantly by replacing today's standard coal-fired power plants with modern, highly efficient natural gas power plants.

Gas also emits less sulphur oxide, nitrogen oxides and small particles that pollute the air when compared with coal. Since gas-fired plants can start and stop more quickly than coal-fired plants they are more flexible, so they can serve as back-up systems to maintain a steady flow of electricity when intermittent renewable energy, such as solar and wind, is used. Gas is therefore ideally positioned to play a key role in the energy transition, by displacing coal and complementing renewables.

Gas makes up more than half of Shell's total production and is used by our customers to generate electricity, power industrial production, heat homes and fuel ships and trucks. In 2014, Shell announced a succession of deep-water gas discoveries off the coasts of Gabon and Malaysia. Further exploration and appraisal work at these sites are planned. To read more about some of our gas projects see [pages 28 and 34](#).

"Natural gas can play a significant role in reducing CO₂ emissions in the coming decades."

3%

Our share of the world's gas production in 2014

51.8%

Share of our production that was natural gas in 2014

10%

Our share of the world's LNG sold in 2014

Sakhalin-2 is more energy efficient than an average liquefied natural gas plant. Sakhalin, Russia.



GAS CONTINUED

NATURAL GAS

Corrib, Ireland

The development of the Corrib gas field (Shell interest 45%) off Ireland's Atlantic coast is important for the country's energy security. Almost two-thirds of Ireland's electricity is generated using imported gas. However, once the Corrib field starts production (planned in 2015) it has the potential to provide up to 60% of Ireland's gas demand. This is Ireland's largest ever energy investment: Corrib has sustained an average of 1,250 jobs for the past decade, approximately half of which have been for workers from County Mayo. By the end of 2014, more than €1.1 billion had been spent on employing Irish contractors and consultants at Corrib.

A biodiversity action plan was published for Corrib in 2014. It describes the extensive biodiversity conservation and rehabilitation measures that Shell and its contractors have implemented since 2001 to protect and enhance the local environment. It also details measures to restore or improve habitats affected by construction of the site. Since construction began, we have performed rigorous environmental monitoring and collected a large amount of data on habitat and species. This will continue throughout Corrib's operations.

Malampaya

The Malampaya deep-water gas to power project (Shell interest 45%) is one of the most significant industrial projects in the history of the Philippines. Since 2001, it has produced and supplied natural gas to three power plants in Luzon, the country's largest island, and meets 25–30% of the country's energy requirements for power generation.

In 2013 and 2014, two additional production wells were successfully installed and a new depletion compression platform, designed to regulate gas pressure and flow is under construction. This will help to ensure the steady supply of gas to Luzon's electricity grid. The offshore platform is the first of its kind to be built in the Philippines.

During 2013 and 2014, the upgrade of the Malampaya facility has provided more than 1,000 new jobs for Filipinos. We also provide training to help develop people's skills. For example, the Malampaya Health, Safety and Environment (HSE) Training Centre has trained more than 6,000 Filipinos to internationally recognised standards.

LIQUEFIED NATURAL GAS

The liquefied natural gas (LNG) process enables natural gas to be easily transported from remote areas to markets around the world. To create LNG, natural gas is cooled to -162 °C to turn it into liquid form which shrinks its volume by 600 times. At its destination, the LNG is converted back into gas for our customers. We were a pioneer of the LNG industry five decades ago and today we are one of the world's largest LNG suppliers, owning a share in 12 operational LNG plants worldwide.

Sakhalin-2 (Shell interest 27.5%) is located off the east coast of Russia. It includes an LNG plant, the first in Russia, that provides more than 9% of Japan's and 4% of South Korea's LNG supplies. The plant is more energy efficient than an average LNG plant. This is due to liquefaction technology developed by Shell that uses the low temperatures of the subarctic environment more effectively to help cool natural gas for liquefaction. The process

LNG FOR TRANSPORT

LNG can be used as an alternative transport fuel to diesel and heavy fuel oil. LNG for transport produces less sulphur and nitrogen oxide emissions which is better for local air quality. LNG powered trucks and ships are quieter and produce lower CO₂ emissions.

Shell is investing in the development of LNG fuel infrastructure for the marine and heavy-duty road transport sectors. In 2013, we acquired Gasnor, a Norwegian company which provides LNG fuel for ships and industrial customers. Gasnor can supply up to 300,000 tonnes of LNG a year.

In 2014, Shell announced it will be the initial customer to use the new LNG transport infrastructure at the Gas Access to Europe (Gate) terminal at the Port of Rotterdam in the Netherlands. The new terminal will increase the availability of LNG as a transport fuel for vessels in north-west Europe. Once the construction of a new jetty is complete, Shell will operate a specialised LNG supply vessel to deliver to LNG-fuelled vessels in north-west Europe.

In the USA, Shell has signed an agreement with Travel Centers of America, a truck stop chain, to develop a network of LNG refuelling stations for trucks. The first LNG refuelling station opened in 2014. We also plan to open an initial network of refuelling stops for trucks at seven locations in the Netherlands.

Pearl GTL is the world's largest gas-to-liquids plant. Ras Laffan, Qatar.



reduces the amount of natural gas used to run gas turbines, while the waste heat generated in the liquefaction process is used as heat for the treatment process.

LNG Canada (Shell interest 50%) is a joint venture announced in April 2014 to develop an LNG export project in Canada. The proposed project in Kitimat, British Columbia, includes the design, construction and operation of a gas liquefaction plant, and facilities for the storage and export of LNG. If the project goes ahead it will use hydropower to power the plant. A final decision to proceed with the project is yet to be taken by the partners. If constructed, it will connect the abundant supply of Canadian natural gas to markets around the world.

In Australia, the Gorgon LNG project (Shell interest 25%) is under construction on Barrow Island around 50 km off the country's north-west coast. The gas discoveries in the Greater Gorgon fields are currently the largest in Australia. The project will capture CO₂ produced with natural gas and store this more than 2 km underground. The project is expected to capture and store 3 to 4 million tonnes of CO₂ a year when it reaches full capacity.

FLOATING LNG

Floating liquefied natural gas (FLNG) facilities enable LNG to be produced, liquefied, stored and transported at sea, without the need for pipelines, onshore plants and infrastructure. This makes it possible to reach offshore gas fields previously considered too expensive or too difficult to develop and reduces disturbance to land and marine life.

We are constructing our first FLNG facility, Prelude FLNG (Shell interest 67.5%) which will be located off the coast of Western Australia. The components for Prelude FLNG are being assembled in Geoje, South Korea.

Shell has partnered with the Challenger Institute of Technology (CIT) in Western Australia to develop a training programme for FLNG technicians. CIT is providing the training, assessment and assurance of technicians who will work at Prelude. The first technicians graduated in March 2014. We continue to work with the University of Western Australia's Energy and Minerals Institute to strengthen research into the impact of weather and ocean conditions on offshore gas installations and operations.

GAS TO LIQUIDS

Our gas-to-liquids (GTL) technology makes it possible to use natural gas, rather than crude oil, to make a range of liquid products. These include developing cleaner fuels for cars and aircraft, and materials that are used to make chemicals and lubricants.

During 2014, we launched Shell Helix Ultra, a motor oil made from natural gas and Shell GTL technology, Shell PurePlus. These products offer better protection against the build-up of engine deposits than oil-based products. (See [page 40](#)). Shell GTL Fuel is an alternative to diesel that emits less sulphur dioxide, nitrogen oxides and particulate emissions. Trials of the fuel show that it can help improve local air quality in cities when used as a substitute for diesel.

Pearl GTL is a partnership between Shell and Qatar Petroleum. It is the world's largest GTL plant. The plant, located 80 km north of Doha, Qatar, is capable of producing 140,000 barrels of oil GTL products a day, as well as 120,000 barrels of oil equivalent in natural gas liquids and ethane.

Dick Meurs
Managing Director,
Gate terminal,
Rotterdam,
the Netherlands

External opinion

"The construction of an LNG break-bulk harbour basin and LNG installations at the Gate terminal in Rotterdam began in late 2014. The new break-bulk services aim to split large-scale LNG shipments into smaller quantities. This will enable LNG to be distributed as a fuel for shipping, trucking and other industrial applications.

Its design and development has resulted from close cooperation among Shell, the Port of Rotterdam Authority, the gas infrastructure company, Gasunie, and the liquid bulk storage provider Royal Vopak.

As its launching customer, Shell will lead the use of LNG as a transport fuel in north-west Europe. The Gate terminal will be able to supply LNG to bunker ships in the North Sea, Baltic Sea and Channel as well as along the Rhine, Main and Danube. It will mean that cleaner, affordable fuel is available for transport companies all over Europe."

Shell Helix Ultra is a motor oil made from natural gas using patented GTL technology.



TIGHT GAS AND OIL

Tight gas and oil will play an increasingly important role in meeting global energy demand. It is important that we meet high safety and environmental standards, and address any concerns raised by local communities when extracting these resources.

Tight gas and oil are trapped in microscopic pores of very dense shale or sandstone rock, thousands of metres underground. There are large tight-gas deposits all over the world including in Australia, China, eastern Europe, North America, South America and South Africa. Extracting these resources will enable many more countries to benefit from access to gas.

Shell currently has a number of projects producing tight gas and oil in the USA, Canada and China as well as exploration projects under way in countries that include Colombia, Argentina, Turkey and South Africa. In 2014, we produced around 300,000 barrels of oil equivalent (boe) a day from tight gas and oil in North America and about 25,000 boe a day in China.

The increased use of tight gas and oil resources in North America has led to a drop in carbon dioxide (CO₂) emissions due to greater use of gas instead of coal.

ONSHORE OPERATING PRINCIPLES

To extract tight gas and oil, it is necessary to drill down into the rock, extend horizontally into the hydrocarbon reservoir, and then inject large amounts of water – mixed with sand and small quantities of chemicals – under high pressure. This process, called hydraulic fracturing, fractures the rock and releases the gas and oil into the well. This technique has been used for many years in the oil and gas industry.

Some environmental groups and communities have raised concerns about the use of hydraulic fracturing. They question the high volumes of water used, the risk of chemical release into water sources and the potential release of methane gas or other chemicals into the air.

Shell is a leader in promoting safe and responsible tight gas and oil operations. We developed and adopted a set of five global principles that govern all our onshore tight gas and oil activities, covering safety, air quality, water protection and use, land use and engagement with local communities. Each tight gas or oil project takes into account the local context, the geology of the area and impacts such as noise and traffic. We then design our activities to best suit the local conditions. We are also implementing technologies that will reduce the environmental impact of tight gas, including capturing methane emissions and measures to improve the detection of leaks.

In the USA, we collaborate with the Center for Sustainable Shale Development (CSSD) and its partners. These include environmental organisations, foundations and oil and gas companies. CSSD has developed 15 voluntary performance standards for covering air quality, water resources and climate, and began auditing our USA Pennsylvania tight gas operations against these standards in 2014. In early 2015 our operations in Appalachia received CSSD certification.

We are also working collectively with other oil and gas companies and industry associations such as the American Petroleum Institute (API) to develop a common position on methane emissions reduction.

WATER

We aim to protect groundwater sources and reduce water consumption in our drilling and production activities. We work with local authorities to secure water for our operations while reducing the potential impacts on local communities and the environment. For example, we install barriers to isolate our wells from fresh-water aquifers and, wherever possible, we test and sample water wells before and after drilling to ensure there is no contamination. We publicly disclose the chemicals we use in the hydraulic fracturing process, to the extent allowed by our suppliers.

In the Karoo region of South Africa, where Shell applied for rights to explore for natural gas, we funded a comprehensive study of water stress (when demand for water exceeds supply). The results will be used to guide plans to conserve water and use alternative water sources. In Canada, we have installed water systems to capture, transfer and reuse water at our Groundbirch and two Deep Basin fields. (See page 14).

To read more about the Shell Onshore Operations Principles visit www.shell.com/onshore-operating-principles.

TIGHT GAS: COMMUNITY CONCERNS AND OUR APPROACH	
Concerns raised by communities	Shell operating principles: examples in practice
Chemicals could be released into local water sources.	We always have at least two physical barriers in the section of the well that passes through the potable groundwater aquifer, so that we prevent the production stream from mixing with potable groundwater. In Appalachia, USA, we test the quality of water wells around our sites both before and after drilling to ensure we can detect any changes.
High volumes of water are used in hydraulic fracturing which can compete with other local water needs.	We design our operations to reduce the use of potable water and to use non-potable water as reasonably practicable. In Groundbirch, Canada, we have invested in the construction of a reclaimed water plant for the City of Dawson Creek. The plant treats sewage and waste water to be reused in our operations and by the local government.
Methane gas and other chemicals could be released into the air from hydraulic fracturing sites.	We use infrared cameras and other methods as well as maintenance programmes to find any leaks. In Appalachia, USA, our leak detection and repair programme includes audible, visual, olfactory inspection as well as gas imaging camera inspections. These take place at well sites, compressor stations and meter stations.
Noise and traffic could affect local communities.	We work to understand and reduce the impact from our operations on wildlife and livestock. This includes limiting activities during specific times. In Groundbirch, Canada, we engage with local farmers to ensure that any major movement of equipment does not coincide with their cattle drives.
Effects of operational land use on local communities.	We assess the impacts of our operations on the community and find ways to reduce the consequences and strengthen the opportunities. In Sichuan, China, we located our well pads on hillsides to avoid impacting people's livelihoods or causing resettlement of the community.

PREVENTING METHANE EMISSIONS

The production of natural gas can result in the release of methane into the atmosphere, known as fugitive methane emissions. There are concerns that tight gas production could increase these emissions. Methane is a very powerful greenhouse gas (GHG), 30 times more potent than CO₂ over 100 years and even higher over shorter timescales. Therefore, any potential increase in methane emissions must be treated seriously.

We implement technologies that prevent methane emissions during tight gas production. This includes a system known as green completion that captures emissions of methane, volatile organic compounds and other potential pollutants from wells. Infrared cameras are used at our sites to detect gas leaks.

We are taking part in studies that assess the sources of fugitive methane emissions and to find ways to further reduce emissions. A 2014 study by the University of Texas and the Environmental Defense Fund (EDF) assessed whether the production of tight gas is leading to an increase in methane emissions. Nine energy companies, including Shell, took part. The study's results indicated that methane emissions from gas production in the USA are less than 0.4%.

When gas is used for power generation, it has lower total GHG emissions than coal so long as methane leakage is less than 3% to 8%, depending on the global warming potential assumed. The US Environmental Protection Agency (EPA) estimates that total methane leakages in the life cycle of the gas supply chain are slightly above 1% – well below these thresholds. This takes into account methane leaks during gas processing and transmission for power generation.

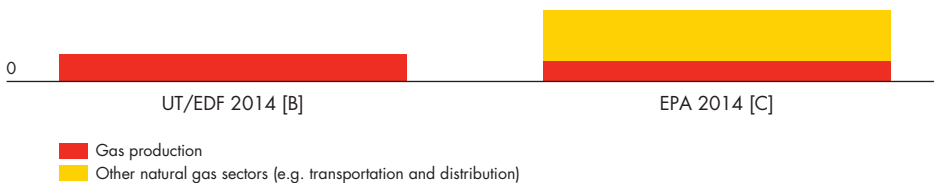
We are also involved in a joint study with the US National Oceanic and Atmospheric Administration (NOAA) and the EDF to assess methane emissions on the Barnett Shale operations in north Texas.

CRITICAL THRESHOLDS FOR METHANE LEAKAGE

methane emissions as % of production

8 Maximum 8% leakage if gas life cycle emissions are to be lower than coal – based on 100 years GWP [A]

3 Maximum 3% leakage – based on 20 years GWP



Source: University of Texas and Environmental Defense Fund Study, 2014

[A] GWP: Global Warming Potential.

[B] UT/EDF: University of Texas and the Environmental Defense Fund.

[C] EPA: US Environmental Protection Agency.



Roland Willson
Chief of the West
Moberly First Nations,
Fort St John, British
Columbia, Canada

External opinion

"For the past 14 years I have been Chief of the West Moberly First Nations in north-eastern British Columbia. In this role, I have been actively involved in speaking about issues of importance to First Nations. This includes the legal duty to consult with First Nations as well as the impacts of the oil and gas industries' activities on First Nations.

Shell is a valued partner in our region but it is also a part of an industry with which we have a challenging relationship. We are encouraged by Shell's new approaches to land use planning that it brings to the region.

However, we urge Shell and others in its industry to consider the cumulative impacts of industrial development before they make decisions. Shell must balance economic opportunity against our treaty rights and its impact on the environment; it must consider what is ultimately best for the area and all who live here."

"We aim to protect groundwater sources and reduce water consumption in our drilling and production activities."

DEEP WATER

Shell pioneered deep-water exploration and production in 1978 at the Cognac field which lies at a depth of 300 metres in the Gulf of Mexico. Today, technological advances enable us to work in water up to ten times that depth. All our deep-water projects have stringent safety procedures and meet rigorous design, construction and maintenance standards.

We currently operate deep-water projects on five continents. In 2014, we started production at four new projects: Mars B (Shell interest 71.5%) and Cardamom (Shell interest 100%) in the Gulf of Mexico; Gumusut-Kakap (Shell interest 29%) in the South China Sea and Bonga North West (Shell interest 55%) off the Nigerian coast. (See box).

SAFETY IN DEEP WATERS

As we go into deeper and more challenging operating environments, we continually review our procedures, improve our equipment and develop the skills of our employees. This keeps our employees and contractors safe and helps to prevent spills and leaks from our wells.

Our standards for designing, drilling and operating deep-water wells require that we have at least two barriers to protect against sudden uncontrolled flows of oil or gas out of a well. We plan, prepare and practise emergency spill response procedures to ensure employees and contractors can respond rapidly to an incident.

The BP Deepwater Horizon tragedy in the Gulf of Mexico in 2010 underlined the need for improved response to incidents in deep water. We are working with the oil and gas industry to further develop effective oil spill emergency response

capabilities. In the Gulf of Mexico, we joined with other leading oil and gas companies to form the Marine Well Containment Company (MWCC) to respond to any deep-water well blowout or spill. The MWCC can cap wells in more than 3,000 metres of water, with equipment for deeper depths under development. In 2014, MWCC increased its capacity to recover oil to 100,000 barrels a day.

Shell was also a funding member of the Subsea Well Response Project, backed by nine major companies. It has deep-water well-capping and spill response equipment in Brazil, Norway, Singapore and South Africa. It has added capping capability for spills where direct overhead access is not possible.

We work to embed a safety culture at our deep-water operations. For example, in 2014 our Bonga North West project reached 4 million hours worked without lost time due to injury. This was achieved by focusing on various safety measures such as frequent safety inspections, identifying hazards and running weekly safety meetings. At Malampaya in the Philippines, an employee safety club and safety training centre were among the initiatives that have helped us achieve 10 million working hours without lost time due to injury.

NEW DEEP-WATER PROJECTS IN 2014

Shell started production on four new projects in 2014:

Bonga North West

Our Bonga North West subsea project off the coast of Nigeria began production through the existing Bonga floating production vessel. At peak production, is expected to contribute 40,000 boe a day.

Cardamom

Our Cardamom project is located in the Gulf of Mexico. The Cardamom field sits beneath a thick layer of salt in rock six kilometres below the surface and its expected peak production rate is around 50,000 boe a day.

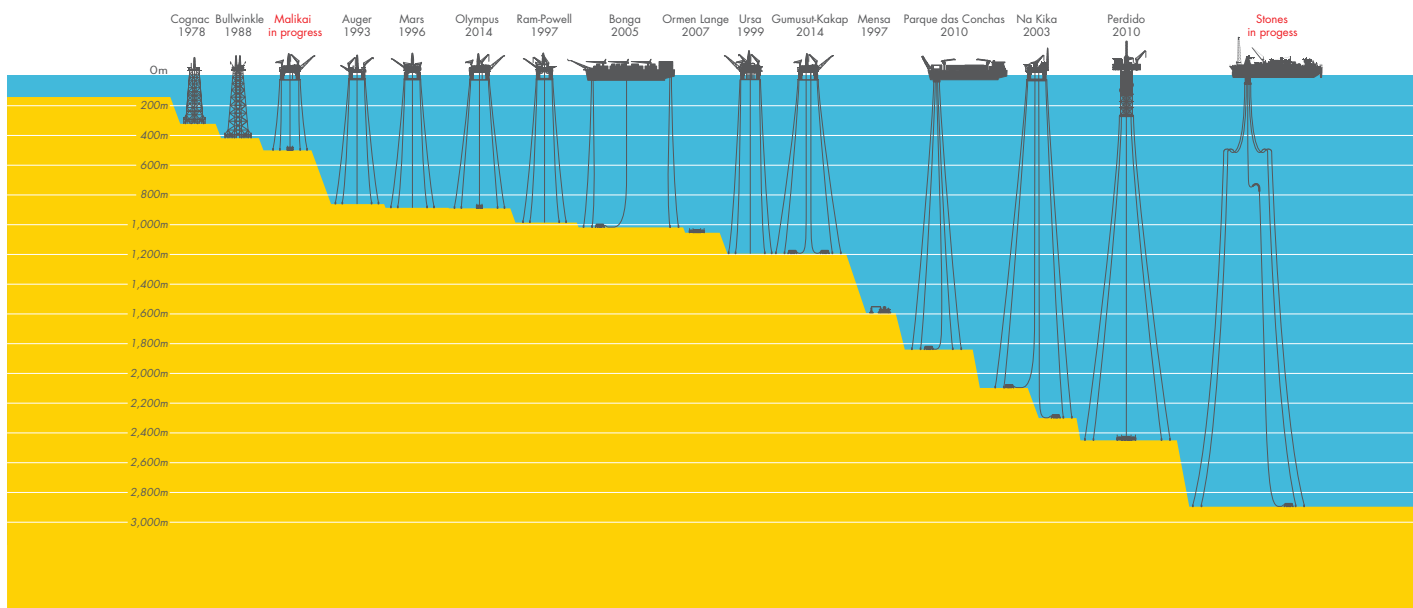
Gumusut-Kakap

Shell's Gumusut-Kakap platform now exports oil to shore with a dedicated pipeline. It is Malaysia's first deep-water platform and expected to contribute up to 25% of the country's oil production.

Mars B

In the Gulf of Mexico our largest floating deep-water platform, Olympus, began production of oil from the Mars B project early in the year. Further development continues on two fields feeding into the platform in water around 1,000 metres deep.

DEEP-WATER MILESTONES



“As we go into deeper and more challenging operating environments, we continually review our procedures, improve our equipment and develop the skills of our employees.”

COMMUNITIES AND EMPLOYMENT

We aim to reduce any negative impacts of our deep-water activities on communities and to support local economies by providing employment and training opportunities. For example, our Bonga North West project in Nigeria has provided specialist training and employment opportunities for Nigerians, who made up 90% of the workforce involved in the four-year development phase.

We also support initiatives that improve lives of people living locally. Our joint venture at Malampaya established a foundation to fund health improvement, livelihood generation and environmental conservation programmes. This has included setting up health centres in 344 villages to ensure early diagnosis and prompt treatment of malaria.

At the start of each deep-water project we assess the potential impacts on the environment and marine life, and take steps to manage and reduce any impacts. At Parque das Conchas in Brazil, we have funded long-term research on the South Atlantic humpback whales in the area. This research determined, for the first time, the migration routes, calving and feeding grounds of humpback whales. The results have been taken into account during the management and development of the project. We are a member of a joint industry programme called Sound and Marine Life in the UK which supports research to increase the understanding of the impact of production activity noise on marine life.

3,000 METRES

Depths at which MWCC can cap wells

2.5 KM

Water depth of Perdido, Gulf of Mexico, USA

100,000 BOE

Peak daily production of Perdido

Bonga North West is connected to the existing Bonga floating production vessel. Off the coast of Nigeria.



INTERVIEW ARCTIC: QUESTIONS ANSWERED



Ann Pickard
Executive Vice President, Arctic and Alaska

Ann Pickard, Shell's Executive Vice President for Arctic and Alaska, answers some of the most common questions from stakeholders about Shell's Arctic exploration programme.

So why explore the Arctic at all?

Exploration of the Arctic is important as future generations may have to depend on it for a significant amount of their energy, especially as the world's population grows from seven billion today to nine billion by 2050. Today, about 10% of the world's oil and 25% of our natural gas come from Arctic regions. Since 1918, the world has consumed roughly 25 billion barrels of Arctic oil and 550 trillion cubic feet of Arctic gas. As much as a quarter of the world's remaining undiscovered energy resource remains there.

At this stage, we are taking important steps towards assuring our organisational capabilities meet the high standards we set for ourselves ahead of exploration in Alaska in 2015. This includes contingency planning in case the unexpected happens. The Arctic, for us, is an opportunity for the future, for example, if we are successful in

Alaska in 2015, development and production will be another 10 to 15 years away.

What do the Arctic nations want?

The people who live in the Arctic nations such as Canada, Greenland, Norway, Russia and the USA own these natural resources and it's their decision alone whether or not they should be developed. These nations have asked Shell and other companies to help explore this vital, long-term source of economic security.

So it is important that the focus is on how to explore the Arctic in a way that protects vital ecosystems, respects the way of life of indigenous populations, keeps people safe and encourages high standards of performance for every operator in our industry. We must operate that way every minute of every day.

These are the expectations we set at Shell everywhere we operate. We're constantly learning and improving – increasing our understanding of the unique challenges across every different type of operation and applying our global know-how, standards and values to meeting them.

How can you assure people that Shell won't spill oil on or under the ice?

We can only drill exploratory wells during the summer months in the open water season starting in July. From a technical standpoint, the wells we hope to drill in the Alaska Chukchi Sea in 2015 are straightforward and will happen in low pressure reservoirs in shallow waters less than 50 metres deep.

But of course we cannot assume that a spill can never happen. So, for example, in Alaska we have the capability to mount an effective oil spill response within 60 minutes, 24 hours a day, with a dedicated on-site fleet, near-shore barges and onshore response teams. We regularly test our plans and take part in large-scale joint exercises with other industry partners, government agencies, scientists and oil spill experts. The industry has also developed technologies that can track and remove spilled oil from solid and broken ice if an unlikely worst-case scenario took place.

It's important to mention that the permits issued by governments do not allow us to drill in ice. If an iceberg approaches, we have the ability to disconnect our rigs and move away quickly to avoid contact. We're also continuing to build new layers of protection against the possibility of oil getting into the water or onto the ice. For example, if any system or device fails, a back-up system or device immediately takes over to prevent a loss of control of a well. We're also used to working in harsh, cold climates, like the North Sea and Sakhalin in Russia.

Shell painted the hull of exploration vessels blue to reduce the impact on marine wildlife, after consulting communities in Alaska's North Slope, USA.



Ice is not the only challenge in the Arctic. Does Shell know enough about the environment and its iconic species to start drilling there?

Since 2006, Shell has invested more than \$100 million on Arctic science, primarily in Alaska.

We've developed a deep understanding of bird and mammal migration patterns, the sensitivity of aquatic species to man-made sounds, the important patterns of biodiversity and even the colours of ships' hulls that are least likely to disturb the whales. We also depend greatly on local knowledge: local residents who are trained to spot species that could be impacted by our operations are on our vessels. During operations, we speak daily with the communities to ensure subsistence hunting and fishing are not affected.

We have agreements with local governments of the North Slope and Northwest Arctic Boroughs to study science that support local communities, such as researching how potential development could impact the communities' subsistence activities.

What impact does Arctic drilling have on climate change and the melting sea ice?

The Arctic is especially vulnerable to the effects of global warming. Scientific measurements show that the thickness and extent of summer sea ice in the Arctic have declined over the past 30 years. The loss of sea ice has the potential to accelerate global warming and to change world climate patterns.

Climate change is a key issue for Shell. The scientific evidence shows that the rising CO₂ levels in the atmosphere is the main cause of climate change. It is the effect of cumulative emissions around the world, rather than being caused by Arctic drilling. (See page 16).

OUR WORK IN ALASKA

Shell has a long history in Alaska: we operated continuously in Alaska for almost 50 years until 1998. We are responsible for safely drilling many of the wells in the Beaufort and Chukchi Seas in the 1980s and 1990s. Shell returned to Alaska in 2005 after acquiring lease blocks in the Beaufort Sea. Three years later, Shell bought leases for the Chukchi Sea.

How do the indigenous peoples in Alaska feel about exploration?

About four million people live in Arctic regions. Around 10% are indigenous peoples from a mosaic of diverse cultures, with many people living in areas their ancestors have inhabited for thousands of years. On Alaska's North Slope which is the nearest populated region to the Chukchi Sea, people at Shell have spent years understanding the culture and subsistence lifestyle of the Iñupiat as well as their views about future development scenarios. It's important to Shell and to the communities that we listen, engage and work

with people as partners. In Alaska, we've had 600 community meetings in the last five years. This helps us to understand what matters most to people in Alaska.

The Iñupiat communities treasure their heritage and values and they view the sea around them as their garden because it is so critical to their subsistence. However, they have also expressed that preserving the most important threads of their culture may mean helping to shape the development of resources in their sea. In some cases, we have partnered with the community in support of future production: in 2014, we signed an agreement with a newly formed Alaskan company called Arctic Iñupiat Offshore (AIO) granting them an option to acquire an equity interest in Shell's acreage and activities in the Chukchi Sea if we continue our offshore drilling programme in Alaska. AIO's members are the Arctic Slope Regional Corporation (ASRC) and six North Slope village corporations.

We are also working with communities to train and hire local people, using local suppliers and contractors, and supporting education projects for the indigenous communities.

Shell's 2012 exploration programme in Alaska did not go well. What has Shell learned?

We have learned a lot as an organisation. Our actual drilling operations went very well, but that success was overshadowed. There were delays in the delivery of a newly designed and built oil-containment system, marine issues with the Noble Discoverer drilling rig which are now resolved and the grounding of the Kulluk drilling rig, which was decommissioned and recycled in 2014.

From these experiences, we have improved our planning, processes and strengthened our Arctic organisation within Shell and among our contractors. For example, we have more experienced contract managers overseeing fewer contractors to ensure our high standards for safety and care are followed more closely than in previous exploration programmes. We are also making better, more effective use of our global capability and subject matter experts: Shell's shipping team from London is working more closely with us now to improve upon our marine logistic capabilities, as this was a challenge in the 2012 season.

What are Shell's plans for 2015?

We are undertaking activities to preserve the option of a 2015 season. Any final decision to go forward will depend on successful permitting, clearing any legal obstacles and on our own assessment that we are prepared to explore safely and successfully. The communities want us there and we're preparing to go, but with great caution and great care.

Dr Robert Perkins

Professor, Department of Civil and Environmental Engineering, University of Alaska Fairbanks, Alaska, USA

External opinion

"It is particularly difficult to obtain data for risk analysis in cold regions. For the last four years, our team has performed some fundamental research work into the toxicity and biodegradation of oil – and dispersed oil – in the Arctic.

We looked at the potential risks that an unlikely event of an oil spill could have on Arctic marine organisms. We tested copepods and Arctic cod and found that they were no more sensitive to oil and dispersed oil than typical warm water species. We also found that indigenous Arctic microbes biodegrade oil and that oil dispersants do not hinder this biodegradation process.

Shell was a leader in the joint industry programme that funded the research and participated in our technical advisory committee. The programme aimed to improve the industry's response capabilities to an oil spill."

IRAQ

Shell and the energy industry can play an important role in boosting employment, building skills and helping communities. We are addressing our impacts such as flaring and are seeking to improve the environment surrounding our operations.

The Shell-operated Majnoon project (Shell interest 45%) in southern Iraq, produces oil from one of the largest fields in the world. At the end of 2014, production at Majnoon averaged 210,000 barrels of oil equivalent (boe) a day – more than its initial production target of 175,000 boe a day. The Iraqi government estimates that Majnoon holds around 38 billion boe.

Iraq is currently facing significant conflict and violence, particularly in the north of the country. The security and safety of our operations, employees and contractors in Iraq remains a primary concern and we have some of the industry's most experienced security people and leading security technology. We also have mitigation measures in place so that our business continues to run effectively.

FLARING

Much of the gas produced during oil production in Iraq is currently flared. We want to help reduce this and are working with our partners to capture gas to be used in power generation in Iraq. This also supports the goal of the Iraqi government to increase the use of domestic gas.

At Majnoon, in 2014, the level of associated gas flared has increased in line with production. We have projects planned to reduce this flaring over the next three years. The first commercial production gas project is currently under construction and will capture the majority of the associated gas produced that would otherwise be flared. This gas is expected to provide power for the domestic market, through the North Rumaila power station by the end of 2015.

In the south of Iraq, the Basrah Gas Company (BGC, Shell interest 44%) captures gas from oil fields operated by other companies which would otherwise be flared. In 2014, BGC has gathered, treated and processed more natural gas than in the previous year and used this for domestic power generation. The increase in gas captured in 2014 has avoided another 5 million tonnes of carbon dioxide (CO₂) equivalent from flaring. BGC is the largest flare reduction project in Iraq's history. (See [page 49](#)).

LOCAL EMPLOYMENT AND EDUCATION

There are high levels of unemployment in Iraq, particularly among young people. We employ Iraqi people in our workforce and use local contractors and suppliers where possible.

Shell created nearly 3,000 jobs for Iraqis on the Majnoon project during its construction from 2010 to 2013. Since 2010, more than 25,000 people, including employees and secondees from the government-owned South Gas Company, have attended courses at our Majnoon training centre. Courses taken range from technical and language skills training to health, safety and environment.

Our joint venture BGC has awarded close to 300 contracts and purchased 65% of its materials from Iraqi companies since May 2013. It has awarded 49% of total contracts to Iraqi or Iraq registered companies. Since 2013, BGC has conducted more than 65,000 days of training for 5,500 Iraqi employees in language competency, technology, engineering and safety.

COMMUNITY PROGRAMMES

Many Iraqis still lack basic services, including electricity, water, sanitation and healthcare. Iraq

also has a poor road safety record with road traffic accidents one of the leading causes of death. Shell works with community partners in Iraq to support efforts to tackle these issues.

We partner with the AMAR International Charitable Foundation (AMAR ICF), a charity that works in the Middle East to help communities rebuild their lives after conflict.

In 2014, AMAR ICF and Shell's health programmes continued to provide vital health services to thousands of people every month. During the year, more than 4,500 vaccinations were administered to women and children, along with services provided by mobile health clinics to reach communities in remote locations. A network of women's health volunteers in Al-Nashwa visited more than 4,000 people every month in their homes.

AMAR ICF and Shell also continued to support health education and access to clean water. During the year, we undertook more than 1,500 health education lectures in schools and the community. During the same year, 140 primary school teachers from 72 schools were trained in road safety, reaching more than 22,000 primary school pupils.

Our community programmes also focus on boosting employment. For example, in 2014, working in partnership with the United Nations Development Programme, we developed a vocational training programme for unemployed young people from Basrah. The 31 young adults were trained in carpentry, welding and plumbing and will work with Shell suppliers in Majnoon.

CULTURAL HERITAGE AND ENVIRONMENT

The Iran-Iraq war in the 1980s scarred the landscape in the Majnoon area. We work to improve the environment that surrounds our operations. This includes clearing unexploded munitions remaining from the war.

The Iran-Iraq conflict also disturbed and scattered important archaeological remains across a vast area of the Mesopotamian Delta. Shell commissioned experts from Queensland University, Australia, to conduct an archaeological survey of the Shell site at Majnoon. This involved a study of 24 sites and improved the understanding of the area's history.

The Majnoon oil field overlaps with Iraq's most important wetland area, the Mesopotamian Marshlands. This is an environment of international importance that has been severely damaged by past drainage and warfare. In partnership with Wetlands International we are working to reduce the impact of our operations on the biodiversity and ecosystems of the marshes and support restoration of these iconic wetlands.

Since 2010, more than 25,000 people have attended courses at our Majnoon training centre, Iraq.



LETTER

NIGERIA: LETTER FROM MUTIU SUNMONU



Mutiu Sunmonu
Chairman of Shell
companies in Nigeria
(2010 to 2015)

Mutiu Sunmonu was the Chairman of Shell companies in Nigeria from 2010 to 2015. Following his retirement in February, Mutiu looks back on his time in Nigeria's oil and gas industry and gives his views on the future of the sector.

When I joined Shell in the late 1970s, I entered a Nigerian oil and gas industry that was heavily dominated by the international oil companies (IOCs). Looking back after nearly 40 years the most striking development is the emergence of independent Nigerian companies across all levels of the industry. A growing number of these companies are now taking advantage of asset sales from the IOCs, to invest in, develop and in some cases, operate oil and gas fields. This is an exciting trend that bodes well for the long-term sustainability of the oil and gas industry in Nigeria.

This has not happened by accident. The IOCs and Shell, in particular, have invested in building a technically skilled workforce and contractors within Nigeria for many years. I am proud that today the Managing Directors of all the Shell Companies in Nigeria (SCiN) are Nigerians. I believe that our most important contribution has been the development of our people including engineers, project managers, leaders and entrepreneurs: 95% of Shell Petroleum Development Company of Nigeria (SPDC) and Shell Nigeria Exploration and Production Company (SNEPCo) employees are Nigerian, while 90% of SCiN contracts were awarded to Nigerian companies in 2014. This shows that our value to the economy reaches far beyond the energy we produce and the billions of dollars in royalties and tax revenues that we contribute every year.

Onshore oil divestments by SPDC have created a perception to some that Shell is leaving Nigeria. In fact, Shell Companies remain committed to maintaining the pioneering role we have played in Nigeria for more than half a century. This is clearly illustrated in the deep-water fields of the Gulf of Guinea and the gas value chain in the Niger Delta, where SNEPCo and SPDC are using advanced technology to deliver safe, economic projects that unlock Nigeria's energy potential while providing jobs and training for local people.

Yet challenges remain for SCiN and the wider Nigerian oil and gas industry; an operating environment that remains among the most volatile in the global oil and gas industry. I would like to highlight two major challenges.

First, crude oil theft has been the defining sustainability challenge during my time as Chairman. SPDC has taken numerous measures to limit the impact of this criminality within its areas of operation. It has also raised awareness of the scale of the problem both within Nigeria and internationally. However, theft, sabotage and illegal refining continue to be the main source of environmental damage in the Niger Delta today and result in many thousands of barrels of lost production. It is vital that the current collaboration between operating companies, communities, the Nigerian government and its international partners is maintained and expanded.

Second, SCiN's credibility as a partner of the government and host communities in Nigeria is dependent on us dealing responsibly and transparently with our environmental commitments. Our performance in preventing, responding to and cleaning up spills has improved in recent years, despite the escalation of crude oil theft and difficulties in securing community permission to access some areas.

We have also taken important steps forward to formalise the role of non-governmental organisations (NGOs) and other civil society representatives in the Joint Investigation Visits (JIVs) that follow oil spills. This has included building skills among people locally to respond to spills and help to remediate sites. (See External opinion, [page 37](#)). I hope that the recent settlement of litigation relating to the deeply regrettable operational spills at Bodo in 2008 has removed a constraint towards further clean-up of the spill sites in parts of Ogoniland.

It is Shell's goal as a global company to achieve no harm and no leaks from its operations. In Nigeria, there will be no celebrations until this goal is reached. Increased transparency will remain a crucial part of building and maintaining trust with host communities in the Niger Delta.

Our industry leading position in Nigeria local content implementation, the step change in working responsibly with host communities and the recognition we have received from local NGOs for leading the way on spills reporting and transparency are among the achievements of which I am most proud during my time as Chairman.

NIGERIA

In 2014, the Shell Companies in Nigeria contributed to communities with our social investment programmes. Work is also continuing with communities and civil society to build greater trust in spill response and clean-up processes.

The Shell Companies in Nigeria (SCiN) continue to support the economic development of Nigeria through job creation as well as promoting entrepreneurship, education and supporting the improvement of community health.

Shell Petroleum Development Company (SPDC) has also strengthened efforts during 2014 to tackle the issue of crude oil theft and sabotage in the Niger Delta, working with the oil and gas sector, governments, non-governmental organisations (NGOs) and the international community.

ENTREPRENEURSHIP, EDUCATION AND HEALTH

LiveWIRE, Shell's youth entrepreneurship programme, was launched in Nigeria in 2003. By 2014, the programme had trained around 6,000 young adults in the Niger Delta to set up and grow new businesses. More than 3,000 of these trainees received business start-up grants.

In 2014, the programme was broadened to focus on people with physical impairments with 180 people receiving training and grants. LiveWIRE was also extended into the Ogoniland region of Rivers State with the objective of raising living standards and reducing crude oil theft by promoting alternative livelihoods.

Shell companies have a long history of supporting education in Nigeria. In 2014, \$14.8 million (Shell share \$5 million) was invested in scholarships and education programmes by SPDC and Shell Nigeria Exploration and Production Company (SNEPCo). Grants are also in the process of being awarded to 1,356 secondary school students and 925

university undergraduates. SPDC's Cradle to Career programme, launched in 2010, pays for children from rural communities in the Niger Delta to attend some of the country's leading secondary schools: in 2014, 120 students were enrolled on the programme totalling 360 students since its launch.

SPDC has supported community health in the Niger Delta since the 1980s. The Obio Cottage Hospital in Port Harcourt was set up by SPDC in 2010 and has become one of the most visited health facilities in the region. This is due to a community health insurance scheme which was the first of its kind for the Niger Delta. In 2014, more than 45,000 people were enrolled on the health scheme.

SPILL PREVENTION AND RESPONSE

Pipelines traversing Ogoniland have been subjected to some of the highest rates of oil theft and sabotage in recent years. Improved access is now making it possible for SPDC to enhance security measures in partnership with local communities and to develop a more comprehensive picture of spill sites requiring clean-up.

In 2014, Ogoni communities took direct responsibility for monitoring oil theft along the sections of the Trans Niger Pipeline (TNP) that traverse through their communities. The pipeline transports crude oil through Ogoniland to the Bonny Export Terminal and has been heavily impacted by theft in recent years. The SPDC joint venture (SPDC JV) signed a series of agreements with Ogoni communities, under which SPDC provides funding to support unarmed community patrols. The patrols report pipeline incursions and suspicious activity directly to the security forces.

SPILLS AND RESPONSE DATA

Theft and sabotage were the cause of 75% of spills from the SPDC JV pipelines in 2014. There were 139 spills as a result of recorded theft and sabotage incidents over the year, compared with 157 in 2013. However, there has been a 42% reduction in theft related production shutdowns, in part reflecting improvements to SPDC's response procedures, such as removing multiple theft points during a single response operation.

A key priority for Shell globally is to achieve the goal of no operational spills. Regrettably, in 2014 there were 37 operational spills from the SPDC JV network, with 0.3 thousand tonnes of spill volume. This compares to 30 operational incidents and 0.4 thousand tonnes of spill volume in 2013. To reduce the number of operational spills, the SPDC JV continues to work to maintain and replace sections of pipeline and other infrastructure, installing 132 km of new pipeline during the year.

There was further progress on clean-up: of the 303 spill sites identified at the beginning of 2014, 194 (64%) had been remediated and independently certified by the end of the year. More than half of the backlog was in Ogoniland where 125 additional sites were identified in 2013 after years of restricted access to the region.

During 2014, SPDC has strengthened its efforts to tackle the issue of oil theft and sabotage. Niger Delta, Nigeria.



95%

Nigerian employees at SPDC and SNEPCo

\$14.8

MILLION

Invested in scholarships in Nigeria by SPDC JV and SNEPCo in 2014

194

Spill sites remediated in 2014

SPDC continued to work with communities and civil society to build greater trust in spill response and clean-up processes. Representatives of the principal NGO coalition in the Niger Delta, called the National Coalition on Gas Flaring and Oil Spills in the Niger Delta (NACGOND), are invited to join all Joint Investigation Visits. These visits assess the cause and extent of oil spills (see External opinion). SPDC also remains the only oil and gas company in the Niger Delta to publish all its spills data on an external website.

Since deteriorating security conditions forced SPDC to withdraw from Ogoniland in 1993 there have been difficulties in cleaning up spills along those sections of the TNP that traverses the region. In recent years, SPDC has made significant progress in those areas for which it has direct responsibility for clean-up as operator (see Spills and response data). However, this is taking place while spills caused by theft and sabotage are continuing. Concerted action led by government and supported by communities will be crucial to driving wider, sustainable progress.

In 2011, the United Nations Environment Programme (UNEP) published *Environmental Assessment of Ogoniland*. The report called on the Nigerian government, oil and gas companies and communities to put an end to all forms of oil contamination and to begin a comprehensive clean-up of the region. The SPDC JV has initiated action on each of the recommendations that apply to it and remains firmly committed to using the UNEP report as an opportunity to drive wider improvements on the ground.

In July 2014, Nigeria's Minister of Petroleum initiated a working group, led by the Federal Government, to speed up implementation of all UNEP's recommendations. SPDC supports this initiative and hopes that it will deliver the governance structures needed for disbursement of the environmental restoration fund on which wider clean-up of Ogoniland is heavily dependent. SPDC is committed to contributing its share of the fund once those structures are in place.

FLARING

SPDC had reduced volumes of flared gas by more than 75% between 2002 and 2013. Flaring intensity (the amount of gas flared per barrel of oil produced) fell by almost 60% over the same period. SPDC remains committed to further reducing the volume and intensity of gas flaring with a number of associated gas-gathering projects which are all currently in development. Further progress to reduce flaring needs sustained commitment and funding by all joint-venture partners, together with safe access to install the equipment.

However, in 2014, an increase in levels of oil production has resulted in the volumes of flared gas increasing by 12% over the year, and an increase of 9% in flaring intensity. A challenging operating environment and shortfalls in funding from the government-owned Nigerian National Petroleum Company have resulted in delays to the completion of a number of gas-gathering projects.

Fr Edward Obi
National Coordinator,
NACGOND,
Port Harcourt,
Nigeria

External opinion

"In the last three years, NACGOND has engaged in mutually respectful dialogue with Shell, for the purpose of advocating positive action to redress the negative impacts of the oil and gas industry on the Niger Delta environment. NACGOND believes that it is better to engage than not, and to influence change from around the discussion table. This engagement, we believe, has yielded some important results already.

Apart from regular meetings that provide the space for frank exchange between us, and their active participation in NACGOND events, Shell now publishes its spills in real time. Our engagement has also led to NACGOND being admitted to all JIVs as observers with the right to publish their observations independently. This is important because inclusive and transparent JIV processes are key to restoring trust in communities. But the achievement we are most proud of is the ongoing mediation between Shell and representatives of the Bodo community in Rivers State. This process, aided by the Dutch Foreign Ministry, is leading to clean-up and restoration of previously polluted sites in that community.

NACGOND congratulates Shell on these strides, but believes that they can, and should, do more to invest their gains in, and uplift, the region economically."

SHELL'S ECONOMIC CONTRIBUTION

The Shell Petroleum Development Company of Nigeria Ltd (SPDC, Shell interest 30%) is the operator of a joint venture between the government-owned Nigerian National Petroleum Corporation (NNPC, 55%), Shell (30%), Total (10%) and ENI (5%). Shell Nigeria Exploration and Production Company (SNEPCo, 100% Shell-owned) hold interests in a number of offshore licences including the Shell-operated Bonga field (Shell interest 55%), Nigeria's first deep-water project. Shell also has a 25.6% interest in Nigeria Liquefied Natural Gas (NLNG) which exports LNG around the world.

\$48 billion: revenues from SPDC to the Nigerian government from 2010 to 2014.

\$3 billion: Shell share of royalties and taxes paid to the Nigerian government in 2014 (SPDC \$1.8 billion, SNEPCo \$1.2 billion).

95%: share of revenue after cost that goes to the Nigerian government from each barrel of oil that SPDC produces.

90%: total number of contracts awarded to local companies.

\$1.5 billion: spend of SPDC and SNEPCo on local contracting and procurement 2014.

About 95%: proportion of employees at SPDC and SNEPCo who are Nigerian.

\$202 million: SPDC and SNEPCo funds to the Niger Delta Development Commission in 2014 (Shell share \$93.6 million).

\$112 million: 2014 direct contribution from SPDC and SNEPCo to social investment projects (Shell share \$34.3 million).

OIL SANDS

Canada's oil sands are one of the world's most significant energy resources and an important source of energy for North America. Development of oil sands can be energy- and water-intensive and must be managed responsibly.

Oil sands consist of bitumen (a heavy oil), sand, water and clay. Some oil sands are found within 70 metres of the surface where they can be mined, though most are deeper underground. Wells are used to extract bitumen from deeper-lying resources, known as in-situ drilling, often by injecting steam into the reservoir to heat and thin the bitumen. Canada's oil sands are found mainly in three deposits in Alberta and in parts of Saskatchewan.

Shell has a 60% interest in the Athabasca Oil Sands Project (AOSP) in Alberta which includes Muskeg River and Jackpine mines and the Scotford Upgrader where bitumen is processed to convert into synthetic crude oil. It is then refined into products at the adjacent Scotford refinery.

In 2014, Shell's share of AOSP production was around 137,000 barrels of oil equivalent (boe) a day from the Muskeg River and Jackpine mines. Production from deeper-lying oil sands operations was around 19,000 boe a day. Together these made up around 4.7% of Shell's oil and gas production for the year.

MANAGING OUR ENVIRONMENTAL IMPACT

We aim to operate our oil sands facilities responsibly and efficiently, and to reduce our environmental impact through improved management of carbon dioxide (CO₂) emissions, water, waste

and land. We are governed by a number of regulations including standards for managing waste and reducing mining by-products (tailings).

We also design our projects to reduce our environmental impact. Our Carmon Creek in-situ project, which is currently under construction in Alberta, includes a water reuse system, use of waste gas to power the plant, a land reclamation strategy to reduce land use and steps to protect local species. The project is expected to produce 80,000 barrels of bitumen a day.

Shell is a member of Canada's Oil Sands Innovation Alliance (COSIA) which aims to accelerate the development of environmental technologies by sharing information among oil sands operators. Currently, COSIA's 13 members have shared over 700 technologies, valued at nearly C\$1 billion in intellectual property. In 2014, Shell was one of six COSIA companies to sign a joint funding commitment of C\$165 million to build a centre in Alberta that will be used to develop, test and improve water treatment and recycling technologies.

MANAGING CO₂ EMISSIONS

On a life cycle basis – from production through to use as a transport fuel – oil sands emit 4–23% more greenhouse gas emissions than the average crude oil used in the USA, according to research by Cambridge Energy Research Associates (CERA).

To help manage CO₂ emissions we are building the oil sands industry's first carbon capture and storage (CCS) facility, Quest, in Alberta. Quest is expected to capture up to 1 million tonnes of CO₂ a year from the Scotford Upgrader. It will start operating in 2015. (See [page 17](#)). The knowledge gained from Quest will be shared with other operators through COSIA to encourage the uptake of CCS.

"We work to reduce the impact of development on traditional land use and culture, and to create local employment and contracting opportunities."

TAILINGS

The oil sands mining process separates bitumen from the sand which generates tailings. Tailings include a mixture of water, sand, clay and residual hydrocarbons, as well as naturally occurring traces of heavy metals and chemicals. Tailings are stored in tailings ponds which allow for the sand to settle at the bottom and the water to be recycled. (See [page 39](#), diagram, step 1).

Our tailings are managed carefully to prevent contamination of local water courses, and to minimise risk to wildlife and the surrounding environment. Dried tailings will be used to restore the landscape once mining has finished. (See [page 39](#), diagram, step 3). Tailings ponds at the Muskeg River and Jackpine mines covered 37 km² at the end of 2014, compared with 24 km² the previous year. This increase is in line with the planned development of the mine. The land space of tailings ponds has increased to both support the ongoing processing of oil sands and allow reclamation to start on existing ponds.

An inspector tests the reliability of equipment at Jackpine mine at Shell Albian Sands, Alberta, Canada.



Alberta has regulations to reduce the amount of liquid tailings and we work with the government to meet these requirements. Shell has invested more than C\$400 million during the past decade to develop technologies that speed up the drying process for tailings. We successfully piloted a tailings centrifuge to accelerate the drying process using technology shared through COSIA. The centrifuge works more than twice as fast as our previous process. We will operate four centrifuge units at AOSP in 2015 and expect that each centrifuge unit will process about 1 million cubic metres of tailings each year. This will reduce the land space needed for storing tailings.

WATER USE AND RECYCLING

We use around 1.1 barrels of water from the Athabasca River for every barrel of bitumen extracted from our mining operations. Our water recycling rate is around 80%, which reduces the amount of river water we need to draw. (See diagram, step 2). We withdrew less than 0.6% of the Athabasca River's average annual flow in 2014.

The operations at our Scotford Upgrader used around 0.4 barrels of water from the North Saskatchewan River, for every barrel of bitumen that was upgraded. Around 90% of the waste water from upgrading is reused in operations.

LAND RECLAMATION

Mine development plans cover the full life of the mine from initial site preparation to final reclamation. We have had ongoing discussions with indigenous communities to minimise our impact of the mine development on these communities. Once mining operations are completed, we are required to restore the land to equivalent capability, so that it can sustain the plants and animals that are native to the area.

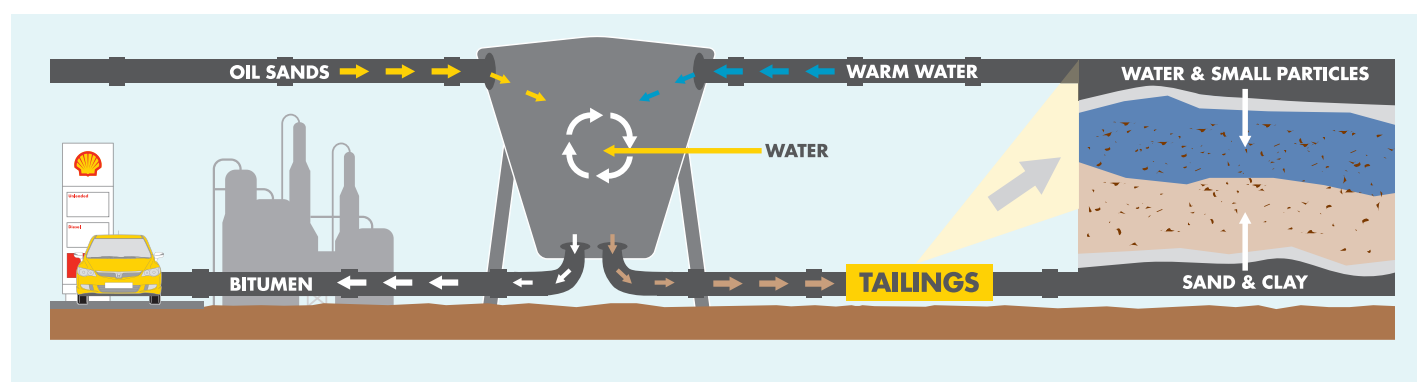
As parts of the mine become ready for reclamation we build a contoured landscape, cover this with the rock and soil that was removed before mining began and replant the area. In 2014, we worked closely with indigenous communities to ensure the landscape will support traditional land use and indigenous environmental knowledge is reflected in the restoration process. (See diagram, step 4).

WORKING WITH INDIGENOUS COMMUNITIES

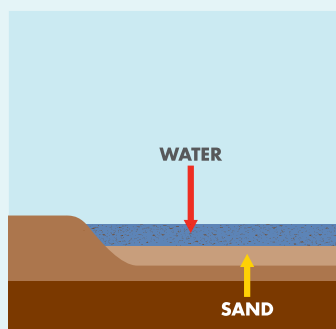
We engage with a wide range of people who may be affected by or have concerns about our oil sands facilities, including indigenous communities. We work to reduce the impact of development on traditional land use and culture, and ensure local communities benefit from our operations through employment and contracting opportunities.

Since 2005, Shell has spent more than C\$1.7 billion with local indigenous contracting companies. We currently work with more than 70 indigenous businesses and contractors who provide products and services to our operations.

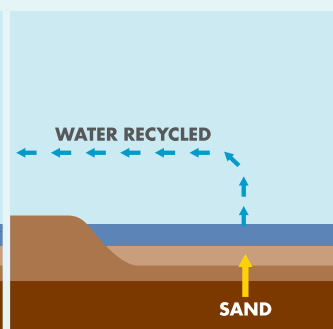
SHELL TAILINGS OVERVIEW



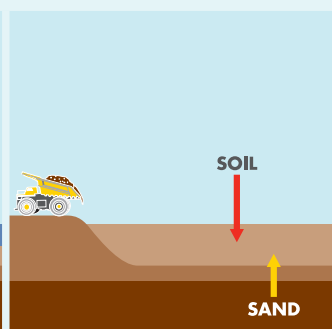
1 OVER TIME SAND, SILT AND CLAY SETTLE TO THE BOTTOM OF THE POND.



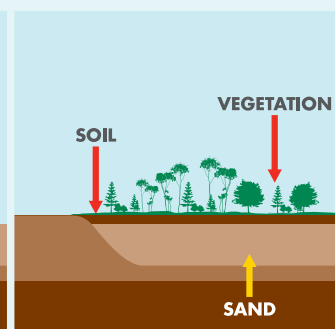
2 WATER IS REMOVED FOR USE IN THE EXTRACTION PROCESS.



3 OVERBURDEN AND TOP SOIL ARE REPLACED BACK INTO THE TAILINGS POND.



4 NATIVE VEGETATION IS REINTRODUCED TO THE SITE.



FUELS AND PRODUCTS

At Shell, we develop and provide transport fuels, lubricants and services to help motorists, shippers and airlines boost the energy efficiency of their vehicles and fleets.

Our transportation fuels and products can help reduce the environmental impact of transportation. This is important as transport increases around the world and regulations to reduce emissions are strengthened.

EFFICIENT FUELS FOR VEHICLES

Shell supplies fuels to millions of drivers around the world every day. There are almost 43,000 Shell branded retail service stations in more than 70 countries, serving more than 25 million customers a day. For over a century, our scientists and engineers have developed transport fuels for customers and focused on improving motorist fuel efficiency.

Our range of regular priced transport fuels includes Shell FuelSave Unleaded and Shell FuelSave Diesel. These contain ingredients designed to improve the combustion process in vehicle engines which can help drivers to use less fuel.

Shell FuelSave Diesel is also used in the heavy road transport sector. It can deliver fuel savings of up to 3% across the operational lifetime of heavy-duty vehicles like trucks and help customers reduce carbon dioxide (CO₂) and other emissions.

ADVANCED LUBRICANTS

Lubricants are vital to the efficient operation and longer working life of equipment, including engines developed for vehicles and industrial use. Oils and greases reduce friction between moving surfaces and also help to cool, clean and protect equipment. The right lubricants can improve the fuel efficiency of engines, helping to reduce emission levels.

Shell also offers a broad range of lubrication services that can help customers reduce their energy and fuel consumption. For example, the lubricant sample analysis that we offer can provide an early warning system to customers about components wearing out.

INNOVATION

Shell's natural gas-to-liquids (GTL) technology makes it possible to use natural gas, rather than crude oil, as the raw material for a range of liquid products, including lubricants and chemicals. In 2014, Shell became the first company to offer natural gas-based fluids and solvents for the chemical industry, globally. These products are biodegradable and less harmful to the environment. They can be used in paints and coatings, inks, water treatment and consumer goods.

In 2014, we introduced Shell Helix Ultra motor oil (called Pennzoil Platinum in North America), with Shell PurePlus technology which uses a GTL process to convert natural gas into a clear base oil – the key component of finished motor oils. Its new formulations remove most of the impurities found in products blended from base oils made from crude oil. They provide higher levels of cleansing and protection against the build-up of engine deposits that can reduce engine efficiency.

SHIPS AND AIRCRAFT

In 2014, we launched Shell Alexia S3, a marine engine oil that is designed for large ships using fuels that conform to the emissions limits within controlled marine areas. These apply to sea areas around the world in which limits are set for the amount of airborne emissions, including sulphur oxides and nitrogen oxides, that vessels may emit.

Our collaborations with engine and equipment manufacturers are key to developing new fuels and lubricants. We have partnered with aircraft manufacturers, airlines and regulators for more than a century. In 2013, after almost a decade of research, we became the first major international energy company to develop a lead-free replacement of aviation fuel used in piston-engined aircraft. We are working with industry forums and regulators, including the US Federal Aviation Administration, to gain the necessary approvals so that the products can be used for both new and older aircraft.

GTL technology is also helping in the aviation sector. Our previous trials on GTL jet fuel with Rolls Royce, Airbus and Qatar Airways led to the approval of GTL Jet Fuel. This is a blend of up to 50% synthetic GTL jet fuel and conventional oil-based jet fuel. GTL jet fuel burns with virtually no sulphur dioxide and produces lower particulate emissions than conventional oil-based jet fuel. This can help to improve local air quality at airports.

EDUCATING DRIVERS

We also try to help customers become more energy efficient by changing their driving behaviour. The Shell FuelSave Target One Million campaign aims to help 1 million motorists save fuel and money. Interactive online games have been created to equip users with driving skills and other tips to reduce the cost of motoring and be more fuel efficient. To date, around 420,000 drivers have taken part.



External opinion

"The team's founder, Jeffrey Yu, viewed Shell Eco-marathon as an opportunity for the university and its students to be involved in a high profile engineering project. Participating in the Shell Eco-marathon helped our team prove that, as young engineers, we can develop fuel-efficient cars as a solution to the current environmental crisis."

In 2014, our team came second place in the Urban Concept Battery Electric (on-track). We also won the Perseverance and Spirit of the Event Award! The concept of Shell Eco-marathon is very inspiring. It offers students the ability to showcase their knowledge and skills to create energy-efficient cars and also promotes environmental awareness. I hope that Shell continues to host events that encourage a greener future."

25 MILLION

Retail customers a day worldwide

43,000

Shell branded retail stations worldwide

420,000

Participants in our Shell FuelSave Target One Million campaign to date

BIOFUELS

Biofuels are renewable fuels that can be made from a broad range of plant and food wastes. They can be blended with existing fuels such as petrol and diesel.

Today, most biofuels around the world are produced from corn, sugar cane or vegetable oils.

The production of biofuels needs to be managed in a responsible way to safeguard land use, the environment and local communities. Biofuels can be a valuable part of the energy mix and, in the coming decades, could be a lower cost way to reduce carbon dioxide (CO₂) emissions in the transport sector.

Shell was one of the first companies to invest in developing biofuels. We have dedicated biofuels teams and research agreements with experts in leading institutions across the world. Shell has technical partnerships with leading companies to explore new technology platforms for the production of advanced biofuels. New technologies that process biomass feedstocks could improve the cost, quality and sustainability of biofuels.

There are three main areas for Shell in biofuels: we are one of the world's largest producers of biofuels today through the Raízen joint venture; we have a supply chain of biofuels that we buy and blend into our own fuels; and we are working on developing advanced biofuels.

In 2014, we blended around 9 billion litres of biofuels in our petrol and diesel worldwide – making us one of the largest blenders of biofuels globally. We have also been working hard to improve the sustainability standards in our supply chain for many years. The Shell standards cover safeguarding land use, improving working conditions and protecting the environment.

Biofuel from Raízen is available at this Shell service station in Rio de Janeiro, Brazil.



PRODUCING BIOFUELS WITH RAÍZEN

In 2011, Shell and Brazilian company Cosan set up a joint venture, Raízen (Shell interest 50%), which produces, sells, distributes and blends ethanol from sugar cane. In 2014, Raízen produced more than 2 billion litres of low-carbon biofuel from Brazilian sugar cane.

The production process at the mills is designed to reduce its environmental footprint. Raízen by-products from the cane crushing and distillation processes are recycled as natural fertilisers. Waste sugar cane fibres are used as fuel to generate electricity for the mills. The mills reduce water consumption by using rainfall to water the crops and by recycling water during the manufacturing process.

Raízen has mechanised the production process so that more cane can be produced from the same area of land – 97% of its own harvest of sugar cane is mechanised. The mechanisation process helps to reduce greenhouse gas and particulate matter emissions caused by manual harvesting.

Sugar-cane ethanol has one of the best CO₂ performances compared with almost any other conventional biofuel available today in commercial volumes. This ethanol can reduce CO₂ emissions by around 70% compared with petrol, based on cultivation of the sugar cane through to using the ethanol as fuel.

Raízen was the first company to certify a sugar-cane mill using the Bonsucro sustainability standard in 2011. Bonsucro is a robust standard that certifies sugar cane, globally, for its social and environmental criteria. Raízen continues to work towards the certification of its 24 sugar-cane mills to the Bonsucro standard. By the end of 2014, two further mills were certified taking the total to 12.

IMPROVING STANDARDS IN PRODUCTION

Shell demands that the biofuels we purchase are produced in a way that is environmentally and socially responsible when reviewed across the life cycle of its production chain. We currently buy biofuels from more than 100 suppliers around the world, which are blended into our own fuels in many countries. Government mandates in these countries require fuel retailers to blend a certain percentage of biofuels into their petrol or diesel.

“Raízen continues to work towards the certification of its 24 sugar-cane mills to the Bonsucro standard.”

We introduced our own sustainability contract clauses when no industry standards existed and certified material was not available to purchase. These contract clauses aim to drive improvements in human rights standards and biodiversity from the biofuels that we purchase. In 2014, more than 99% of biofuel volumes that Shell bought and blended into petrols were covered by these contract clauses, while around 40% of these volumes were certified as sustainable by an independent auditor (working to standards set out in the European Union's Renewable Energy Directive).

We are working to increase the proportion of independently certified volumes and we support the adoption of international standards such as Bonsucro for sugar cane, the Round Table on Responsible Soy, the Roundtable on Sustainable Biomaterials and the Roundtable on Sustainable Palm Oil (RSPO). Every year, 100% of the palm oil that Shell blends is either independently certified by RSPO, the International Sustainability and Carbon Certification or covered by offsets from GreenPalm. We are working to increase the purchase of certified sustainable sugar-cane ethanol and soy biodiesel.

ADVANCED BIOFUELS

We continue to invest in new ways of producing biofuels from sustainable feedstocks, such as biofuels made from waste product or cellulosic biomass. These advanced biofuels will potentially emit less CO₂ in the production process than the biofuels available today.

In 2012, we built a pilot plant for advanced biofuels at our Technology Centre in Houston, USA, to produce biofuels that can be more easily mixed with petrol or diesel. The pilot plant converts cellulosic biomass, which are non-food plants, into a range of products, including petrol, diesel and aviation fuel. In 2015, Shell will build a pilot plant to test technology that will produce cellulosic ethanol.

In Brazil, Raízen completed the construction of a plant at its Costa Pinto mill to produce advanced biofuels from sugar-cane waste. The technology is provided by Iogen Energy. It is expected to produce 38 million litres of cellulosic ethanol a year.

FUTURE TECHNOLOGIES

Innovation and the development of new and advanced technologies are at the core of our business. But innovation is not just about new technologies: it is about finding new ways of thinking and advancing work with partners.

Shell is one of the largest investors in research and development among international oil and gas companies. In 2014, we spent more than \$1.2 billion on research and development (R&D) which includes the development of cleaner and alternative energy technologies. Since 2009 around \$1 billion of our R&D investment has been in lower-carbon technologies.

We operate a global network of 10 R&D centres, close to our main markets and production sites. These include three major technology hubs, located in India, the Netherlands, and the USA. Around 5,500 scientists and technical specialists work at these hubs on a broad spectrum of projects, such as turning natural gas into more efficient and cleaner fuels, and improving water management and energy efficiency in our operations.

BRINGING IDEAS INTO SHELL

Shell innovates in a number of ways. We have an array of different tools, programmes, partners and funding methods to help us develop new ideas and better technologies, faster and more cost effectively. Our longest established programmes – for nearly 100 years now – are research partnerships with universities and research institutes. These currently

include the Massachusetts Institute of Technology (MIT) in the USA, Imperial College in the UK and Tsinghua University in China.

Other examples of how we develop new technologies are our GameChanger, Shell Technology Ventures (STV) and Shell TechWorks programmes: GameChanger identifies and nurtures unproven ideas that have the potential to impact the future of energy; STV is our corporate-venturing arm which invests in companies to accelerate the development of innovations in the energy sector to meet future energy demand; and Shell TechWorks aims to quicken the deployment of new technologies by collaborating with a wide range of partners in global innovation hot spots.

LOWER-CARBON TECHNOLOGIES

Two of the most important challenges facing the world are the growing demand for energy and the need to reduce carbon dioxide (CO₂) emissions. We want to be at the forefront of new energy solutions, such as developing selected alternative and renewable energy options as well as making existing types of energy cleaner. We have dedicated teams within Shell that look at these areas.

INSPIRING TOMORROW'S ENGINEERS

In 2014, Shell announced an investment of over £1 million in Tomorrow's Engineers, a programme across the UK that seeks to inspire the next generation of scientists and engineers. The programme, which supports students aged 11-14 years, aims to increase the number of people that study science, technology, engineering and maths (STEM) subjects and ultimately pursue a STEM career.

STEM skills are vital to economies and to Shell's businesses. These skills are critical to meeting the future demand for energy, to drive innovation and to support the UK economy. It is estimated that, each year, the UK has a shortfall of over 55,000 people with engineering skills in its workforce. Shell's support of Tomorrow's Engineers will help the programme reach over 650 new schools in the next three years, offering students practical engineering experience and helping them to understand the opportunities in pursuing a technical career.

Students of the North East Scotland College participating in the Tomorrow's Engineers programme. Aberdeen, UK.



\$1.2 BILLION

Approximate R&D spend in 2014

50

Ideas selected by GameChanger in 2014

Renewable energy production

In renewable energy production we increased our investment in GlassPoint Solar in 2014 – a California-based company that has been supported by STV. This investment will accelerate the deployment of GlassPoint's solar-powered steam generators for enhanced oil recovery. The technology uses moving mirrors to capture solar energy and generate steam. It can reduce CO₂ emissions by up to 80% by using the sun as a source rather than gas.

Wind energy

STV has invested in 2-B Energy, a renewable energy company, to support its two-blade turbine wind technology and reduce the cost of offshore wind power. Shell has also been developing wind power for more than a decade and is involved in 10 wind power projects in Europe and North America.

Distributed energy and energy storage

Another area of STV investment is in small-scale distributed energy systems such as energy storage, system integration and micro generation. In 2014, STV invested in Aquion Energy, a company that specialises in energy storage. Aquion Energy has developed a battery storage system that can store solar power for use at night when a plant is not operating.

GlassPoint's solar technology uses mirrors in a greenhouse to create steam that is used for enhanced oil recovery. Amal, Oman.



Hydrogen transport

In alternative transport energy, we signed an agreement in 2014 with our partners to create H2M, a hydrogen mobility joint venture (Shell interest 27.6%) with Air Liquide, Daimler, Linde, OMV and Total, to expand Germany's hydrogen refuelling network from 17 to 400 stations by 2023.

We are also seeking to increase our hydrogen refuelling networks across California, the Netherlands and the UK. Since 2012, Shell has been conducting trials on the use of electric vehicles with commercial fleet customers in Germany, the UK and USA.

Biofuels

Our biofuels business supports the development of advanced biofuels. (See [page 41](#)).

Joe Powell
Shell Chief Scientist,
Houston, Texas,
USA

Internal opinion

Joe Powell leads research in chemical engineering and process development. This includes programmes related to specialist chemicals, renewable energy, carbon capture and storage and enhanced oil recovery. His work has resulted in more than 50 patents and several industry awards.

"One of my roles as Chief Scientist is to assess the feasibility of new ideas and technologies. We not only evaluate the business potential of the idea or technology but also its environmental and social impact. For a project or technology to be feasible, it has to compare favourably with alternative energy options, especially with regard to CO₂ emissions and water consumption.

My own field of advanced biofuels illustrates this approach: the first generation of biofuels are made from edible crops, such as maize or sugar cane, while advanced biofuels are more efficient and sustainable. Our research and investments in advanced biofuel technologies are enabling us to find ways to produce lower-carbon fuels from crop residues such as corn stalks and bagasse as well as from biomass."

OUR PERFORMANCE

We continue to work to reduce our impact on the environment, to engage with our neighbours in the communities where we operate and to generate jobs and business opportunities for local economies. This section provides data on our safety, economic, environmental and social performance in 2014.



A crew member walks on the deck of the Noble Hans Deul platform. Scotland, UK.



SAFETY

PERSONAL SAFETY

In 2014, following steady and significant improvements in our safety performance in recent years, we achieved our lowest ever number of injuries per million working hours – the total recordable case frequency (TRCF). We also achieved our lowest ever level of injuries that led to time off work in 2014, measured as lost time injury frequency (LTIF).

Sadly, five people lost their lives while working for Shell in 2014, three of which happened during operations and two as a result of transport accidents. Our fatal accident rate (FAR) – the number of fatalities per 100 million hours worked – improved in 2014 compared with 2013 and we achieved the lowest FAR that Shell has recorded.

Tragically, one colleague was on board the Malaysia Airlines flight, MH370, which has been missing since March 2014. We also lost four colleagues and eight of their family members in the Malaysia Airlines disaster over Ukraine in July 2014.

PROCESS SAFETY

Since 2011, we have introduced reporting of process safety in line with industry standards. In 2014, we achieved our best ever performance for both Tier 1 (57 in 2014; 65 in 2013) and Tier 2 (194 in 2014; 246 in 2013) operational process safety events. For Nigeria, process safety events related to sabotage and theft are recorded separately (91 Tier 1 and 48 Tier 2 events in 2014). To help improve performance in this area we investigate and learn from incidents, small and large.

We design our facilities to reduce the likelihood of incidents, but also to reduce the impact should something unexpected happen. For example, in 2014 we had a number of larger incidents where the impact of the event was reduced by the design of the facility. These events were:

- a fire in a toluene tank in the Rhineland refinery (Germany);
- an explosion in a processing unit in the Moerdijk chemicals facility (the Netherlands);
- a boiler explosion at the Sarnia refinery (Canada);
- broken equipment at an onshore gas well in Permian (USA) leading to a gas leak; and
- a leak at a flow station facility in Nembe (Nigeria) largely contained on-site.

Safety in the community

The Groningen gas field, 40% owned by the Dutch government, is the largest onshore gas resource in Europe. Since operations began in 1963, it has been a major contributor to the energy system in the Netherlands. It is operated by the "Nederlandse Aardolie Maatschappij B.V." (NAM, Shell interest 50%). In recent years, induced earthquakes occurring in the field have caused concerns particularly among local residents.

A series of studies are being conducted by independent organisations in close cooperation with the Netherlands' Ministry of Economic Affairs, the Meteorological Institute and the State Supervision of the Mines, as well as several science institutions around the world to better understand this unprecedented situation.

The Netherlands' Ministry of Economic Affairs has lowered the maximum gas production. It has also initiated a financial package to address damage claims; preventively reinforce houses and support a social performance programme for the area. Concerns of local communities are being addressed by a dedicated NAM team and claims for damage are being processed by the "Centrum Veilig Wonen" (Safe Living Centre), which operates independently.



Jop Groeneweg
Assistant Professor,
Unit of Cognitive
Psychology,
Leiden University,
the Netherlands

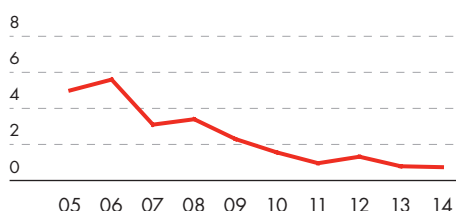
External opinion

"As far back as the mid-1980s, senior leaders at Shell recognised the need to manage the personal, technical and organisational factors involved in safety incidents to reduce human error. At Leiden University in the Netherlands, we have worked with Shell to develop, test and help implement new ways of improving safety.

It has proved challenging to move from a technical approach to safety to one that is more focused on personal and organisational factors. However Shell is now recognised as a global leader in safety and is a role model for other organisations. The next step for Shell to achieve zero accidents is to focus more on preventing repeat accidents by actively implementing the recommendations drawn from the lessons learned and by sharing these lessons."

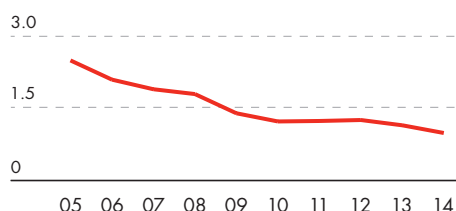
FATAL ACCIDENT RATE (FAR)

fatalities per 100 million working hours



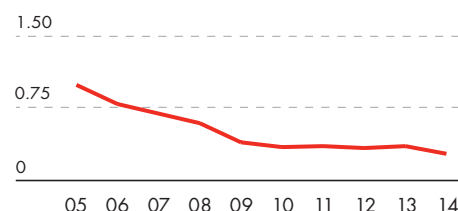
TOTAL RECORDABLE CASE FREQUENCY (TRCF)

injuries per million working hours



LOST TIME INJURY FREQUENCY (LTIF)

injuries per million working hours



ECONOMIC

Our income in 2014 was \$14.7 billion and we returned \$11.8 billion to our shareholders through dividends. Our total capital investment of \$37.3 billion will help to build and sustain our business for the future and we made divestments of \$14 billion from our non-core portfolio. We also spent \$1.2 billion on our research and development programme.

Shell generated \$45.0 billion of cash flow from its operating activities in 2014. Our SEC proved reserves replacement ratio (RRR) was 26% for 2014 and our three-year average RRR was 67% from 2012 to 2014. Our average organic RRR was around 85% over the last three years. The organic RRR excludes volume changes due to acquisitions, divestments and price effects and represents our ability to internally maintain and grow production.

In 2014, we started up Bonga North West (Shell interest 55%), off the coast of Nigeria. The Gumusut-Kakap platform in Malaysia (Shell interest 29%) started exporting oil to shore. In the Gulf of Mexico, first oil flowed from our Cardamom project (Shell interest 100%) and Olympus, our largest floating deep-water platform in the Gulf of Mexico, began production of oil from Mars B (Shell interest 71.5%). These four projects combined have the potential to deliver around 300,000 barrels of oil a day at peak production (100%).

We successfully integrated the part of the Repsol LNG portfolio that we acquired into our business.

Shell's oil and gas production in 2014 was 3.1 million barrels of oil equivalent a day, down 4% from 2013. Our sales of liquefied natural gas increased to around 24 million tonnes: this increase

of 22% from 2013 mainly reflects the contribution from the acquisition of part of the Repsol LNG portfolio. Exploration and commercial activities continued to add potential resources. This underpins our long-term growth plan.

SHELL SCORECARD

In 2014, sustainable development continued to account for 20% of the company scorecard, which helps determine the annual bonus levels for all our employees. In 2014, the Shell Executive Committee's sustainable development measures also accounted for 20% of their scorecard. This was split evenly between Shell's safety and environmental performance, including targeted measures covering operational spills, energy intensity and use of fresh water. From 2015, Process Safety Tier 1 events will be introduced as a new measure, receiving the same percentage weighting as personal safety. Process safety and personal safety will receive a weighting of 5% each, the volume of operational oil spills and energy intensity will be weighted at 4% each, and fresh water use will be weighted at 2%.

Targets are set each year by the Board's Remuneration Committee taking into account the performance achieved in the last three years, to incentivise continuous and sustained improvement. In 2014, our performance was better than the target for all sustainable development measures and our strongest results to date.

2%

Our share of the world's oil production

3%

Our share of the world's gas production

\$14.7 BILLION

Income in 2014

\$45 BILLION

Cash flow from operating activities

\$37.3 BILLION

Net capital investment

\$14.3 BILLION

Paid globally in income taxes

\$3.9 BILLION

Royalties paid to governments

\$72.7 BILLION

Collected excise duties and sales tax

TAX AND TRANSPARENCY

Our operations generate tens of billions of revenue each year for governments around the world.

These funds can help support a country's economy and contribute to local development and social services. We believe greater transparency in payments to governments, and how they are used, is important for building trust between businesses such as ours and the communities we work alongside. Transparency is also an important means to fight corruption.

We work openly with governments on matters of taxes and royalties. We are a founder and board member of the Extractive Industries Transparency Initiative (EITI). This initiative requires both governments and companies to disclose revenues received from oil and mineral activities.

In 2003, Shell was the first company to publish the taxes, royalties and other payments made to the Nigerian government, with the government's permission and support. Shell started to voluntarily publish an annual revenue transparency report in 2012. It provides an overview of taxes, royalties and the revenues we pay to host governments in certain key countries in respect of our activities, where such disclosure is not prohibited by the host government. We took this step to reinforce efforts to increase transparency on revenues for governments ahead of mandatory reporting.

To help improve accountability, we support a mandatory global reporting rule for extractive industries, in line with EITI goals to achieve greater transparency. Generally, we support the principles of regulations that we see in the EU and the USA to improve accountability

and good governance, keeping in mind we must respect the laws of countries where we operate as some governments prohibit disclosure of certain information.

In 2014, Shell paid globally \$14.3 billion in income taxes and \$3.9 billion in royalties. We collected \$72.7 billion in excise duties, sales taxes and similar taxes on our fuel and other products on behalf of governments.

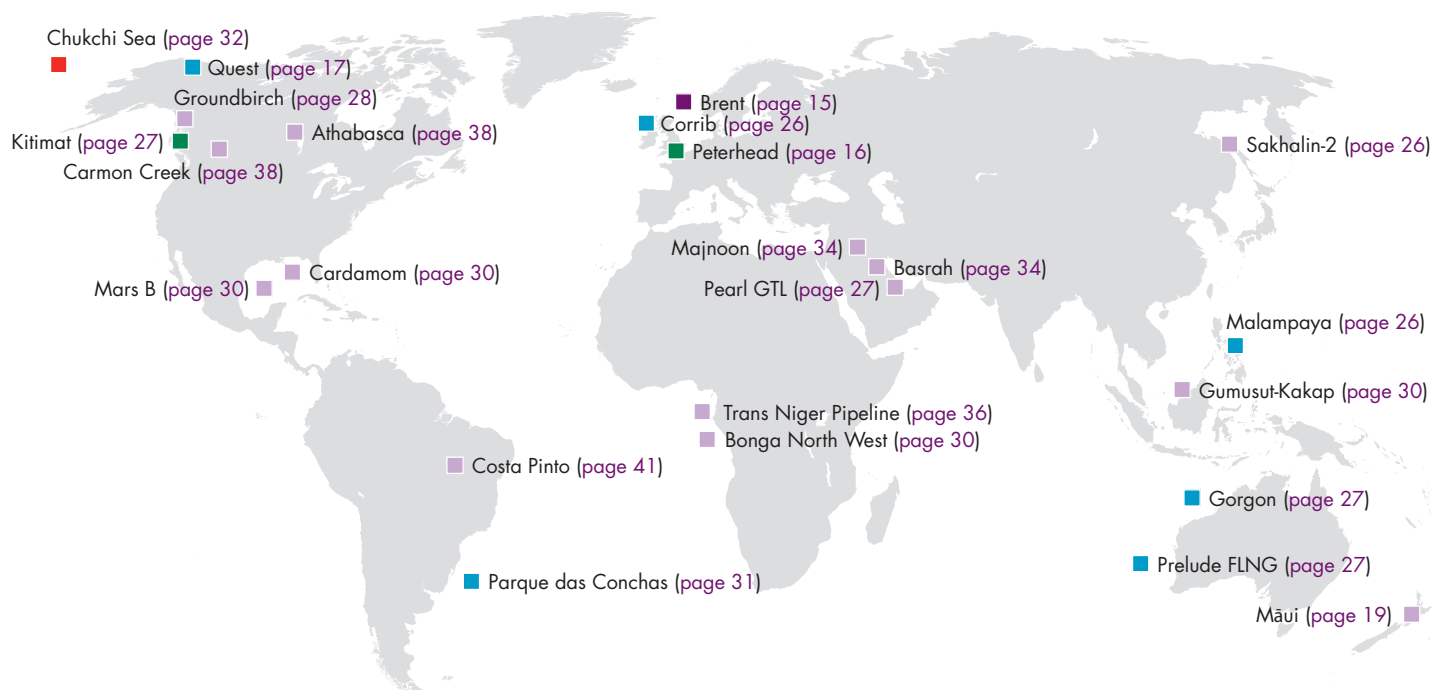
For further details and a breakdown of our payments made to governments by country, see www.shell.com/payments.

FEATURED PROJECTS AND OPERATIONS

The operations and projects highlighted on this map reflect some of the activities mentioned within this report. The colours on the map are used to indicate the stage of the project cycle (see coloured arrows) in 2014.

We apply a staged project development process which covers six phases: identify and assess; select; define; execute; operate; and decommission and restore. This is supported by a detailed project management plan that defines who is accountable, assurance of the process and what will be delivered.

The plan is signed off by the business manager who has overall accountability for the project. It is monitored and reviewed throughout the life cycle of the project.



IDENTIFY
& ASSESS

SELECT

DEFINE

EXECUTE

OPERATE

DECOMMISSION
& RESTORE

ENVIRONMENT

We improved our environmental performance in most areas. The main exception has been our flaring performance which also led to an increase in our overall greenhouse gas (GHG) emissions. We have a series of projects underway to reduce our flaring.

SPILLS

Shell has clear requirements and procedures to prevent operational spills. We have ongoing programmes in place to maintain and improve our facilities and pipelines. However, spills still occur for reasons such as operational failure, accidents or unusual corrosion.

In 2014, we achieved our lowest level of recorded operational spills. The volume of operational spills of oil and oil products amounted to 0.7 thousand tonnes, down from 0.9 thousand tonnes in 2013. The number of operational oil spills also decreased in 2014 to 153, down from 174 in 2013. We continue to investigate and learn from all spills to improve our performance. We continue to invest in improving the reliability and maintenance of our facilities to help reduce operational spills.

In January 2015, Shell Petroleum Development Company announced a £55 million settlement agreement with the Bodo community in Nigeria in respect of two operational spills in 2008. We had previously accepted that the total volume of oil released as a result of the two operational spills is likely to have exceeded the estimates of the

Joint Investigation Visits (see [page 37](#)). However, given the degree of uncertainty in estimating the additional amount that might have been released, we have not restated our reported 2008 operational spill figure.

In 2014, sabotage and oil theft remained a significant cause of spills. Although the number of spills decreased to 139 from 157 in 2013, the volume of these spills increased to 2.7 thousand tonnes in 2014 from 2.2 thousand tonnes in 2013. See [pages 36 and 37](#) for more information on spills in Nigeria.

Our spill volumes do not include hydrocarbons present in controlled or regulated discharges to surface water. In 2014, hydrocarbons discharged to surface water were 0.9 thousand tonnes, down from 1.0 thousand tonnes in 2013.

ENERGY EFFICIENCY

One of the ways we can manage our direct GHG emissions is to work on improving the energy efficiency of the facilities we operate. The main metric that we use to measure our energy efficiency is energy intensity (the amount of energy consumed for every unit of output).

In 2014, the overall energy intensity for the production of oil and gas in our Upstream business (excluding oil sands and gas-to-liquids (GTL)) slightly improved compared with 2013, partially driven by increased production in Brazil, Iraq and Nigeria.

All our major facilities have energy management plans in place to make the best use of those facilities, including the use of improved field management techniques. We expect that maintaining the energy efficiency levels of recent years will be more difficult in the future as existing fields age and new production comes from more energy-intensive sources. This may increase our upstream energy intensity over time.

In our oil sands operations, energy intensity in 2014 improved compared with 2013. In 2014, the overall energy intensity for the manufacturing of oil products at our refineries improved compared with 2013. The overall energy intensity of our chemical plants in 2014 was higher than in 2013, due to increased unplanned downtime.

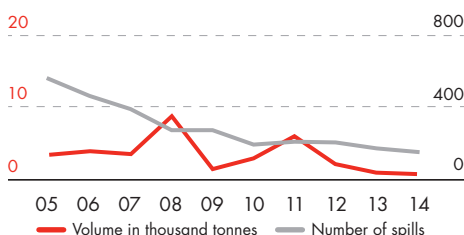
AIR EMISSIONS

We track air emissions released to the atmosphere from our upstream and downstream operations including routine and non-routine activities:

Greenhouse gas emissions

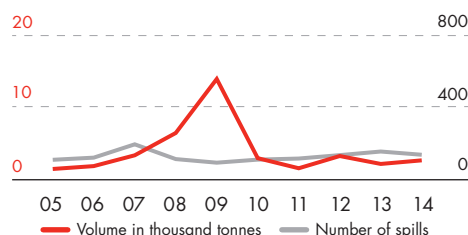
The direct GHG emissions from facilities we operate were 76 million tonnes on a carbon dioxide (CO₂) equivalent basis in 2014, which is higher than 73 million tonnes of CO₂ equivalent reported in 2013. The main reasons for this increase were the restart of production at Majnoon in Iraq following completion of refurbishment activities and startup of the new Central Processing Facility in September 2013 and higher production at the Pearl GTL plant

SPILLS – OPERATIONAL [A]



[A] Over 100 kilograms.

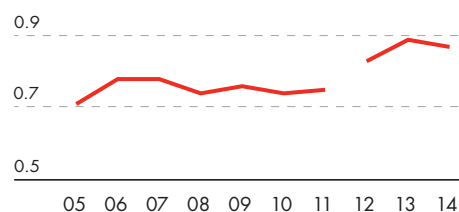
SPILLS – SABOTAGE [A]



[A] Sabotage- and theft-related spills over 100 kilograms.

ENERGY INTENSITY – UPSTREAM (EXCLUDING OIL SANDS AND GTL)

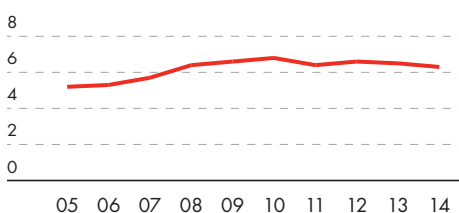
gigajoules/tonne production [A]



[A] 2012-2014 data is reported in accordance with IPIECA/API/OGP guidance 2010.

ENERGY INTENSITY – OIL SANDS

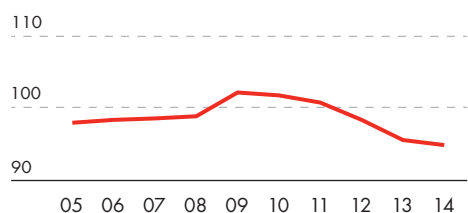
gigajoules/tonne production [A]



[A] Includes mining and upgrading operations.

ENERGY INTENSITY – REFINERIES

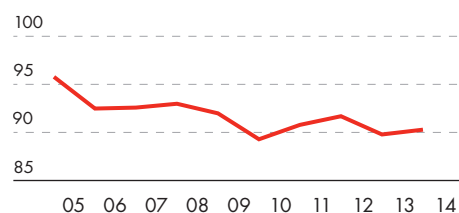
refinery energy index [A]



[A] Indexed to 2002; based on 2006 Solomon EIITM methodology.

ENERGY INTENSITY – CHEMICAL PLANTS

chemicals energy index



in Qatar, leading to increased operational flaring of excess waste gas. Excluding flaring our GHG emissions fell due to improved energy efficiency in many of our operations, the divestment of the Geelong refinery in Australia and unplanned downtime at our Moerdijk chemical plant in the Netherlands.

Around 45% of our GHG emissions came from the refineries and chemical plants in our Downstream business. The production of oil and gas in our Upstream business accounted for around 50% of our GHG emissions and our shipping activities for less than 3%. We continue to work on improving operational performance and energy efficiency to reduce GHG emissions.

The indirect GHG emissions from the energy we purchased (electricity, heat and steam) were 10 million tonnes on a CO₂ equivalent basis in 2014, consistent with 2013. We estimate that the CO₂ emissions from the use of our refinery and natural gas products were around 600 million tonnes in 2014. Further information on GHG emissions is available at www.shell.com/ghg.

Methane

In 2014, methane emissions contributed less than 5% to our direct GHG emissions on a CO₂ equivalent basis. The majority of our methane emissions relate to associated gas from oil production. We are working to manage our methane emissions as part of our programme on GHG management.

Volatile organic compounds

Our emissions of volatile organic compounds (VOCs) increased in 2014 compared with 2013. This was mainly due to increased production in Majnoon, Iraq. We expect our VOC emissions to decrease in 2015 as a result of our efforts to reduce flaring and venting.

FLARING

We believe that flaring and venting (releasing gas to the atmosphere) of natural gas associated with oil production should be minimised as this is a waste of valuable resources, increases GHG emissions and contributes to climate change. Our HSSE & SP Control Framework sets out our flaring policy including the requirement for new facilities to be designed so as not to continuously flare or vent. When we acquire or become the operator of an existing facility that is already flaring or venting, it can take time before these activities can be stopped.

In our existing facilities, our policy is to reduce any continuous flaring or venting to as low a level as reasonably practical. Operational flaring occurs for safety reasons or during the start-up of Upstream facilities. We aim to minimise this operational flaring.

After several years of flaring reductions, the flaring of natural gas in our Upstream business increased in 2014 to 13.0 million tonnes of CO₂ equivalent, from 7.4 million tonnes of CO₂ equivalent in 2013. This was due to increased production at Majnoon in Iraq (see [page 34](#)), in Nigeria (see [page 37](#)) and at the Pearl GTL plant in Qatar, as well as the start-up of Gumusut-Kakap in Malaysia. We are working on projects to reduce flaring at these locations. At Gumusut-Kakap we are installing equipment that will start capturing the gas for reinjection into the wells, by the end of 2015.

Overall, flaring made up around 17% of the total direct GHG emissions in 2014. Iraq accounted for around 35%, Nigeria for 30%, Qatar for 13% and Malaysia for 8% of this flaring in 2014.

Outside of Nigeria, Iraq and Malaysia, the few facilities that continuously flare accounted for less than 2% of our total direct GHG emissions in 2014. Some of these facilities are at ageing oil fields where the associated gas pressure is too low to

power the compressors used to gather the gas and avoid flaring. In 2014, the venting of hydrocarbons amounted to around 1% of our total direct GHG emissions.

In line with our commitment to long-term flaring reduction, we have been a member of the World Bank's Global Gas Flaring Reduction (GGFR) partnership for many years. Through the GGFR partnership, the World Bank has developed a Zero Routine Flaring by 2030 initiative that is designed to help governments and companies end continuous flaring by 2030. We have signed up to this World Bank initiative and believe it will be an important enabler to reduce continuous flaring by bringing together governments, companies and development organisations to work collaboratively towards this common goal.

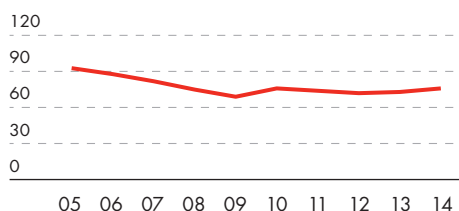
WATER

The way we manage our use of fresh water is particularly important in areas of the world where the availability of water is constrained due to limited supplies or extensive use. We assess the availability of water where we operate and design and run our facilities in ways that help reduce their water use. (See [page 14](#)).

In 2014, the amount of fresh water we used increased to 199 million cubic metres, from 198 million cubic metres in 2013. Our Downstream business accounted for over 70% of our fresh water use for the manufacture of oil products and chemicals: our Upstream operations used slightly over 25%. At our major facilities in water scarce areas, we are developing water management plans that include how our operations will minimise water use and increase water recycling.

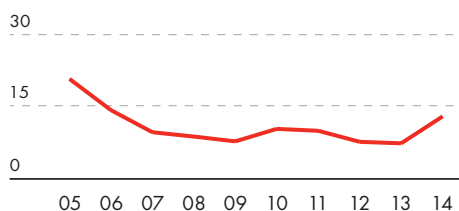
DIRECT GREENHOUSE GAS EMISSIONS

million tonnes CO₂ equivalent



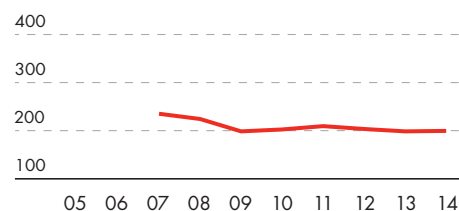
FLARING – UPSTREAM

million tonnes CO₂ equivalent



FRESH WATER WITHDRAWN

million cubic metres



SOCIAL

SOCIAL PERFORMANCE

Social performance involves working with communities to reduce the impact of our operations and share the benefits of our activities. We respectfully engage with relevant parties, evaluate impacts, plan mitigation strategies and find opportunities to support communities, such as helping to build local economies through the creation of jobs and business opportunities.

Shell requires all major assets where we are the operator to have effective community feedback mechanisms (CFMs): more than 100 locations have working CFMs in place. From 2013 to 2014, the number of locations with effectively run CFMs increased by 25%. To further improve in 2015, we will be increasing the frequency of the reporting of CFM data within Shell as well as introducing new parameters. This will help us to better assess the quality and speed of our responses to complaints.

We have management systems in place that set out our social performance requirements for activities such as engagement and impact assessment, and are aligned with international standards. In 2014, we made improvements in defining social risks by developing and using specific tools. Each year, we review the extent to which our operations, as well as our contractors and suppliers, have processes in place to prevent violations of human rights, such as the use of child or forced labour. In 2014, we trained 481 (441 in 2013) employees in our social performance requirements.

SOCIAL INVESTMENT

Across our operations we invest in projects that benefit communities. Our intention is to help the project become sustainable in the long term. In 2014, we successfully completed the first round of global reporting on the projects' impact. Social investment programme managers have been measuring the output and are beginning to capture longer-term social and business outcomes. Also in 2014, we spent around \$160 million on voluntary social investments worldwide, compared with \$159 million in 2013. These figures do not include investments that are part of contractual agreements or legal requirements with host governments, which is in excess of \$100 million.

We spent around \$39 million on our three global strategic themes of enterprise development, road safety and energy access. Around \$121 million was spent on our locally tailored programmes covering community development, disaster relief, education, health and biodiversity. We estimate that almost \$70 million of our spend in 2014 was in countries that are part of the UNDP Human Development Index 2013 defined as having a gross domestic product of less than \$15,000 a year per person. Significant support is also provided by voluntary work by Shell employees and donations of equipment.

LOCAL PROCUREMENT

Where it makes overall business sense, we buy goods and services from local suppliers and help support local businesses and skills development. In 2014, we spent more than \$67.1 billion on goods and services worldwide. Around 61% of this was spent in Canada, the Netherlands, Nigeria, the UK and the USA. We estimate around \$13.7 billion was spent in countries that have a gross domestic product of less than \$15,000 a year per person, according to the UNDP Human Development Index 2013. In these countries, Shell companies spent more than 69% (\$9.5 billion) with local companies.

We check that our suppliers are complying with key sustainability criteria, including good working conditions. In 2014, we conducted 92 rigorous assessments of suppliers in Africa and the Middle East, 132 in the Americas, 394 in the Asia-Pacific region, and 456 in Europe to check compliance against our Supplier Principles. These principles include areas such as human rights, labour practices such as the prohibition of child and forced labour, and business integrity.

EXTERNAL VOLUNTARY CODES

The Shell General Business Principles and Code of Conduct guide the business activities of Shell companies. We also support a number of external voluntary codes. These include the United Nations' Universal Declaration of Human Rights, the United Nations Global Compact, the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises and the International Labour Organization Declaration on Fundamental Principles and Rights at Work.

OUR PEOPLE

Our people are vital to the implementation of our business strategy. Shell recruits, trains and rewards employees to build business capabilities. This ensures our businesses are well resourced and enhances employee performance and engagement levels.

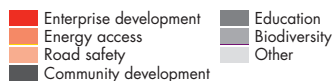
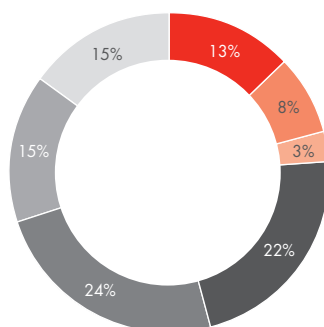
We have 94,000 employees in more than 70 countries, with just under 40% in countries outside of Europe and North America. To implement our strategy and growth plans for the future, we recruited around 1,200 graduates and about 2,000 experienced professionals in 2014. The majority were educated in technical disciplines. More than 30% of our graduate recruits came from universities outside of Europe and the Americas.

Dedicated managers are employed to ensure robust resourcing and succession planning for our critical positions and to create development opportunities for our employees. The salaries we pay reflect market conditions in the countries where employees are based and the high level of skill and experience needed. We regularly review comparative remuneration for men and women in selected countries to ensure that we remain competitive.

Shell manages the effects on people of business changes as consistently as possible. Affected employees are treated respectfully and processes are transparent. They are supported in their search for alternative employment as appropriate by country law and policy. We provide flexible working practices wherever necessary and reasonably possible. Our employees are encouraged to take part in social responsibility projects and employee interest networks.

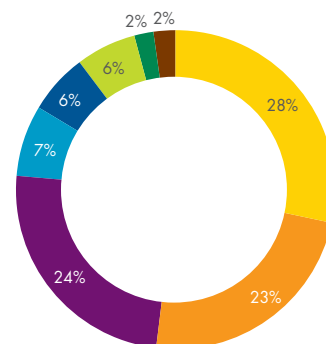
VOLUNTARY SOCIAL INVESTMENT IN 2014

proportion of spend



VOLUNTARY SOCIAL INVESTMENT IN 2014

split by region



EMPLOYEE COMMUNICATION AND INVOLVEMENT

Dialogue between management and employees is embedded in our work practices, and we strive to maintain healthy employee relations. Dialogue can take place directly and, where appropriate, through employee councils or trade unions. On a quarterly basis, senior management briefs employees on Shell's operational and financial results through various channels. The Shell People Survey is one of the principal tools used to measure employee views on a range of topics including employee engagement and the degree of affiliation and commitment to Shell. The average employee engagement score in 2014 was 80% favourable, as it was in 2013, and 5% unfavourable.

We promote confidential expression of views about our processes and practices. We have multiple channels in a choice of different languages in place for employees to report, confidentially and anonymously, breaches of the Shell General Business Principles or our Code of Conduct, or other concerns. These include a global telephone helpline and a dedicated website in addition to channels in each country.

DIVERSITY AND INCLUSION

The Shell culture embraces diversity and fosters inclusion. By embedding these principles in our operations, we have a better understanding of the needs of our varied customers, partners and stakeholders throughout the world, and we benefit from a wider talent pool. We provide equal opportunity in recruitment, career development, promotion, training and reward for all employees regardless of colour, ethnicity or physical ability. Where possible, we make reasonable adjustments in job design and provide appropriate training for employees who declare a disability.

We actively monitor representation of women and local nationals in senior leadership positions, and have talent-development processes to support us in delivering more diverse representation. The proportion of women in senior leadership positions was 18.2% in 2014 compared with 17.2% in 2013.

With effect from 2014, Shell revised its senior local national representation metric to ensure it adequately takes into account senior local nationals working in their base countries and overseas. In 20 selected key business countries, we began measuring local national coverage. This is calculated for each of the selected countries by measuring the

percentage of senior nationals employed in the group compared with the number of senior positions existing in their home country. The reporting of local national coverage is split into two categories – greater than 80% (12 countries in 2014) and less than 80% (eight countries in 2014): numbers are unchanged in comparison with 2013.

Senior leaders actively engage in diversity and inclusion networks, internally and externally, and we have numerous active employee interest networks representing different communities within the organisation. Our annual Shell People Survey also measures employees' views on the inclusiveness of their workplace. In 2014, 71% felt positive about this, up 1% from 2013 and 11% felt negatively about inclusion in the workplace, the same as in 2013.

TRAINING AND DEVELOPMENT

We continue to invest in developing the skills of our employees and joint venture partners. In 2014, we invested over \$342 million in training and development. We provided more than 617,000 training days to our employees and some of our joint venture partners. This included training more than 4,000 employees in leadership skills. Our continued focus remains on building technical and commercial capability and safety-critical competencies. Another focus area is tailored training for social performance professionals including risk areas such as cultural heritage, land and resettlement and indigenous peoples. In 2014, the number of professionals to attend these trainings was 481 (441 in 2013).

CODE OF CONDUCT VIOLATIONS

Shell employees and contractors working for Shell must abide by our Code of Conduct. In 2014, 267 violations of the Code of Conduct were reported (181 in 2013; 209 in 2012). As a result, we dismissed or terminated the contracts of 118 employees and contractors (63 in 2013; 93 in 2012).

SECURITY

The percentage of armed security used has increased since 2010 due to an increase in geopolitical volatility around the globe especially in the Middle East. To address the increasing threat from terrorism, the oil and gas industry and governments are making efforts to bolster security at critical oil and gas national infrastructure locations. This followed an incident with fatalities at a gas facility (unrelated to Shell) in Algeria in 2013.

\$342 MILLION

Spend on training and development of employees

94,000

Number of people employed

\$13.7 BILLION

Spend in lower-income countries

1,074

Number of assessments of suppliers against Shell Supplier Principles

ENVIRONMENTAL AND SOCIAL DATA

ENVIRONMENTAL DATA

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Greenhouse gas emissions (GHGs)										
Direct total GHGs (million tonnes CO ₂ equivalent) [A]	76	73	72	74	76	69	75	82	88	93
Carbon dioxide (CO ₂) (million tonnes)	73	71	69	71	72	66	72	79	85	89
Methane (CH ₄) (thousand tonnes)	126	120	93	133	128	127	126	119	124	173
Nitrous oxide (N ₂ O) (thousand tonnes)	1	1	1	1	2	2	2	2	2	2
Hydrofluorocarbons (HFCs) (tonnes)	16	17	23	22	23	25	23	28	24	20
Energy indirect total GHGs (million tonnes CO ₂ equivalent)	10	10	9	10	9	9	n/c	n/c	n/c	n/c
Flaring										
Flaring (Upstream) (million tonnes CO ₂ equivalent)	13.0	7.4	7.7	10.0	10.4	7.8	8.8	9.7	14.3	20.8
Flaring (Upstream) (million tonnes hydrocarbon flared)	3.8	2.1	2.3	3.4	3.6	2.6	2.8	3.4	4.8	7.0
Nigeria [B]	1.3	1.1	1.5	2.0	2.4	1.9	2.3	2.5	3.7	5.8
Rest of world [C]	2.5	1.0	0.8	1.4	1.2	0.7	0.5	0.9	1.1	1.2
Energy intensity										
Upstream excl. oil sands and GTL (gigajoules per tonne production) [D]	0.87	0.89	0.83	0.75	0.74	0.76	0.74	0.78	0.78	0.71
Oil sands (gigajoules per tonne production) [E]	6.3	6.5	6.6	6.4	6.8	6.6	6.4	5.7	5.3	5.2
Refineries: Refinery Energy Index [F]	94.9	95.6	98.4	100.8	101.8	102.2	98.9	98.6	98.4	98.0
Chemical plants: Chemicals Energy Index	90.3	89.8	91.7	90.8	89.3	92.0	93.0	92.6	92.5	95.8
Acid gases and VOCs										
Sulphur oxides (SO _x) (thousand tonnes SO ₂)	97	99	113	136	139	141	175	212	233	226
Nitrogen oxides (NO _x) (thousand tonnes NO ₂)	146	156	147	146	159	142	150	145	154	157
Volatile organic compounds (VOCs) (thousand tonnes)	151	89	89	129	147	126	130	148	185	199
Ozone-depleting emissions										
CFCs/halons/trichloroethane (tonnes)	0.0	0.0	0.0	0.0	0.0	0.4	1.4	0.6	0.3	0.8
Hydrochlorofluorocarbons (HCFCs) (tonnes)	6	8	8	12	21	24	26	27	35	35
Spills and discharges [G] [H]										
Sabotage spills – volume (thousand tonnes) [I]	2.7	2.2	3.3	1.6	3.0	14.0	6.5	3.4	1.9	1.5
Sabotage spills – number [I]	139	157	137	118	112	95	115	197	123	111
Operational spills – volume (thousand tonnes) [J]	0.7	0.9	2.1	6.0	2.9	1.4	8.8	3.5	3.9	3.4
Nigeria	0.3	0.4	0.2	5.3	0.7	0.3	7.1	1.6	1.4	0.1
Rest of world	0.4	0.5	1.9	0.7	2.2	1.1	1.7	1.9	2.5	3.3
Operational spills – number [K]	153	174	207	211	195	275	275	392	465	560
Nigeria [L]	38	31	37	64	32	37	42	52	41	63
Rest of world	115	143	170	147	163	238	233	340	424	497
Hurricane spills – volume (thousand tonnes)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
Oil in effluents to surface environment (thousand tonnes)	0.9	1.0	1.0	1.3	1.6	1.5	1.7	1.6	1.8	2.3
Water										
Fresh water withdrawn (million cubic metres)	199	198	203	209	202	198	224	235	n/c	n/c
Waste disposal										
Hazardous (thousand tonnes)	529	770	820	740	1,048	962	688	907	716	631
Non-hazardous (thousand tonnes)	1,674	2,065	2,295	1,850	1,079	1,139	996	1,899	1,154	632
Total waste (thousand tonnes) [M]	2,203	2,835	3,115	2,590	2,127	2,101	1,684	2,806	1,870	1,263

[A] Greenhouse gas emissions comprise carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. The data are calculated using locally regulated methods where they exist. Where there is no locally regulated method, the data are calculated using the 2009 API Compendium, which is the recognised industry standard under the GHG Protocol Corporate Accounting and Reporting Standard. There are inherent limitations to the accuracy of such data. Oil and gas industry guidelines (IPIECA/API/IOGP) indicate that a number of sources of uncertainty can contribute to the overall uncertainty of a corporate emissions inventory.

[B] Nigeria includes SPDC onshore operations (1.2 million tonnes flared in 2014) and SNEPCo offshore operations (0.01 million tonnes flared in 2014).

[C] Flaring from the Majnoon field in Iraq and from Malaysia amounted to 1.4 and 0.4 million tonnes of hydrocarbons respectively in 2014.

[D] Since 2012 data is prepared in accordance with IPIECA/API/IOGP guidance 2010. Data for prior years is not directly comparable.

[E] The data includes mining and upgrading operations. It does not include in-situ production.

[F] Data is indexed to 2002, based on Solomon Associates Energy Intensity Index 2006 methodology.

[G] All spill volumes and numbers are for spills over 100 kilograms.

[H] As of the end of March 2015, there were three spills under investigation in Nigeria that may result in adjustments, which took place prior to 2014.

[I] All sabotage- and theft-related spills have occurred in Nigeria except in 2007 (0.7 thousand tonnes outside Nigeria) and 2006 (0.6 thousand tonnes outside Nigeria).

[J] Nigeria includes SPDC onshore operations and SNEPCo offshore operations. A single spill at the Bonga field offshore Nigeria amounted to 4.8 thousand tonnes in 2011.

[K] The number of operational spills reported for 2005 contains a small number of hurricane spills.

[L] Nigeria includes SPDC onshore operations (37 operational spills in 2014) and SNEPCo offshore operations (1 operational spill in 2014).

[M] In 2014, we sent waste offsite for recycling or reuse, or sold close to 500 thousand tonnes of material that would otherwise have been disposed of as waste.

n/c = not calculated.

www.shell.com/performance/data

See page 57 for more information about our data.

SOCIAL DATA

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Fatalities										
Total number	5	5	8	6	12	20	26	21	37	34
Employees	3	0	3	1	0	1	2	1	2	3
Contractors	2	5	5	5	12	19	24	20	35	31
Fatal accident rate (FAR)	0.74	0.79	1.32	0.96	1.56	2.3	3.4	3.1	5.6	5.0
Fatalities per 100 million working hours (employees and contractors)										
Injuries and process safety incidents										
Total recordable case frequency (TRCF)	0.99	1.15	1.26	1.24	1.23	1.4	1.8	1.9	2.1	2.5
Injuries per million working hours (employees and contractors)										
Lost time injury frequency (LTIF)	0.28	0.36	0.34	0.36	0.35	0.4	0.6	0.7	0.8	1.0
Lost time injuries per million working hours (employees and contractors)										
Operational Process Safety Events										
Tier 1 [N]	57	65	91	n/c	n/c	n/c	n/c	n/c	n/c	n/c
Tier 2 [N]	194	246	308	n/c	n/c	n/c	n/c	n/c	n/c	n/c
Illnesses										
Total recordable occupational illness frequency (TROIF)	0.96	0.77	0.51	0.66	0.76	0.6	1.2	1.5	1.8	2.0
Illnesses per million working hours (employees only)										
[S] Security										
Using armed security (% of countries)	24	19	17	14	9	17	17	16	15	19
Using armed company security (% of countries)	1	3	0	1	1	1	1	2	2	2
Using armed contractor security (% of countries)	10	8	10	9	6	10	9	12	9	11
Gender diversity [O]										
In supervisory/professional positions (% women)	29.0	28.8	28.1	27.3	26.3	26.4	24.7	24.6	23.2	21.8
In management positions (% women)	21.0	18.8	18.2	17.6	17.0	16.1	15.3	17.7	16.2	12.9
In senior leadership positions (% women)	18.2	17.2	16.2	16.6	15.3	14.0	13.6	12.9	11.6	9.9
[S] Staff forums and grievance procedures										
% countries with staff access to staff forum, grievance procedure or other support system	100	100	100	99	100	99	100	100	99	100
[S] Child labour (% countries with procedures in place)										
Own operations	100	100	100	100	99	98	100	99	95	88
Contractors	100	100	100	97	96	97	99	98	89	69
Suppliers	100	100	100	97	96	97	99	96	82	62
[S] Forced labour (% countries with procedures in place)										
Own operations	100	100	100	100	99	98	n/c	n/c	n/c	n/c
Contractors and suppliers	100	100	100	97	95	89	n/c	n/c	n/c	n/c
Integrity										
Code of Conduct violations [P]	267	181	209	226	205	165	204	361	n/c	n/c
Contracts cancelled due to incompatibility with Business Principles	7	22	14	11	40	24	49	35	41	63
[S] Contracting and procurement										
Estimated expenditure on goods and services in lower-income countries (\$ billion) [Q] [R]	14	12	14	12	13	12	12	13	10	9
Social investment [S]										
Estimated voluntary social investment (equity share) (\$ million)	160	159	149	125	121	132	148	170	140	127
Estimated social investment spend (equity share) in lower-income countries (\$ million) [T]	73	74	67	45	61	54	61	65	n/c	n/c

[N] Process safety events are classified based on guidance from the IOGP and API. In 2014 there were 91 Tier 1 and 48 Tier 2 sabotage related events.

[O] Diversity data obtained from our human resources system.

[P] Code of Conduct violations reported to our global telephone helpline and dedicated website, and through internal channels.

[Q] Estimated expenditure in countries where gross domestic product amounts to less than \$15,000 a year per person (source: UNDP Human Development Index 2013).

[R] From 2013 onwards, this figure only includes the spend on goods and services by Shell Group Companies.

[S] Social investment spending varies from year to year depending on business climate, locations and type of activities under way. This is voluntary social investment and does not include social investments made through contractual agreements with host governments, voluntary work by Shell employees and donations of equipment.

[T] Estimated voluntary social investment spending in countries where gross domestic product amounts to less than \$15,000 a year per person (source: UNDP Human Development Index 2013).

[S] Social investment and contracting and procurement data collected via our financial system since 2007.

[S] Data obtained from an internal survey completed by the senior Shell representative in each country.

n/c = not calculated.

EXTERNAL REVIEW COMMITTEE

The External Review Committee (ERC or the Committee) is pleased to share its independent opinion on Shell's 2014 Sustainability Report (the report).

First of all, we want to acknowledge and commend the significant progress Shell has made with regard to reporting and transparency. The report has improved in terms of content, design, readability and responsiveness to external inputs, including from the ERC. Most importantly, it more clearly identifies the most material issues relating to Shell and its sustainability performance.

The process by which the ERC engaged with Shell's most senior leaders has been effective and informative, allowing the Committee to be exposed to Shell's strategic thinking. The ERC explored Shell's challenges and dilemmas with Ben van Beurden (Chief Executive Officer) and Board member Charles O. Holliday, among others. It is clear that understanding the external world's expectations and their impacts on the company's long-term strategy is of utmost importance to Shell. The ERC believes these conversations and Shell's overall disposition towards engagement contribute to the mapping of the non-technical risks it faces.

THE ENERGY TRANSITION

The CEO letter at the start of the report sets the tone by clearly outlining the energy dilemma the world is facing: how to provide safe, affordable and reliable energy to a growing and increasingly urbanised

population while reducing carbon emissions. It also explores the role of an energy company in this transition to a lower-carbon economy, addressing implicit questions including: should Shell lead through effective advocacy of public policy, in collaboration with other stakeholders? Or is it a follower, responsible for delivering the energy mix determined by the policy framework?

The ERC recognises the difficulties the sector faces and understands that by illustrating dilemmas in a transparent way, Shell is contributing to a clearer understanding of possible trade-offs. In the ERC's opinion, the uncertainties faced by the oil and gas industry in our increasingly turbulent world are more pronounced than in the past, aggravated as they are by the significant decrease in the price of oil, by political instabilities in key energy producing regions, and by climate change disruption, among other acute and chronic stresses.

Shell's increasing investment in gas (which comprises more than 50% of its portfolio), work on biofuels, leadership on and advocacy for carbon capture and storage (CCS) and continuous focus on operational energy efficiency are welcome steps as part of the transition to lower carbon levels. Shell's investment in future technology research and development

(such as in advanced biofuels and hydrogen) are also necessary and important for matching energy demand with lower carbon alternatives. We encourage Shell to provide more insights on the impacts of research & development capital expenditure in accelerating lower-carbon solutions. Public information in this domain is important to signal the level of commitment of the company to helping bring about a low-carbon future.

The ERC acknowledges the importance of Shell's use of a shadow carbon price of \$40 a tonne for new projects, which is both prudent internal practice and a recognition that societal expectations and/or regulation may increase the cost of emitting. The ERC reaffirms the importance of Shell's senior leadership continuing to advocate for clear public policies that foster investments in a broad range of lower-carbon alternatives, including effective carbon pricing.

While the report explains Shell's present strategy in the context of the energy transition, it does not yet present a long-term vision with goals that make clear how Shell envisions its future role. Are future energy solutions including renewables perceived as a threat to Shell's business model or does Shell welcome and support the future they herald? How and in what time frame will Shell capital investment evolve from today's fossil fuel predominance? Additionally, the ERC would like to see Shell



Clarissa Lins (Chair)

Founder
Catavento, Brazil



John Gardner

Vice President and Chief Sustainability Officer
Novelis Inc, UK



Bernice Lee

Director, Head of Climate Change
and Resource Security Initiatives
World Economic Forum, Hong Kong



Seema Arora

Executive Director
Confederation of Indian Industry, India



Reidar Kvam

Senior Manager for Policy, Quality Assurance
and Knowledge Management
International Finance Corporation, Norway



Charles Secrett

Founder Member
The Robertsbridge Group, UK

disclosing how the energy transition will further impact the company's business strategy, influence its targets and determine its future actions.

ONGOING CHALLENGES

As society's concern over drilling in the Arctic is so substantial and widespread, it is very difficult to adequately address within a single written report. The ERC acknowledges the description of the extensive local community engagement Shell is undertaking in the Arctic, as well as the ways in which it is working to be technically prepared for exploration. Shell has said that it is incorporating many non-technical aspects in its decision-making at the same time as substantially increasing its ability to operate in this unique and ecologically sensitive environment.

That said, the ERC does not find the report adequately addresses these material issues, nor does it present a convincing argument for why it is important for Shell to have a presence in the Arctic.

In Nigeria, Shell's efforts to reduce theft and sabotage are clearly described in the report and demonstrate the company's commitment to improve operational standards, even in a challenging context. The ERC encourages Shell to further disclose its progress in this area, allowing stakeholders to assess company progress towards achieving its goal of no harm and no spills from its operations.

Another area of concern for the ERC is the report's disclosure of significant increases in flaring at Shell operations in Iraq, Nigeria, Qatar and Malaysia. Although the report states that Shell has a policy forbidding flaring at new facilities, it does not adequately explain why Shell tolerates so much flaring. There are several projects described in the report that are planned to reduce flaring. The ERC urges Shell to provide clear progress reporting on those projects to reassure external stakeholders that its approach to flaring is consistent with its reported policies.

In the case of methane fugitive emissions, the ERC welcomes the level of disclosure present in the report with respect to methane leakage levels. Nonetheless, the ERC believes the report should more clearly describe how Shell's emissions compare to the studies performed, and the plans Shell has in place to reduce its methane emissions.

SOCIAL PERFORMANCE

Social performance strategy and implementation has been an area of concern to this Committee for several years. In that context, the ERC wants to acknowledge Shell's progress in this arena. The report describes more clearly than ever before how Shell considers and aligns with international standards and frameworks. It is also much clearer on Shell's own social performance principles and approaches, for example, to stakeholder

engagement, and it illustrates how the company monitors social performance at a local level.

There is still more work to be done in the area of social performance indicators and outcomes measurement, and we look forward to continued progress in this area. We welcome the more strongly articulated commitment to sharing baseline data and assessment studies with local communities in this year's report, and note that there is scope for further strengthening of such feedback mechanisms as well as for better documentation of how they affect project design and implementation.

ACCELERATING COLLABORATION

The report makes clear that Shell believes the company needs to deploy consistent ongoing effort to collaborate with different stakeholders to be part of the solution to the energy dilemma. The ERC welcomes the initiatives explored in the report, such as how Shell engages with local governments and communities in China, which illustrates how the company collaborates beyond industry.

The ERC has long urged Shell to press harder for the necessary policy frameworks of regulatory and fiscal rewards and punishments to support companies in making the required transition to a lower-carbon world, and we are pleased that this theme has been taken up by the CEO and included in his opening letter. In this context, the ERC looks forward to reading more about how Shell is exploring broader partnerships with other types of organisations, both industry associations and civil society where appropriate, to influence governments to act on their responsibilities to shape markets appropriately.

Although the dilemmas faced by the company around whether to remain in some industry bodies are described, the ERC does not find this aspect of the report adequately convincing, especially given that Shell remains in associations perceived by many to be blocking climate change action.

Shell has made good progress on living and implementing its values and standards within the company, particularly as regards safety and social performance. We would like to see further progress and examples of implementation of Shell sustainability policies within the company's joint ventures, investments and contractors.

CONCLUSION

The ERC applauds the progress made in the 2014 report and encourages Shell to continue to improve its transparency and reporting practices. International reporting best practices are rapidly evolving as a response to different stakeholder needs and demands, providing relevant information through a diverse range of channels. In this context, Shell's current reporting model might be complemented

by additional tools and formats, for example, real time information and cases on the website, which could help Shell reach a wider range of audiences and stakeholders by using different media in a coordinated way.

Further exploration of long-term trends and the details regarding Shell's contribution to the development of solutions for the energy transition could be more consistently integrated into the company's strategy disclosure. The ERC expects future reporting initiatives to deal with these issues in an appropriate manner and for future reports to include holistic sustainability targets.

We look forward to the ongoing engagement process with Shell's Executive Committee in June 2015, expressing again our appreciation of and thanks for the quality of our dialogue.

ERC OVERVIEW

The Committee met in person twice in The Hague, the Netherlands, and on other occasions by teleconference. We held meetings with key Shell senior management and other personnel to discuss in detail Shell's approach to sustainable development and its sustainability reporting.

In reviewing the sustainability report, the Committee concentrated on three main questions:

- Has Shell selected the most important topics for the report?
- How well has the report dealt with these topics and responded to stakeholder interest?
- Did Shell provide sufficient information and access for us to do our job effectively?

Our review did not include verification of performance data underlying the report, or the information on which the case studies in the report were based. In addition to our comments on the company's reporting, we separately provided Shell with our observations on the company's strategy and sustainability performance. In recognition of our time and expertise, an honorarium was offered, payable either to us individually, to our organisation, or to a charity of our choosing. We were also offered reimbursement for the expense of our travel and accommodation.

ABOUT OUR REPORTING

We began reporting voluntarily on our environmental and social performance with the first Shell Report, which covered 1997. We follow a content selection process to identify the most material topics for our reporting (see box).

We provide regular information to the Carbon Disclosure Project, Dow Jones Sustainability Index, FTSE4Good Index and other organisations that assess the economic, environmental and social performance of companies.

Internal controls such as audit trails and statistical checks help ensure the accuracy of the Shell Sustainability Report. The External Review Committee of independent experts helps make sure our reporting is balanced, relevant and responsive to stakeholders' interests. Lloyd's Register Quality Assurance Ltd has provided limited assurance of our direct and indirect greenhouse gas emissions data for 2014.

We report in accordance with the Global Reporting Initiative (GRI), version 3.1 and in line with the oil and gas industry guidelines developed by the global oil and gas industry association for environmental and social issues, IPIECA, the American Petroleum Institute (API) and the International Association of Oil & Gas Producers (IOGP).

GRI confirmed our A+ reporting level for the information contained in this Sustainability Report, the Royal Dutch Shell plc Annual Report and Form 20-F for 2014, and on our corporate website. The GRI content index is available on our corporate website.

Shell supports the United Nations Global Compact and its 10 principles covering human rights, labour, environment and anti-corruption. Sections of this Sustainability Report cover Shell's performance in 2014 in these areas.

This report is supported on our corporate website by more detailed information on Shell's approach to sustainable development.

www.shell.com/sustainability

CONTENT SELECTION PROCESS

Our reporting focuses on the environmental and social challenges that matter most to our key stakeholders. These include local communities, partners, governments, non-governmental organisations, customers, shareholders, investors, employees, media, academics, contractors and suppliers.

We use a thorough process to select content for our reporting based on information from external and internal sources. This process includes:

STEP 1: Identify and understand topics of significance to our stakeholders through a range of stakeholder engagements and reviews.

STEP 2: Identify topics of significance to Shell's business strategy through our established internal processes.

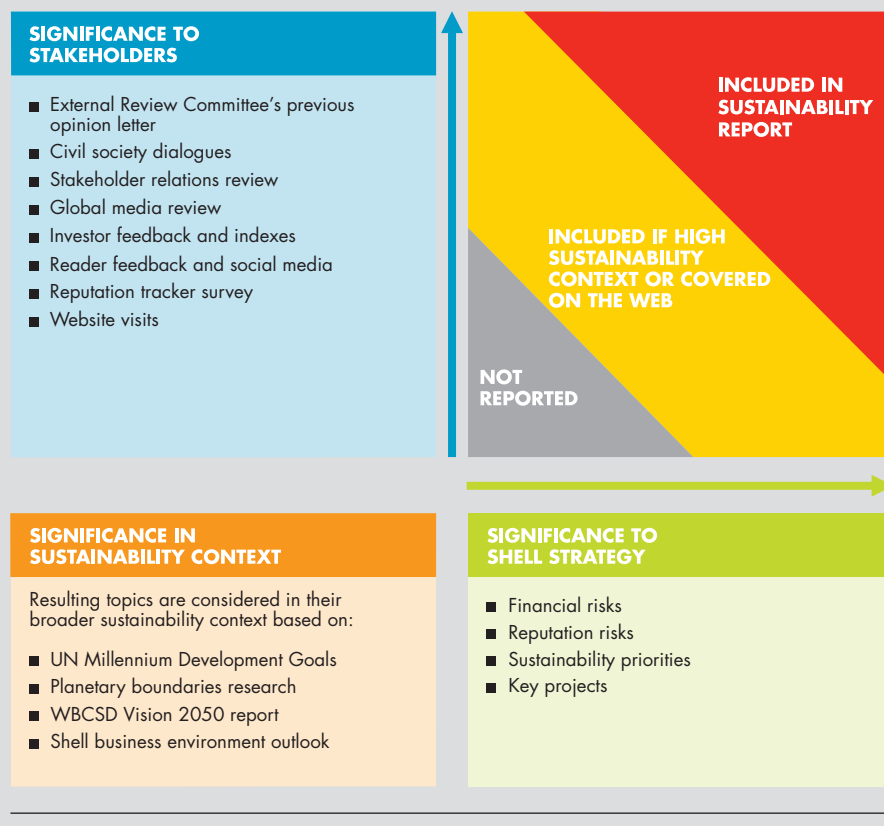
STEP 3: Combine the results into a matrix and assess each topic in terms of its wider economic, environmental and social impact. Each topic is then assigned a weighting

according to its significance in "sustainability context". To determine "sustainability context" we review authoritative research and forecasts on environmental and social topics published by public institutions and governmental organisations.

STEP 4: We include all the highest priority topics in our report. Those at the next level of importance are included if they have a higher weight in "sustainability context"; otherwise, they are covered on the Shell corporate website. Further information about this step and the material topics reflected in this report can be found on [pages 2 and 3](#) of this report.

STEP 5: Our External Review Committee reviews the content selection to ensure that coverage is complete, relevant and balanced.

CONTENT SELECTION DIAGRAM



ABOUT OUR DATA

There are inherent limitations to the accuracy of environmental and social data. We recognise that our environmental and social data will be affected by these limitations and continue to improve the integrity of our data by strengthening our internal controls.

All non-financial data in this report are reported on a 100% basis for companies and joint ventures where we are the operator. Environmental data are for our direct emissions unless otherwise stated. We report in this way, in line with industry practice, because these are the data we can directly manage and affect through operational improvements.

Operations acquired or divested during the year are included only for the period of our ownership. Other data are collected from external sources, staff surveys and other internal sources as indicated.

We only include data in this report that have been confirmed by the end of March 2015. If incidents are reclassified or confirmed, or if significant data

changes occur after preparation of this report, they will be updated in the following year's publication. Data marked in the social data table come from an internal survey completed by the senior Shell representative in each country. The accuracy of environmental and social data may be lower than that of data obtained through our financial systems.

Data provided are subject to internal controls. Lloyd's Register Quality Assurance Ltd has provided limited assurance of our direct and indirect greenhouse gas (GHG) emissions data for 2014. Limited assurance means nothing has come to the auditor's attention that would indicate that the data are not correct. For GHG emissions we provide more detailed data on our corporate website.

www.shell.com/ghg

Conversions into US and Canadian dollars are based on the average exchange rates for 2014.

REPORT SPECIFICATIONS

The paper used for this report is Satimat Green, a Forest Stewardship Council (FSC) certified paper, produced from 60% FSC-certified recycled fibre and 40% FSC-certified virgin fibre. All virgin fibres are Elemental Chlorine Free bleached, without using chlorine gas. The inks used are vegetable oil-based. The laminate used for the cover is eco-friendly and allows the report to be fully recycled.



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SHARE YOUR OPINION

If you have any views on issues described in this report, or on the report itself, please email us at: sustainabilityreport@shell.com

REPORT ORDERING

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at <http://reports.shell.com>**



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- Detailed operational information including maps
- Report on our progress in contributing to sustainable development

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