



# SUSTAINABILITY REPORT

Royal Dutch Shell plc  
Sustainability Report 2017



# Contents

03

## INTRODUCTION

- 03 Introduction from the CEO
- 05 About this report
- 09 About Shell

17

## ENERGY TRANSITION

- 17 Energy transition and climate change
- 20 Natural gas
- 21 Carbon capture and storage
- 23 Lower-carbon alternatives
- 26 Energy-efficient products
- 27 Research and development

28

## MANAGING OPERATIONS

- 28 Our activities in Nigeria
- 32 Divestments
- 33 Decommissioning
- 34 Working for solutions in Groningen
- 34 Shales

36

## OUR CONTRIBUTION TO SOCIETY

- 36 Sustainable development goals
- 38 Tax and transparency
- 39 Our people
- 40 Local content and skills development
- 42 Access to energy
- 42 STEM education
- 43 Shell Foundation

44

## WORKING TOGETHER

- 44 Living by our principles
- 45 Human rights
- 46 Contractors and suppliers
- 48 Our business partners
- 48 Environmental and social partners
- 51 Collaborations

52

## OUR PERFORMANCE AND DATA

- 52 Environment
- 56 Emissions and flaring
- 59 Safety
- 64 Social performance
- 67 About our data
- 68 Environmental data
- 69 Social and safety data

### Cover image

The fingerprint reflects how people are central to powering progress with more and cleaner energy, from our retail sites to our offshore operations.

### Digital

The Sustainability Report is published in an online version at [reports.shell.com](http://reports.shell.com). The online version includes additional information, such as an interactive GRI index to enhance usability for the reader. In the event of any discrepancy between the online and hardcopy versions, the information contained in the online report prevails. This hardcopy version is provided for the reader's convenience only.

### Scenarios

This report contains data from Shell's new Sky Scenario. Unlike Shell's previously published Mountains and Oceans exploratory scenarios, the Sky Scenario is targeted through the assumption that society reaches the Paris Agreement's goal of holding global average temperatures to well below 2°C. Unlike Shell's Mountains and Oceans scenarios which unfolded in an open-ended way based upon plausible assumptions and quantifications, the Sky Scenario was specifically designed to reach the Paris Agreement's goal in a technically possible manner. These scenarios are a part of an ongoing process used in Shell for over 40 years to challenge executives' perspectives on the future business environment. They are designed to stretch management to consider even 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.

Additionally, it is important to note that Shell's existing portfolio has been decades in development. While we believe our portfolio is resilient under a wide range of outlooks, including the IEA's 450 scenario (World Energy Outlook 2016), it includes assets across a spectrum of energy intensities including some with above-average intensity. While we seek to enhance our operations' average energy intensity through both the development of new projects and divestments, we have no immediate plans to move to a net-zero emissions portfolio over our investment horizon of 10-20 years.

# Introduction

Welcome to the Shell Sustainability Report, which covers our social, safety and environmental performance in 2017 and significant events for Shell during the year. The report includes an introduction from Shell Chief Executive Officer Ben van Beurden and an opinion from the independent experts on the Report Review Panel.

## Introduction from the CEO

In 2017, the world continued its efforts to meet the dual challenge of rising energy demand and tackling climate change. The landmark UN Paris Agreement has set the planet a clear direction of travel towards a low-carbon future.

Getting there will mean providing much more energy with much less carbon dioxide (CO<sub>2</sub>). It will need collaboration between business and civil society. Beyond widespread support for the Paris Agreement, there will need to be strong government policies to drive behaviour towards its targets.

The challenge is clear. Large parts of the world's growing population still live without access to safe, reliable and affordable energy. As living standards rise, energy demand could double over the course of the century. The world is going to have to make meeting this demand part of the approach to cutting emissions. All this change offers huge opportunities to break new ground in low-carbon energy solutions and technologies.

We, at Shell, think long and hard about our role in the transition to a cleaner energy future and the steps needed to create a sustainable world economy. We continue to put respect for people, their safety, communities and the environment at the heart of our approach.

### THRIVING THROUGH THE ENERGY TRANSITION

In 2017, we announced our ambition to cut the net carbon footprint of the energy products we provide by around half by 2050 in step with society's drive to align with the goals of the Paris Agreement. This is an industry-leading aspiration that may need periodic recalibration in line with the pace of change in broader society and the wider energy system.

As an interim step, by 2035, we aim for a reduction of 20% based on our expectation of society's movement toward meeting the goal of the Paris Agreement. This includes emissions from Shell's operations; emissions of third parties who supply energy for that production; and our customers' emissions from their use of the products we sell. This means we aim to help our customers reduce their own emissions through the solutions we offer.

To meet this ambition, we will step up many of our existing activities. That means bringing more biofuels, hydrogen and electric vehicle charging into the mix; more renewable power; and helping to advance technology to capture CO<sub>2</sub> emissions and store them safely underground. We will also use natural solutions, including forests and wetlands, to help naturally absorb emissions from uses where alternatives do not yet exist or will take time to reach commercial scale. We will produce more natural gas, the cleanest-burning hydrocarbon, and make it a priority to reduce leakage of the potent greenhouse gas methane from our gas operations.

Our continued financial resilience is vital if we are to play a successful role in the energy transition. We are working with the Task Force on Climate-related Financial Disclosures (TCFD), which in 2017 published recommendations calling

#### IN THIS CHAPTER

- 03** Introduction from the CEO
- 05** About this report
- 09** About Shell



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"We, at Shell, think long and hard about our role in the transition to a cleaner energy future and the steps needed to create a sustainable world economy."

on companies to give more information about how they assess and manage climate-related risks. The 2017 Annual Report and other publications aim to complement our 2017 Sustainability Report in responding to the TCFD recommendations, including discussing the energy transition and our portfolio resilience.

### OUR CONTRIBUTION TO SOCIETY

The 2017 Sustainability Report sets out in detail [our contribution to society](#). This includes how we play our part in achieving the UN's sustainable development goals, which seek to address the world's biggest challenges, from ending poverty to improving health and education to making cities more sustainable.

We work to do the right thing. Firstly, we continue our relentless focus on working with communities and managing our impact on the environment. This means in Nigeria, for example, addressing environmental challenges related to oil spills in areas with significant oil theft and illegal refining. We saw progress in 2017 with vital clean-up work starting in Bodo, an area affected by oil spills from various sources. In the Netherlands, we are working hard with our partners to find solutions to the problems caused by earthquakes as a result of gas production in Groningen. We support the people of Groningen and will meet our responsibility.

Secondly, we help provide the energy products that light, heat and cool homes and businesses, as well as providing the energy that transports and connects people, goods and services. We deliver products that contribute to people's quality of life and, where viable, provide energy to those who lack enough access to it.

Finally, we continue to play a positive role in communities and wider society. This includes providing employment, education and paying taxes. It is about being a good neighbour. In 2017, for example, I was heartened by the courage and determination of [Shell employees who helped those caught in the devastation left by Hurricane Harvey](#).

### OPERATING SAFELY

Our goal is to work without causing any harm to people and the environment. However, we had two fatalities in 2017: a contractor died in a road accident in Alberta, Canada and there was a fatality due to a security incident

in Port Harcourt, Nigeria. This is unacceptable. Safety in our operations is our top priority and we work to ensure staff and contractors are alert to their own safety, care about the safety of their colleagues and look out for any potential safety risks in our operations, however small. We need to continue to assure our plants and projects operate safely, particularly by improving our safety behaviour and enabling employees to quickly report incidents or potential incidents when they occur.

I was deeply saddened by a road-tanker incident in Pakistan in 2017. In this tragedy, which was outside the scope of Shell's safety reporting, a vehicle operated by a contractor overturned, spilling fuel that subsequently ignited and caused more than 200 fatalities and injured a number of other people. Events such as these underscore the importance of the continued focus on health and safety standards by all contractors, suppliers and employees.

### THE 2017 SUSTAINABILITY REPORT

Once again, we appreciate the involvement of leading independent sustainability experts, which this year comes from the [Report Review Panel](#). They have provided feedback that has helped our reporting become more balanced, relevant and responsive to the interests of our customers, partners and investors and made recommendations for Shell's future reporting.

We are a founding member of the UN Global Compact and continue to support its corporate governance principles on human rights, anti-corruption, environmental protection and better labour practices.

Sustainability is essential to the way we do business. Our Sustainability Report is an account of our progress in this area as we continue to deliver energy products society needs in the transition to a low-carbon world.

A handwritten signature in blue ink, appearing to read "Ben van Beurden".

Ben van Beurden  
Chief Executive Officer

# About this report

The 2017 Sustainability Report, published on April 9, 2018, is our 21<sup>st</sup> report. Sustainability at Shell means providing energy in a responsible manner, respecting people, their safety and the environment.

This report focuses on the key sustainability challenges we face and the many ways we are responding. It details our social, safety and environmental performance in 2017.

## TOPIC SELECTION FOR 2017

The topic selection process identifies the sustainability subjects that were most relevant to Shell and our stakeholders or prominent globally in 2017.

Each year, we use a structured process to select the report's content and confirm its validity. We engage with various groups and individuals to understand specific concerns about our business and its impact around the world, particularly in relation to the environment and society.

These include community representatives, business partners, customers, non-governmental organisations, investors, the media, academics, contractors, suppliers, ratings agencies and members of the public. We also talk to teams within Shell across all parts of our business. We gather opinions and advice in various ways including formal and informal meetings, workshops and online surveys.

This report lists the topics that were a priority to our company in 2017. The topics that consistently ranked of higher importance were energy transition and climate change, as well as business ethics and corporate governance. A full list of priority topics is provided in the table below.

### THE MAIN STEPS INVOLVED IN SELECTING THE TOPICS ARE:

**Step 1:** identify and understand topics that are important to our stakeholders;

**Step 2:** identify topics that are important to Shell's business strategy;

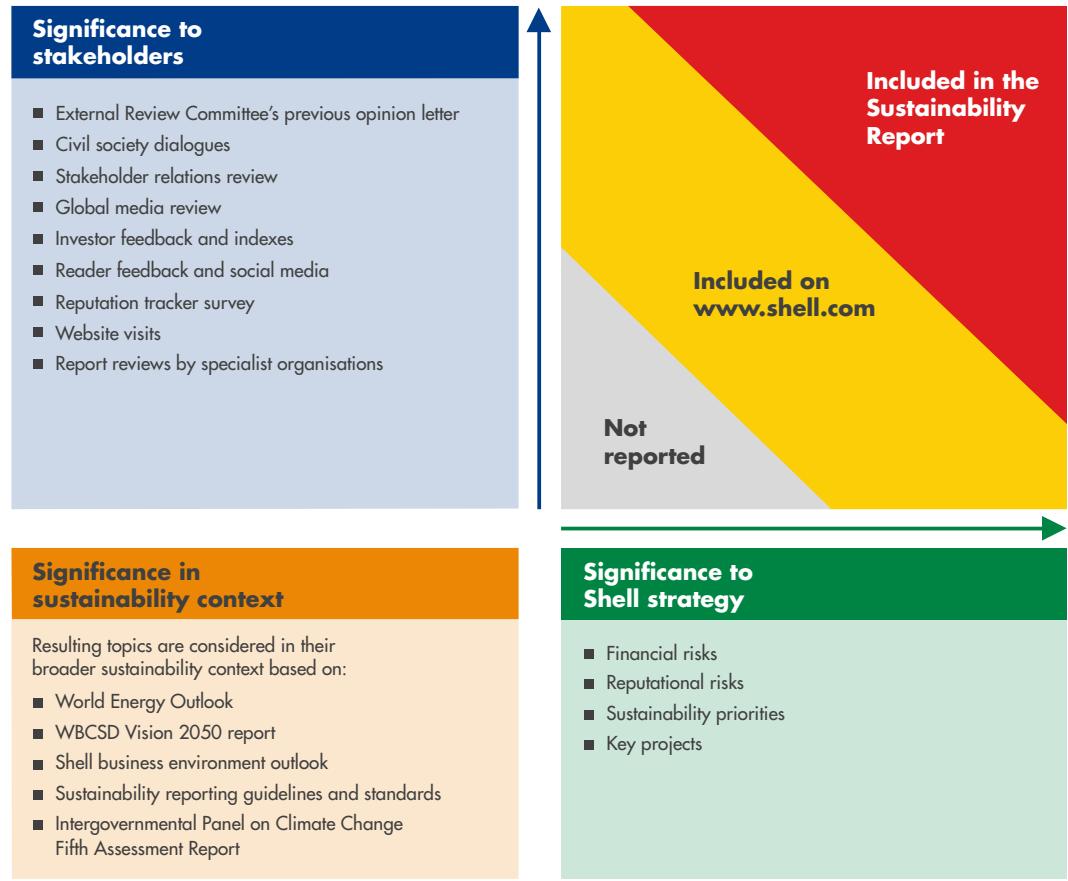
**Step 3:** collate all the topics identified as of high importance by our stakeholders in the previous steps – these topics determine the report's content;

**Step 4:** identify the topics that will be covered elsewhere on [www.shell.com](http://www.shell.com);

**Step 5:** consider input from our Report Review Panel to ensure that coverage is balanced, relevant and complete; and

**Step 6:** inform Shell's Executive Committee of the chosen topics, for their endorsement.

## Topic selection diagram



## REPORTING GUIDELINES

We report in line with guidelines developed by IPIECA, the global oil and gas industry association for environmental and social issues, and in accordance with the Global Reporting Initiative (GRI) version 4 (See GRI index for full details).

In 2018, we are using the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to guide our reporting in our 2017 Annual Report and 2017 Sustainability Report, complemented by our Sky Scenario and the [Shell Energy Transition Report](#). The TCFD was set up by the Financial Stability Board, an international body, and the recommendations call on companies to provide greater transparency about how they identify, assess and manage climate-related risks and opportunities.

In 2017, we were one of the earliest supporters of the TCFD and we continue to work with the task force to help develop more specific guidance on meaningful disclosures linked to climate change. To that end, we have joined the Oil & Gas Preparer Forum, initiated by the TCFD and convened by the World Business Council for Sustainable Development, an advocacy association.

More detailed information about how we report is available on [www.shell.com](http://www.shell.com).

## Index to material topics in this Sustainability Report

Climate change and energy transition	Page	Environmental impacts	Page
Business strategy and portfolio resilience	17	Flaring	58
Emissions performance	56	Water	53
Carbon capture and storage	21	Biodiversity and sensitive areas	52
Methane	57	Oil spills	55
Lower-carbon and renewable energy	23		
Research & development	27		

Business ethics, transparency and governance	Page	Safety	Page
Human rights	45	Process safety & emergency response	61
Sustainability governance	13	Deep water	61
Business ethics	44	Personal safety	59
Our people	39	Transport safety	60
Revenue transparency	38		
Sustainable development goals	36		
Security	63		
Supply chain	46		
Product stewardship	54		

Local communities and socioeconomic impacts	Page	Areas of impact	Page
Social investment	66	Divestments	32
Local content and skills development	40	Nigeria	28
Community engagement	64	Decommissioning	33
Resettlement	65	Groningen	34
		Oil sands	32
		Shales	34

## Report Review Panel

We have used external review panels to strengthen our sustainability reporting since 2005. They help us evaluate and improve the quality and credibility of our Sustainability Report.

The 2017 Report Review Panel, previously called the External Review Committee, comprises six sustainability and corporate reporting experts. Panel members are offered an honorarium for their time and expertise. This year's panel comprised:

- Faris Natour, Germany/USA. Director, Human Rights & Business Initiative, UC Berkeley Haas School of Business, (Chair of the Report Review Panel)
- Andrew Logan, USA. Director, Oil and Gas, Ceres
- Changhua Wu, China. Chair, China Redesign Hub and Asia Region liaison, Office of Jeremy Rifkin
- Marie Morice, USA. Senior advisor, Natural Capital Finance Alliance
- Mandy Kirby, UK. Director, Principles for Responsible Investment
- Merene Botsio Tamakloe, Ghana/UK. New Partnerships Manager, CARE International

You can read more about the panel members on [www.shell.com](http://www.shell.com)

The panel provided input as part of our content selection process and reviewed the report in depth before preparing their statement focusing on the quality of the report. The panel met to discuss Shell's reporting, question Shell experts and prepare their statement.

The 2017 panel's mandate focused on the quality – including the credibility, completeness and responsiveness – of Shell's reporting.

Read below some of the feedback given in the 2016 report by the expert reviewers, and our response (see table).

## 2016 RECOMMENDATIONS AND OUR RESPONSES

### 2016 recommendation

**Shared value and social performance:** For stakeholders to understand shared value and see its impact, future reporting needs to describe how it is embedded throughout Shell's business and overall sustainable development agenda.

**Energy transition and climate change:** There is a lack of discussion about how exploration and production will change over time or how in these two areas Shell will prioritise investments and activities.

The report does not share with readers any targets to indicate the intended pace of Shell's transition to a lower-carbon portfolio and it is recommended that the report include such goals in future.

**Product stewardship and circular economy:** It is recommended that the company shares more in the report about the policies and plans that will guide development of Shell thinking on product stewardship including end of life as well as the ways that the circular economy may affect Shell's businesses.

**Divestments:** The report should explain to stakeholders how Shell addresses the environmental and social liabilities associated with divested assets.

### How Shell responded in 2017

In the 2017 report, you can read more about how Shell is [contributing to society](#) and how this is connected to the [UN's sustainable development goals](#).

Shell's climate change thinking is detailed in the introduction from our [CEO](#) and [Energy Transition](#) section. You can also read more in the [Shell Energy Transition Report](#).

Read about our [Product Stewardship](#) policies.

In our [Divestment](#) section, you can read about our approach and how we have managed some recent cases.

## REPORT REVIEW PANEL - INDEPENDENT STATEMENT

The Report Review Panel provides this independent statement on Shell's 2017 Sustainability Report. We have had the opportunity to review two drafts of the 2017 Sustainability Report and provide feedback to Shell through conference calls and in writing. Shell has responded to our questions and suggestions. We have developed this statement independently following our review. We commend Shell on its commitment to transparency, stakeholder engagement, and continuous improvement in its approach to sustainability reporting.

We appreciate the opportunity to provide feedback and recommendations for further improving Shell's sustainability reporting. In line with the scope of our review, our feedback focuses on the quality of Shell's sustainability reporting rather than its sustainability performance.

The 2017 Sustainability Report focuses largely on the sustainability issues the company has identified as most material through a materiality analysis. It does so in a thorough, rigorous, and comprehensive way and provides important information in a clear, accessible and concise format. In future reporting, we recommend that Shell provides more comprehensive disclosure on social issues and water, greater balance between successes and areas for improvement, as well as greater emphasis on the ways in which the company's sustainability efforts strengthen its core business.

The disclosure on Shell's approach to the energy transition and its emissions disclosure are particularly comprehensive, although more emphasis on the interconnectedness between energy, water, ecosystems and watershed management could further improve Shell's reporting. The inclusion of independent statements as well as case studies provide important context to the description of Shell's strategic priorities and management approach in sustainability. However, we encourage the company to seek out greater balance by highlighting external opinions and case studies that offer constructive criticism of its performance.

**Recommendations:** We see opportunities to further improve Shell's sustainability reporting in the following ways:

- **Social issues:** While the report provides a thorough review of Shell's material issues, we would like to see more detailed disclosure of social issues, including Shell's holistic approach to contributing to the UN's sustainable development goals (SDGs), human rights due diligence, and operating in sensitive areas. We are aware that Shell provides some information on these topics on [www.shell.com](http://www.shell.com) but we would urge the company to ensure that sufficient depth is provided in the report on these important topics. We welcome that Shell has identified the SDGs it views as most relevant to the business. Moving forward, we expect Shell to integrate the SDGs more in its reporting and provide additional information about how Shell is advancing

the SDGs as a company and in partnership with others. In addition, Shell has an opportunity to more clearly emphasize the interconnectedness between environmental and social issues. We also view gender diversity and inclusion as a material issue for all companies, and Shell could provide more detail in its sustainability reporting on its approach to advancing diversity and inclusion at Shell and in the energy sector.

- **Water:** We see water as an increasingly important topic and would welcome more information on how Shell manages impacts on water beyond the facilities level. This should include information on how Shell is mitigating broader watershed impacts as well as steps it has taken to reduce risk exposure including through the setting of targets. We would also welcome data on Shell's water performance that is specific to particular assets and geographies, as water is largely a local issue and global data reveals little to a reader.

- **Balance:** While the report highlights both successes and areas for improvement, overall there is an emphasis on success in the report. We see an opportunity for Shell to improve the report's overall balance and drive continuous improvement in the energy sector by including more discussion of challenging experiences, lessons learned and areas for improvement. In addition, while we commend Shell for including independent statements from civil society organisations throughout the report, we encourage it to seek more diverse voices of constructive criticism in future.

- **Metrics:** We would like to see Shell provide more context for the performance data included in the report. It is not apparent for all metrics what factors contributed to a specific outcome and what impact any management steps taken by Shell have had. Including more of this kind of information will help readers understand how Shell achieved or did not achieve the targets the company has set for itself.

- **Strategic focus and ease of navigation:** We appreciate Shell's effort to strive for completeness. Future reports could be simplified further by putting greater emphasis on the ways in which the company's sustainability efforts strengthen its core business. Shell could highlight fewer case studies while going into more detail and linking each more closely to the broader operating context for the sustainability priorities they seek to illustrate. Similarly, we would welcome more sign-posting to highlight the various connections across the report to Shell's strategic priorities.

Robust sustainability disclosure is essential for Shell to meet the ambitious goals it has set for itself and for Shell's stakeholders to assess progress and hold the company to account. We appreciate the opportunity to share our feedback and recommendations. While we saw improvements during the drafting stage, there remain opportunities to further improve Shell's reporting, and we look forward to reviewing Shell's progress in these areas in future reports.

## OUR STRATEGY

Shell is an international energy company with expertise in the exploration, development, production, refining and marketing of oil and natural gas, as well as in the manufacturing and marketing of chemicals. Our New Energies business pursues two main areas of opportunities: new fuels for transport, such as advanced biofuels, hydrogen, and charging for battery-electric vehicles; and power, including low-carbon sources such as wind and solar as well as natural gas.

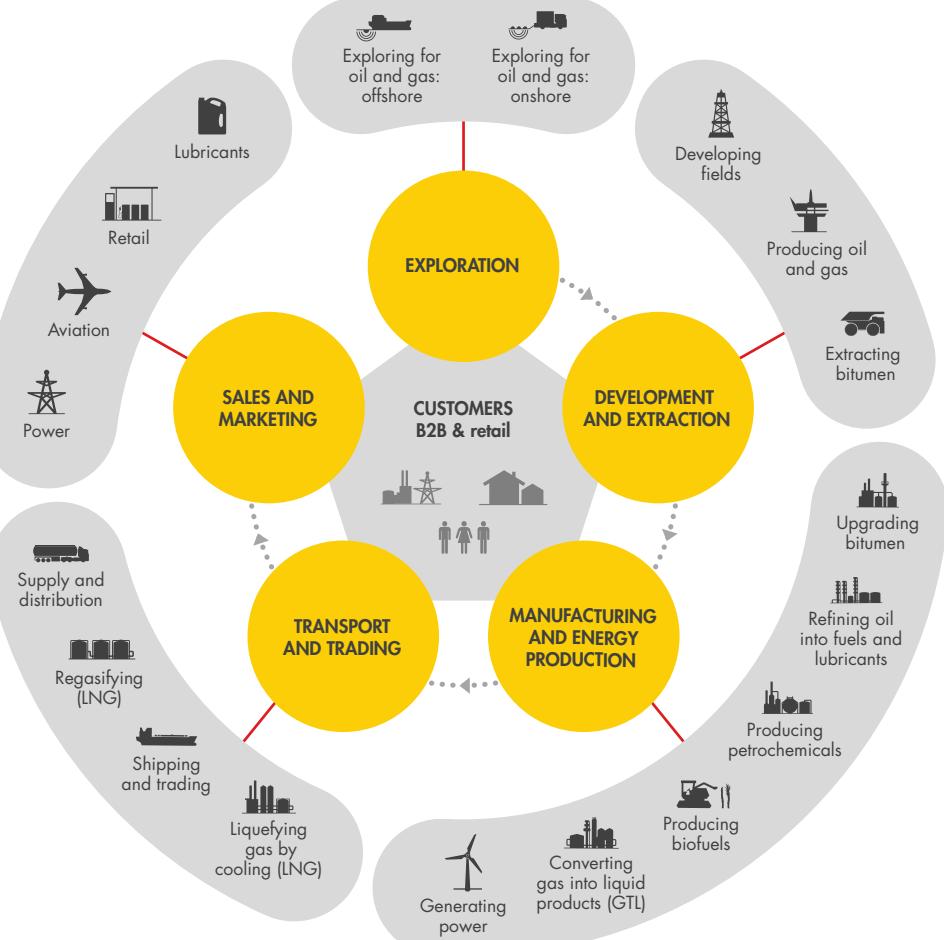
We are one of the world's largest independent energy companies in terms of market capitalisation, cash flow from operating activities, and production levels. We explore for and produce oil and gas worldwide, both

from conventional fields and from sources such as shales and deep water. We work to develop new oil and gas supplies, and have a global network of refineries and chemical plants. Shell transports and trades oil, gas and other energy-related products, such as electricity and carbon-emission rights. Our New Energies business, which we created in 2016, invests in commercial opportunities linked to the energy transition. This business focuses on new fuels, such as biofuels, hydrogen and charging for battery-electric vehicles; and power, including from low-carbon sources such as wind and solar as well as natural gas. We also invest in new business models and digital technology that improve our core business. Around 30 million customers every day are served through Shell's global network of 44,000 Shell-branded retail stations.

### IN 2017, SHELL:

- Produced 3,664 thousand barrels of oil equivalent on average per day.
- Traded more than 8 million barrels of physical crude oil on average every day.

- Sold 66 million tonnes of liquefied natural gas.
- Served 30 million customers on average every day at our retail sites.
- Made capital investments of \$24 billion.



## OUR PURPOSE AND BUSINESS STRATEGY

Shell's purpose is to power progress together with more and cleaner energy solutions. Our strategy is to strengthen our position as a leading energy company by providing oil and gas and low-carbon energy as the world's energy system changes. Safety and social responsibility are fundamental to our business approach. Shell will only succeed by working with customers, governments, business partners, investors and other stakeholders.

Our strategy is founded on our outlook for the energy sector and the chance to grasp the opportunities arising from the substantial changes in the world around us. The rising standard of living of a growing global population is likely to continue to drive demand for energy, including oil and gas, for years to come. At the same time, technology changes and the need to tackle climate change means there is a transition under way to a lower-carbon, multi-source energy system with increasing customer choice. We recognise that the pace and specific path forward is uncertain and so requires agile decision making.

### STRATEGIC AMBITIONS

Against this backdrop, Shell has the following strategic ambitions:

- to provide a world-class investment case. This involves growing free cash flow and increasing returns, all built upon a strong financial framework and resilient portfolio;
- to thrive in the energy transition by responding to society's desire for more and cleaner, convenient and competitive energy; and
- to sustain a strong societal licence to operate and contribute to society through a shared value approach to our activities.

The execution of our strategy is founded on becoming a more customer-centric and simpler company, focused on delivering higher and more predictable returns and growing free cash flow. By investing in competitive projects, driving down costs and selling non-core businesses, Shell continues to seek to reshape its portfolio into a more resilient and focused company.

## Sustainability at Shell

Sustainability at Shell means providing energy in a responsible manner, respecting people, their safety and the environment.

Shell's core values of honesty, integrity and respect for people – first laid out in the [Shell General Business Principles](#) more than 40 years ago – underpin our approach. A commitment to contribute to sustainable development was added in 1997. These principles, together with our Shell Code of Conduct, apply to the way we do business and to our conduct with the communities where we operate.

We share knowledge and experience with a number of organisations to improve approaches to areas such as environmental sustainability, climate change and

Our ability to achieve our strategic ambitions depends on how we respond to competitive forces. We continuously assess the external environment – the markets as well as the underlying economic, political, social and environmental drivers that shape them – to evaluate changes in competitive forces and business models. We undertake regular reviews of the markets we operate in and analyse our traditional and non-traditional competitors' strengths and weaknesses to understand our competitive position. We maintain business strategies and plans that focus on actions and capabilities to create and sustain competitive advantage. We maintain a risk management framework that regularly assesses our response to, and risk appetite for, identified risk factors.

### STRATEGIC THEMES

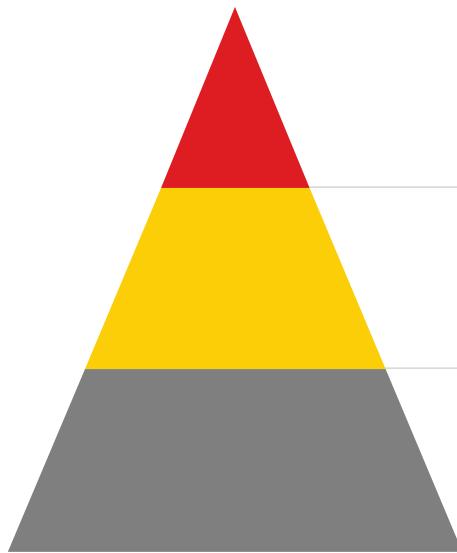
As part of our strategy, we divide our portfolio into strategic themes, each with distinctive capabilities, growth strategies, risk management, capital allocation and expected returns:

- Cash engines are strategic themes that are expected to provide strong and resilient returns and free cash flow, funding shareholder returns and strengthening the balance sheet. Shell continues to invest in selective growth opportunities for cash engines. Our cash engines are conventional oil and gas in Upstream, Integrated Gas, and oil products in Downstream.
- Growth priorities are the cash engines of the future. Shell seeks to invest in affordable growth in advantaged positions with a pathway to free cash flow and returns in the near future. Our growth priorities currently are deep water in Upstream and chemicals in Downstream.
- Emerging opportunities are strategic themes that are expected to become growth priorities after further development. These opportunities should provide us with material growth in free cash flow in the next decade or beyond. We seek to manage our exposure to these businesses while establishing scale. Our emerging opportunities currently are shales in Upstream and new energies, which is part of the Integrated Gas and New Energies organisation.

technology. We also support the UN Universal Declaration of Human Rights and several external voluntary codes promoting responsible business practices, including, the UN Global Compact, the Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises and the [Voluntary Principles on Security and Human Rights](#).

We support the UN Paris Agreement on climate change. We welcome and will play our part in helping governments and society to achieve the UN's sustainable development goals, which seek to tackle the world's economic, social and environmental challenges by 2030. We also regularly provide information to [various indices](#), and engage with customers and suppliers through their sustainability questionnaires.

## Integrating sustainability



Our approach to sustainability is integrated across our business activities on three levels:

### **Running a safe, efficient, responsible and profitable business**

Safeguarding and respecting people – our employees, contractors and neighbours – is fundamental to how we do business. This includes having global standards, processes and tools in place to manage safety, the environment and how we engage with communities. We aim to continuously improve the way we operate to prevent incidents and to identify, avoid where possible and minimise adverse environmental and social impacts. For more details on our 2017 performance in these areas see [Our performance and data](#).

### **Sharing wider benefits where we operate**

We plan our business for the long term to help ensure we play a positive role in communities where we operate and in wider society. We contribute to the development of local economies by creating jobs, boosting skills, sourcing from local suppliers and helping to improve industry standards, as well as paying taxes and royalties.

Helping to shape a more sustainable energy future

Sharing wider benefits where we operate

Running a safe, efficient, responsible and profitable business

We support community projects that are based on the needs of the local communities.

### **Helping to shape a more sustainable energy future**

Achieving a more sustainable energy future requires an energy transition that allows society to reduce its emissions, tackle climate change, while also extending the economic and social benefits of energy to everyone. This ambition requires a change in the way energy is produced, used and made accessible to more people while drastically cutting emissions. It is feasible but requires urgent action and long-term vision. Shell is a willing and able player in this transition. We will play our role where it makes commercial sense, in oil and gas, as well as in low-carbon technologies and renewable energy sources. But there is the need for society as a whole to address the climate challenge. We advocate that businesses, governments and civil society work together to shape a more sustainable energy future.

For Shell's view of the energy transition and our strategic response to it, see [Our strategy](#) and the [Energy transition](#) sections.

## Embedding sustainability in projects

Our commitment to safety, the environment and communities plays an important role in how we plan, design and operate projects and facilities. We will continue our relentless focus on managing impacts, especially in the challenging environments where we operate.

When we invest in projects, we aim to balance the short- and long-term interests of our business. For investment decisions, we consider the economic, social and environmental risks and opportunities as well as the political and technical risks.

Shell conducts an environmental, social and health impact assessment for every major project. As part of the impact

assessment process, we engage with communities and other stakeholders, for example non-governmental organisations, to discuss possible ways to address their concerns. This helps us understand and better manage the effects our projects could have on the surrounding environment and local communities and to comply with relevant social and environmental regulations.

Our Health, Safety, Security, Environment and Social Performance (HSSE&SP) Control Framework has mandatory requirements to ensure the performance of these impact assessments. We also draw on international standards from bodies such as the World Bank and its International Finance Corporation, to guide our engagement with communities.

## OUR PEOPLE

We train our project teams to understand how to use impact assessments to embed sustainability into project decisions. They are supported by specialists in areas such as environmental management, health and social performance including, but not limited to:

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

The specialists support project teams on impact assessments and help manage potential impacts on communities or the environment during project design, construction and operation.

For more details, read what sustainability means at Shell on [www.shell.com](http://www.shell.com).

## A guide to sustainability across the life of a project



<b>Identify people</b> who may be interested in or affected by the project.						
<b>Engage with stakeholders</b> (e.g. communities, host governments and NGOs) and feed responses into our risk analyses and decision-making process.						
<b>Conduct baseline studies</b> of the local environment (e.g. water, biodiversity, social livelihoods) and consider how the project may affect it.						
Based on assessment of potential impacts and stakeholder engagement, <b>identify mitigation and enhancement measures.</b>						
<b>Implement a mitigation plan</b> for project development, construction and operation.						

**1. Colombia baseline work:** In Colombia, where we have several exploration blocks offshore, conducting extensive environmental baseline studies is a legal requirement, including sampling of aquatic animals. We collaborated with local fishermen to get better quality data. During 2016 and 2017, the fishermen were trained and given equipment, including a GPS to mark locations. They were also given cameras, to label and document the fish they caught. This resulted in a representative list of the main species caught in each fishing area and mapped variations throughout the year, providing a firm basis for the evaluation of the marine biodiversity, frequency and abundance of species. The fishermen benefited from this knowledge and received training to improve their safety. The project received positive recognition from local authorities.

**2. Pennsylvania:** In Pennsylvania, USA, our project to build a petrochemical facility will involve redeveloping an existing industrial site used for zinc smelting for around 100 years.

**3. Groundbirch reclamation work:** We comply with the terms of our permits, agreements and local laws and regulations concerning restoration of the land used by our operations. In Canada, for example, at the Shell Groundbirch project, where we use hydraulic fracturing to unlock gas trapped in rock, we are working with a First Nations indigenous community plant nursery to preserve their cultural heritage and the natural habitat. Seeds from local indigenous plants are collected and planted above pipelines and other infrastructure in the area. Matching plants with their natural habitats increases the chance of survival and results in a landscape that is more diverse and natural. First Nation community members participate in the restoration efforts, carrying out work that builds on their knowledge of plants and the ecosystem.

## NEW LIFE FOR AN OLD INDUSTRIAL SITE

In Pennsylvania, USA, we are building a petrochemicals facility on an existing industrial site used for zinc smelting for around 100 years.

Minimising the impact on people and the local environment is at the heart of our plans.

After the zinc smelter had been safely decommissioned, we recycled the old equipment and waste products. We covered the site with special industrial liners and caps to protect groundwater and surface water and people building the new facility. Where areas of water on the site could not be protected, we created wetlands elsewhere. These have now grown into healthy habitats for fish and vegetation.

We used an emissions offsetting programme to help reduce the impact that building work will have on local air quality. After consulting with local residents and community leaders, we also planted native trees along the nearby river to improve the look of the construction site.

Working closely with the state environmental regulator, we are investing \$80 million in mitigating the environmental impacts of converting the industrial site. Once up and running, the plant will produce polyethylene which is used in many everyday products, from food packaging and containers to automotive components.

## Sustainability governance

Governance is about making sure we live up to the high standards we set as a company – on health and safety, on the environment and biodiversity, and in our relationships with local communities.

We have put clear and effective governance structures in place throughout Shell, along with performance standards and other controls. These influence decisions and actions across the Shell businesses.

Our governance procedures involve the Board of Royal Dutch Shell plc, four [Board Committees](#), our Executive Committee, and the teams and individuals who manage our operations. We take rigorous care to ensure that standards are communicated and maintained across the business.

The Corporate and Social Responsibility committee (CSRC) is one of our Board Committees. For further details on the CSRC and how sustainability is managed at Shell see [www.shell.com](http://www.shell.com) and our Annual Report.

### THE CSRC IN 2017

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

The CSRC meets regularly to review and discuss a wide range of sustainability-related topics and to assess our sustainability performance, audit results and the sustainable development metrics that apply to the Executive Committee [scorecard](#). It also monitors major issues of public concern that may be relevant to Shell.

Members of the CSRC during 2017 were:

- Hans Wijers, appointed Chair of the Committee with effect from May 2015;
- Sir Nigel Sheinwald, appointed a member of the Committee with effect from July 2012;
- Catherine Hughes, appointed a member of the Committee with effect from November 2017;
- Guy Elliott, appointed a member of the Committee with effect from March 2017 and stood down as a Non-executive Director of the company in October 2017; and
- Patricia A. Woertz, appointed a member of the Committee with effect from June 2014 and stood down as a Non-executive Director of the company in May 2017.

### CSRC ENGAGEMENT

In 2017, the CSRC discussed topics including Shell's operations in the Niger Delta, Nigeria and Groningen, the Netherlands, human rights, natural capital, the energy transition, greenhouse gas emission targets and CO<sub>2</sub> and methane-related developments. The committee also conducted several site visits. Sir Nigel Sheinwald and Guy Elliot visited the Bacton gas plant on the UK's North Sea coast and met with community members to discuss, among other topics, how to redistribute sand and sediment to protect the coastline. Hans Wijers visited the Pernis refinery in the Netherlands and discussed the challenges and opportunities for the facility with the leadership team. The committee, along with the CEO, also visited Shell's project in Pennsylvania, USA, to learn about the transformation of the site from a zinc smelter to a chemical plant and to meet with local stakeholders and contractors to discuss a range of HSSE topics.

## Reporting against aspirations

This table represents a selection of global metrics that we track within Shell. These metrics have been selected because they reflect the direct impact of our operations on people and the environment. We used them to set our goals and measure progress in 2017 and to define priorities for 2018.

We review our metrics regularly to ensure we capture the information needed to improve our performance. For example, we introduced Goal Zero for personal safety at

Shell in 2007. Since then, we have broadened the goal to aim for no harm to people and the environment. The metrics used to measure our greenhouse gas performance of refineries and chemical plants changed in 2017, and further changes to upstream and integrated gas emissions are planned for 2018. More information on our performance, definitions of the indicators and the referenced goals are provided in the environmental, social and safety data sections.

### Goals, performance and plans for 2017 and beyond

	Goal 2017	Progress in 2017	Priorities in 2018												
PERSONAL SAFETY	<p>TRCF &lt; 0.9</p> <p>Achieve total recordable case frequency (TRCF) – the number of injuries per million working hours – below 0.9 for employees and contractors.</p> <p>Goal Zero has been our ambition for personal safety since 2007.</p>	<p>Total recordable case frequency (TRCF)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>TRCF</th> </tr> </thead> <tbody> <tr><td>2013</td><td>1.2</td></tr> <tr><td>2014</td><td>1.0</td></tr> <tr><td>2015</td><td>0.9</td></tr> <tr><td>2016</td><td>1.0</td></tr> <tr><td>2017</td><td>0.8</td></tr> </tbody> </table> <p>In 2017, we achieved our lowest ever number of injuries. (See <a href="#">Safety performance</a>).</p>	Year	TRCF	2013	1.2	2014	1.0	2015	0.9	2016	1.0	2017	0.8	<ul style="list-style-type: none"> <li>In road safety, continue to focus on effective implementation of proven practices across all lines of business.</li> <li>Support the development and implementation of common industry safety standards.</li> <li>Improve our capabilities to capture insights from audit findings and investigations into incidents with the potential to cause harm.</li> </ul>
Year	TRCF														
2013	1.2														
2014	1.0														
2015	0.9														
2016	1.0														
2017	0.8														
PROCESS SAFETY	<p>Leaks &lt; 130</p> <p>Achieve a number of operational leaks below 130 (classified as “operational Tier 1 &amp; 2 process safety events”).</p> <p>Since 2011, we have extended our ambition of Goal Zero to process safety.</p> <p>From 2017, we combined operational Tier 1 &amp; 2 safety events when setting the target. Previously, we only used Tier 1 events.</p>	<p>Number of operational process safety Tier 1 and 2 events</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Events</th> </tr> </thead> <tbody> <tr><td>2013</td><td>311</td></tr> <tr><td>2014</td><td>251</td></tr> <tr><td>2015</td><td>220</td></tr> <tr><td>2016</td><td>146</td></tr> <tr><td>2017</td><td>166</td></tr> </tbody> </table> <p>We saw an increase in leaks in 2017 compared to 2016. (See <a href="#">Safety performance</a>).</p>	Year	Events	2013	311	2014	251	2015	220	2016	146	2017	166	<ul style="list-style-type: none"> <li>Strong focus on asset integrity and quality of operational execution, including through the group-wide roll out of our Process Safety Fundamentals.</li> <li>Continue to improve learning from process safety events with high potential impact.</li> </ul>
Year	Events														
2013	311														
2014	251														
2015	220														
2016	146														
2017	166														
ENVIRONMENT	<p>Goal Zero extends to the environment with our goal of no operational spills.</p>	<p>Volume of operational spills in '000 tonnes</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Spills ('000 tonnes)</th> </tr> </thead> <tbody> <tr><td>2013</td><td>0.9</td></tr> <tr><td>2014</td><td>0.7</td></tr> <tr><td>2015</td><td>0.8</td></tr> <tr><td>2016</td><td>0.8</td></tr> <tr><td>2017</td><td>0.3</td></tr> </tbody> </table> <p>In 2017, we had the lowest volume of operational spills we have ever recorded. (See <a href="#">Environmental performance</a>).</p>	Year	Spills ('000 tonnes)	2013	0.9	2014	0.7	2015	0.8	2016	0.8	2017	0.3	<ul style="list-style-type: none"> <li>Continue to learn from incidents with spills to improve the reliability of our facilities and further reduce the number and volume of operational spills.</li> <li>Continue to work with the oil and gas industry to further develop effective oil-spill response capacities.</li> </ul>
Year	Spills ('000 tonnes)														
2013	0.9														
2014	0.7														
2015	0.8														
2016	0.8														
2017	0.3														

**Flaring emissions < 8.1**

#### Reduce flaring in our upstream business (million tonnes CO<sub>2</sub> equivalent)

Our policy is to reduce any continuous flaring or venting to as low a level as reasonably practical. We are a signatory of the World Bank's "Zero routine flaring by 2030" initiative.

Flaring in million tonnes CO<sub>2</sub> equivalent [A]



[A] We have updated our 2017 upstream flaring from 8.0 million tonnes of CO<sub>2</sub> equivalent as published in our 2017 Annual Report and Form 20-F to 8.2 million tonnes following finalisation of 2017 data. The scorecard outcome for 2017 was not affected by this update.

(See [Flaring](#)).

- Continue to link staff bonuses to the management of greenhouse gas emissions.
- In November 2017, Shell and seven other energy companies [signed guiding principles](#) for reducing methane emissions across the natural gas value chain.

#### Refinery GHG intensity < 1.15

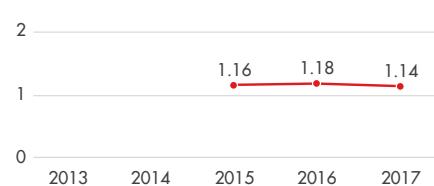
For our refineries, achieve a GHG intensity below an intensity of 1.15 tonnes of CO<sub>2</sub> equivalent per Solomon's Utilised Equivalent Distillation Capacity [UEDC™].

#### Chemicals GHG intensity < 0.45

For our chemical plants, achieve a GHG intensity below an intensity of 0.45 tonnes of CO<sub>2</sub> equivalent per tonne of petrochemicals produced

(See [Energy efficiency](#)).

**Refineries:** tonnes CO<sub>2</sub>e per Solomon's Utilised Equivalent Distillation Capacity [UEDC™]



**Chemicals:** tonnes CO<sub>2</sub>e per tonne of petrochemicals produced



- Continue to link staff bonuses to the management of greenhouse gas emissions.
- Continue to focus on maintenance measures to enhance the reliability of our equipment and reduce emissions through leaks.

#### Effective community feedback

Our community feedback mechanism (CFM) has been used to address community concerns since 2012. We continue to progress the implementation of our standard online community feedback tool which helps to strengthen tracking and reporting of concerns.

We conducted a full evaluation of our online community feedback tool to understand how it has been used across our projects and facilities. Following the evaluation, we identified a number of areas for improvement, which are now being considered to enhance the tool.

We developed the CFM self-check to assess the effectiveness of the mechanism based on UN Guiding Principles and Human Rights criteria for implementation in all major facilities and projects. (See [Social performance](#)).

- Aim to enhance the online community feedback tool, based on the improvement areas we identified in 2017, for example, the user friendliness to ensure short response times. The improvements help to ensure we are able to effectively track and record feedback, and support projects and facilities in responding quickly to concerns.
- Identify further improvement opportunities for the CFM implementation from the self-check exercise, to meet the UN Guiding Principles and Human Rights effectiveness criteria.

## Executive scorecard

In 2017, sustainable development continued to account for 20% of the Executive Directors' annual bonus scorecard, which helps determine the annual bonus for the Executive Directors.

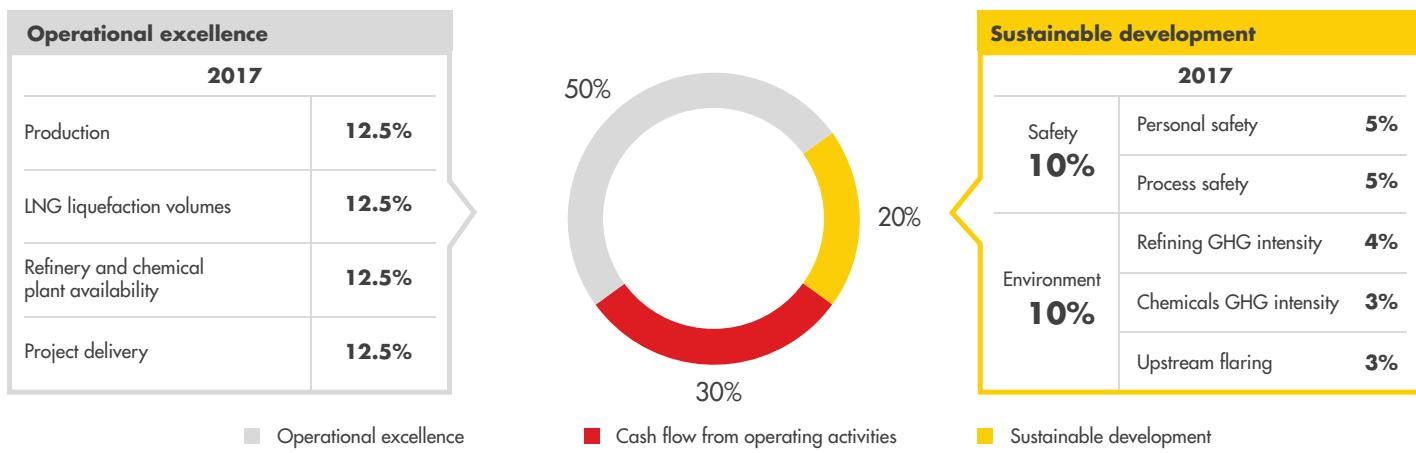
Targets are set each year by the Board's Remuneration Committee and the outcomes against these targets are reported retrospectively in the Annual Report. The same annual bonus scorecard approach applies to senior management and other employees.

The metrics on sustainable development in 2017 had equal weighting between our safety (10%) and environmental (10%) performance. The safety

component covers personal and process safety and the environmental component includes greenhouse gas (GHG) emissions for the first time in three specific business areas: refining, chemical plants and flaring in upstream assets.

In 2017, GHG metrics covered around 60% of direct and energy indirect emissions from our operated portfolio. The GHG metrics in the 2018 scorecard have evolved and coverage has increased to around 90% of operated emissions. The refining and chemicals metrics will be retained and emissions coverage in upstream and midstream will be measured on an intensity basis and expanded beyond flaring.

### Scorecard structure



# Energy transition

Society faces a dual challenge: how to make a transition to a low-carbon energy future to manage the risks of climate change, while also extending the economic and social benefits of energy to everyone on the planet.

## Energy transition and climate change

In 2015, governments came together in Paris and achieved a landmark agreement to tackle climate change. We fully support the Paris Agreement's goal to keep the rise in global average temperature this century to well below two degrees Celsius (2°C) above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 °C. In pursuit of this goal, we also support the vision of a transition towards a net-zero emissions energy system.

The Intergovernmental Panel on Climate Change indicated through energy scenario based climate modelling in their 5th Assessment Report (2013, 2014) that limiting the rise in global average surface temperature to 2°C would require greenhouse gas emissions to reach net zero by around 2070. This needs to be achieved while recognising that the rising living standards of a growing population means that energy demand could double over the course of the century.

### REDUCING THE NET CARBON FOOTPRINT OF THE ENERGY PRODUCTS WE SELL

In November 2017, we outlined Shell's ambition to reduce the net carbon footprint of our energy products by around half by 2050 in step with society's drive to align with the Paris climate agreement. This is an industry-leading position that will need periodic recalibration in line with the pace of change in the wider energy system.

For the Paris Agreement to be achieved, significant change in the energy system is required. Shell knows we can only remain a leading company if we evolve in line with societal expectations. Shell will adapt and play its part.

The world needs more energy and falling GHG emissions at the same time. This means that, on average, each unit of energy consumed has to come with a lower amount of GHG emission in its production, distribution and use, or in other words, a lower carbon footprint.

### GREATER DISCLOSURE ON CLIMATE CHANGE RISKS AND OPPORTUNITIES

We welcome and support efforts, such as those led by the Task Force on Climate-related Financial Disclosures (TCFD), to increase transparency and to promote investors' understanding of companies' strategies to respond to the risks and opportunities presented by climate change. We believe that companies should be clear about how they plan to be resilient in the energy transition. Therefore, we are working with the TCFD to develop guidance on effective disclosures which, where commercially possible, will be most relevant and useful to investors. The 2017 Annual Report and other publications aim to complement our Sustainability Report in responding to the TCFD recommendations, including discussing the energy transition and Shell's portfolio resilience.

Find out more in the [Shell Energy Transition Report](#).

#### IN THIS CHAPTER

- 17** Energy transition and climate change
- 20** Natural gas
- 21** Carbon capture and storage
- 23** Lower-carbon alternatives
- 26** Energy-efficient products
- 27** Research and development

## NATURE-BASED SOLUTIONS TO COMPENSATE EMISSIONS

Nature has the potential to play an important role in the energy transition. In pursuit of a long-term low-carbon future, nature-based solutions present an immediate opportunity and can help to bridge the time that is required to scale the current generation of mature renewable energy technologies, or to develop the next generation of technologies. Also, they represent just one of several tools that Shell will focus on to meet our net-carbon footprint ambition.

We work with nature-based projects to prevent deforestation and restore natural ecosystems, creating carbon sinks. These projects, which also support local communities and conserve biodiversity, generate carbon credits that are then passed to energy consumers around the world. In the Netherlands, for example, we offer our business customers the opportunity to offset their CO<sub>2</sub> emissions from driving their vehicles. One project we work with is the Kasigau Corridor in Kenya, developed by Wildlife Works, which protects 500,000 acres of highly threatened forest.

The projects we work with are certified by Verified Carbon Standard, currently the largest source of nature-based projects globally, and the Climate Community & Biodiversity Standard, which verifies that projects not only address climate change, but also support local communities and conserve biodiversity.

## External voice: "We work with Shell on natural climate solutions"

Most climate efforts have rightly so far focused on reducing fossil fuel use. But we also know that nature plays a large role in storing and reducing carbon emissions that cannot be eliminated immediately. Natural climate solutions have the potential in the short term to deliver more than a third of greenhouse gas emissions reductions needed to prevent dangerous levels of global warming.

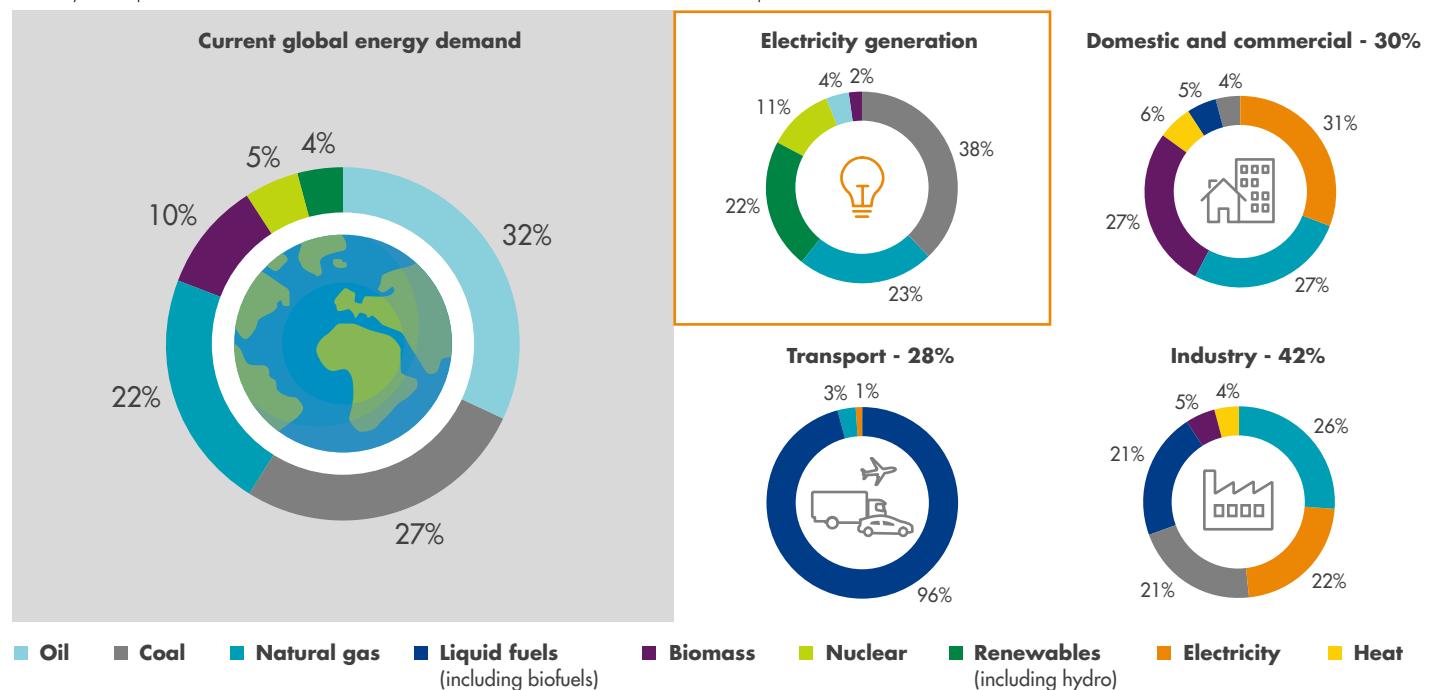
We are working with Shell to invest in nature offsets and deliver on the company's aspiration to reduce its net carbon footprint. Natural climate solutions are cost-effective, scalable and available nearly everywhere. We are unlikely to see a better carbon capture and storage opportunity than that which nature provides.



**Mark Tercek**  
CEO, The Nature Conservancy

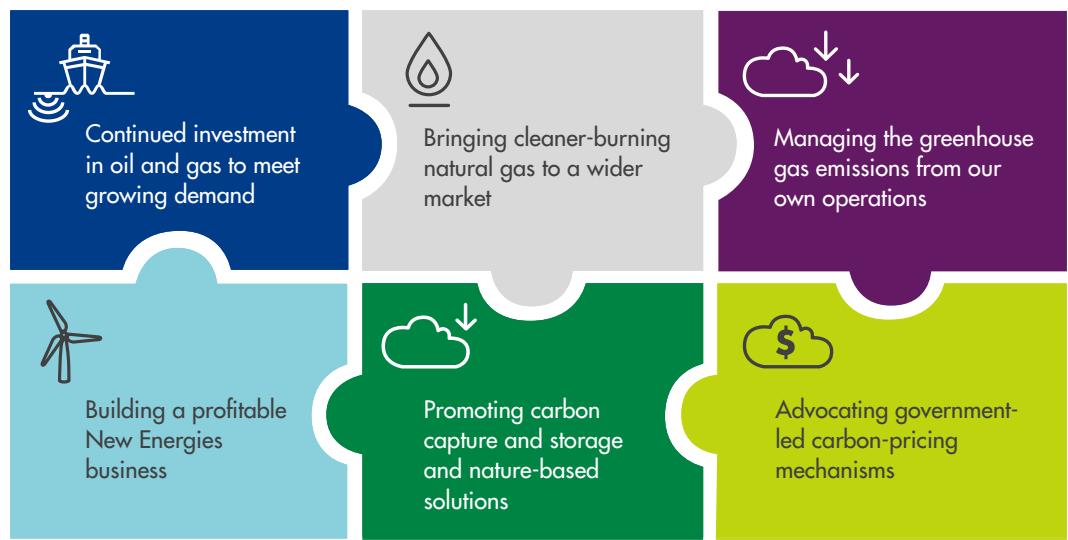
## Today's energy needs

The world gets most of its energy from coal, oil and gas, with around a fifth of all energy used to generate electricity. Energy sources differ across industry, transport and domestic use, which all need to transition to low-carbon options.



Source: International Energy Agency, Key world energy statistics 2017 and World Energy Balances 2017

Over the next few decades, we plan to show leadership in the oil and gas industry, while responding in many different ways to society's need for more and cleaner energy



Natural gas – the cleanest-burning hydrocarbon – comprises about half of Shell's total production and is at the centre of our strategy to provide more and cleaner energy.

## HIGHLIGHTS IN 2017

- The Shell Petroleum Development Company of Nigeria Ltd joint venture (Shell interest 30%) started production at Gbaran-Ubie Phase 2 in the Niger Delta region.
- In Australia, the Shell-operated QGC venture started up the Charlie project, which comprises around 340 wells, a field compression station and pipelines and facilities.

Natural gas is a critical component of the world's transition to a lower-carbon energy system. When used instead of higher carbon fuels such as coal and diesel, it will help to meet increasing demand while lowering greenhouse gas (GHG) emissions and air pollution.

Gas is one of the few energy sources that can be used across all sectors of the global economy. It is used to generate electricity, provide heat for essential industrial processes and homes, as well as fuel for heavy-duty road transport, shipping and rail. Gas emits between 45% and 55% lower GHG emissions than coal when used to generate electricity, according to International Energy Agency data.

Gas can also act as a partner for intermittent renewable energy, such as solar and wind, to maintain a steady supply of electricity, because gas-fired plants can start and stop relatively quickly.

Shell explores for and produces natural gas both onshore and offshore. Our expertise ranges from finding the fields and extracting the gas to liquefying it, shipping it, turning it back into gas and distributing to customers. Shell is the largest liquefied natural gas (LNG) marketer of all independent oil and gas companies. We sell LNG to around 70 customers in about 25 countries.

## ACTIVITIES IN 2017

### TRINIDAD AND TOBAGO

In August 2017, Shell acquired Chevron's subsidiary in Trinidad and Tobago, including its 50% interest in the Shell-operated East Coast Marine Area Blocks 6, 5a and E. This strengthens Shell's position to supply gas to the domestic market, as well as internationally through Atlantic LNG, which produces LNG using gas extracted from fields in and around the country. Atlantic LNG is one of the largest facilities of its kind in the world, with a production capacity of 14.8 metric tonnes of LNG a year.

### NIGERIA

In August 2017, the Shell Petroleum Development Company of Nigeria Ltd joint venture started production at Gbaran-Ubie Phase 2 (Shell interest 30%) in the Niger Delta region. Gas from this project will help to improve supply to the domestic economy and export market.

- The Prelude floating facility that will produce and process liquefied natural gas at sea was safely anchored in Australia after a journey from a shipyard in South Korea.



The Charlie project started up in 2017 and will ensure QGC can continue to supply natural gas and provide jobs in Queensland, Australia.

### AUSTRALIA

As a result of the BG acquisition in 2016, we have a majority interest in the QGC project in Queensland, Australia, which produces natural gas from coal seams and liquefies it as LNG through two processing units, called LNG trains. The Shell-operated project supplies natural gas to the domestic market and LNG to international customers and can produce up to 8.5 million tonnes of LNG a year. We hold a 50% interest in train one, a 97.5% interest in train two and a 100% interest in the common facilities on the LNG plant.

In August 2017, QGC started up the Charlie project. This involved drilling around 340 wells, a 240TJ/day capacity field compression station and associated pipelines and facilities which feed into existing gas processing and water infrastructure at Woorabinda Creek, South West Queensland. Construction created about 1,600 jobs and continues to support around 100 jobs. The Charlie project has a footprint of less than 2,000 hectares within a development area of around 1,230 square kilometres. It ensures QGC can continue to supply natural gas and provide jobs in Queensland. QGC supplies around 40% of the gas needs of Queensland and around 14% of Australia's east coast demand.

## PRELUDE FLOATING LIQUEFIED NATURAL GAS

In July 2017, the Prelude floating liquefied natural gas (FLNG) facility (Shell interest 67.5%) arrived safely in Australia – after leaving a shipyard in South Korea in June – ready for the commissioning phase of the project. Once operating, Prelude will extract and process gas at sea.

FLNG removes the need for pipelines to shore, dredging and onshore works, significantly limiting the disturbance to the surrounding environment and in the right conditions, reducing development costs.

FLNG is a competitive solution for fields like Prelude, which are very remote and hard to access.



Prelude made its journey to Australia pulled by a team of tugboats.

## LNG AS A FUEL FOR TRANSPORT

Cleaner vehicles and fuels are needed to meet increasing demand for transport with less greenhouse gas emissions and air pollution. LNG, which burns more cleanly than diesel, is a fuel for heavy-duty road transport, shipping and rail. In shipping alone, there are around 200 sea-going vessels powered by LNG. The International Maritime Organization has made progress in agreeing to limit sulphur oxide and nitrogen oxide emissions from all ships. LNG fuel can help ship operators meet these requirements.

We signed an agreement in April 2017 with Sovcomflot, a Russian shipping company, to supply LNG to four of its crude oil tankers. The tankers, which operate in the Baltic Sea and Northern Europe, will be the first in the world powered by LNG.

In August 2017, we finalised a long-term agreement to charter an LNG bunker barge with the capacity to carry 3,000 cubic metres of LNG fuel. We also took delivery of the Cardissa, an LNG bunker vessel with a capacity to hold around 6,500 cubic metres of LNG fuel. Both will deliver fuel from the Gate terminal in Rotterdam to locations in Europe.



The Cardissa LNG bunker vessel will deliver fuel from the Gate terminal in Rotterdam to locations in Europe.

In December 2017, RedStar, a joint venture between Shell and Shaanxi Yanchang Group Company, opened an LNG retail site in Shaan'Xi, north-west China. China is the largest market for LNG as a fuel, with more than 200,000 heavy-duty trucks and buses using it.

## Carbon capture and storage

Shell invests in carbon capture and storage projects, which use a combination of technologies to capture and store carbon dioxide deep underground, preventing its release into the atmosphere.

### HIGHLIGHTS IN 2017

- The Quest CCS project in Canada captured and safely stored more than 1 million tonnes of carbon dioxide in 2017.
- We entered a partnership to continue to develop carbon dioxide storage on Norway's continental shelf.

Carbon capture and storage (CCS) is expected to play a significant role in the global climate response, according to the International Energy Agency (IEA). CCS technology

- The OGCI's investment arm, OGCI Climate Investments, made its first investments in carbon capture utilisation and storage technology.

offers the opportunity to capture carbon dioxide (CO<sub>2</sub>) from large industrial facilities, such as steel, chemical and power plants.

Globally, there are 21 large-scale CCS projects in operation or under construction, with a combined capacity to capture around 40 million tonnes of CO<sub>2</sub> each year. CCS will be essential for meeting the goal of limiting global warming to well below 2°C. According to the IEA, reaching this goal will require 6,000 million tonnes of CO<sub>2</sub> to be stored by 2050, equivalent to about 100 times the global CCS capacity in place by the end of 2017.

### SHELL AND CCS

We are operating the Quest CCS project (Shell interest 10%) in Alberta, Canada to capture and store CO<sub>2</sub> from the Scotford Upgrader, a plant where bitumen is turned into synthetic crude oil. In less than two years and ahead of schedule, Quest has captured and safely stored more than 2 million tonnes of CO<sub>2</sub>. This represents around a third of the upgrader's direct GHG emissions. We developed a rigorous monitoring programme for Quest, agreed by the government and verified by a third party, to ensure the CO<sub>2</sub> remains safely underground. This includes continuous pipeline monitoring and early-warning systems, groundwater sampling and 3D seismic surveying.

Carbon capture technology developed by Shell Cansolv, a subsidiary of Shell, is also used at the Boundary Dam power station in Saskatchewan, Canada. It is SaskPower's largest coal-fired power station and a significant source of power for the region. Both sulphur dioxide and CO<sub>2</sub> are captured from the power station. We continue to support SaskPower to improve the application of the technology.

Around 2 million tonnes of CO<sub>2</sub> have been captured and stored since the CCS facility started operating in 2014.

At Technology Centre Mongstad, Shell, together with the Norwegian government and energy companies Statoil and Total, will carry out further research and development to reduce the cost of CCS technology. In 2017, we reaffirmed our commitment to participate in continued testing at the centre until 2020.

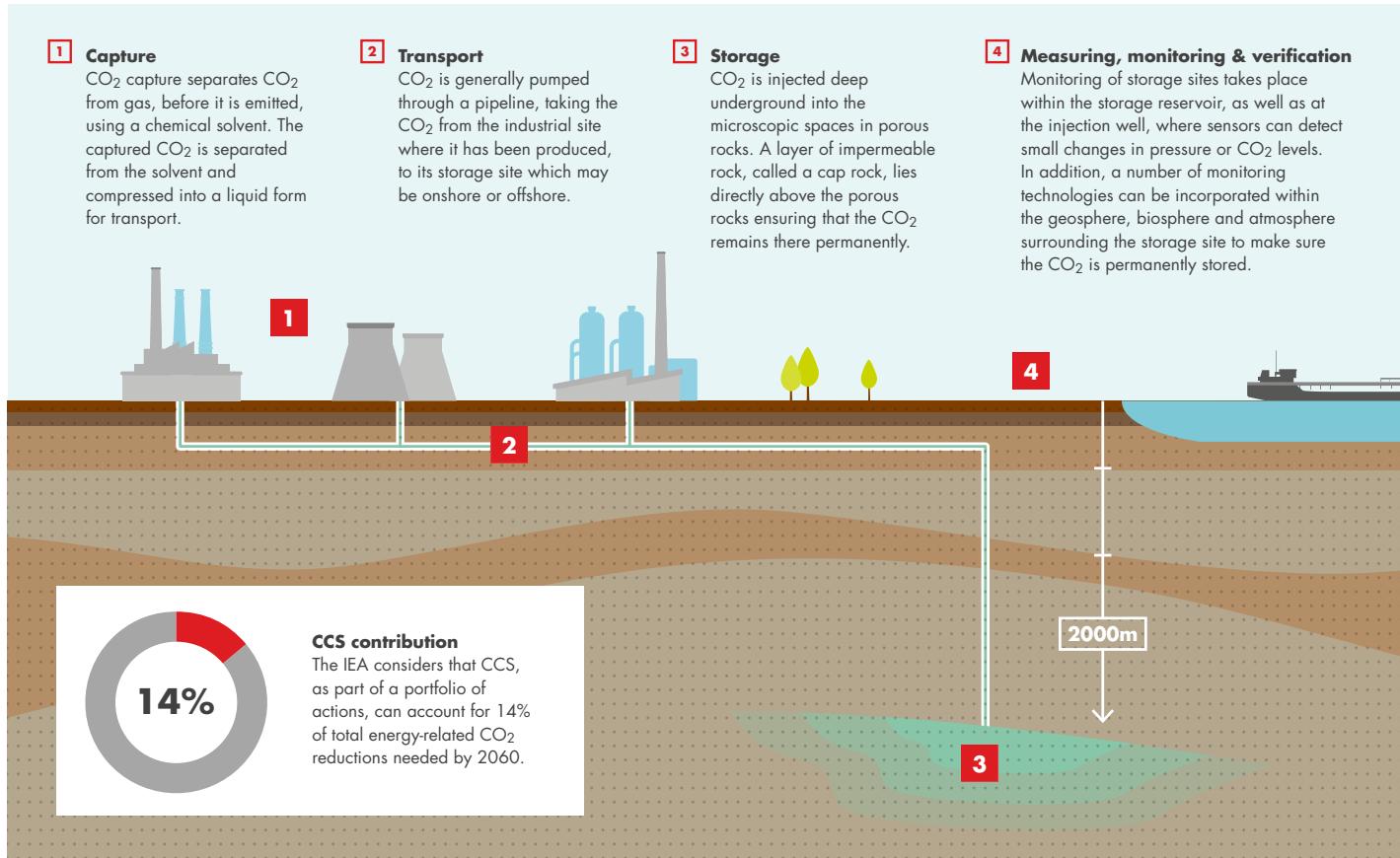
In October 2017, Shell entered a partnership to continue to develop CO<sub>2</sub> storage on the Norwegian continental shelf. The project is part of the Norwegian government's efforts to develop full-scale CCS in the country.

Shell is also investing in the Gorgon CO<sub>2</sub> injection project in Australia, which is operated by Chevron and will be the world's largest CCS operation when completed. Gorgon CCS will separate and reinject between 3 to 4 million tonnes of CO<sub>2</sub> each year. Over the life of the project, it is expected that around 100 million tonnes of CO<sub>2</sub> will be captured and stored.

The Oil and Gas Climate Initiative (OGCI), comprised of 10 major oil and gas companies, including Shell, has made carbon capture, utilisation and storage technology one of its priorities. In 2017, OGCI's investment arm Climate Investments made its first investments in technology to capture CO<sub>2</sub> emissions and store them safely in the ground. This includes ways to reinject the CO<sub>2</sub> captured from industrial processes, such as cement production.

### How carbon capture and storage works

See what's involved in the process of capturing and storing carbon dioxide deep underground



# Lower-carbon alternatives

Shell invests in a range of lower-carbon energies, including hydrogen for transport, charging for battery electric vehicles and biofuels. We aim to become an integrated power player, which includes delivering more electricity generated by natural gas – a cleaner-burning alternative to coal – and renewable energy.

Our New Energies business, set up in 2016, strengthens our approach with its focus on new fuels and power.

## HIGHLIGHTS IN 2017

- We acquired vehicle charging firm NewMotion and signed an agreement with charging network operator IONITY to offer charging points in 10 European countries.
- We began working with carmakers Honda and Toyota to install new hydrogen refuelling stations in northern California.
- We blended around 9 billion litres of biofuels in the petrol and diesel we sold.
- We worked with AFA, a large association of small soy farms in Argentina, to help them gain a certification from the global body Round Table on Responsible Soy.
- We acquired Texas electricity group MP2 Energy.

With more than 2 billion vehicles expected on the road by 2050, compared to around 900 million today, according to International Energy Agency, we need to find cleaner, more energy-efficient transport solutions. Our approach includes providing cleaner-burning liquefied natural gas (LNG) for heavy-duty road vehicles and the marine industry.

We are one of the world's largest blenders and distributors of biofuels. Our activities range from developing advanced biofuels to opening hydrogen stations. We are also starting to provide electric vehicle charging points at retail stations, homes and workplaces.

In power, we focus on meeting commercial, industrial and residential customer needs, supported by our activities in electricity generation, trading and supply. As well as developments on the supply side, there are also advances in the way demand is managed: smart meters in homes, offices and factories allow users to time energy use outside peak times.

We already have an established wind business and are developing new projects. In solar, we are looking into potential business models while increasingly using solar energy at our own sites and operations.

We recognise the importance of storing renewable energy and are investing in innovative ways to deliver this. We are also developing models to help customers better manage their energy use. At the same time, we are looking at commercial opportunities to bring electricity to remote communities.

## NEW FUELS

Shell invests in a range of low-carbon technologies and fuels, including hydrogen and charging for battery electric vehicles including at some of our retail sites. As new technologies evolve to coexist with traditional transport fuels over the coming decades, Shell will expand its fuels to offer customers greater choice.

## EXPANDING CHARGING STATIONS

In 2017, Shell acquired NewMotion, a Netherlands-based company with one of Europe's biggest networks of electric vehicle charging points. It operates around 30,000 private electric charge points in the Netherlands, France, Germany and the UK. It also provides around 100,000 registered NewMotion charge card users access to more than 50,000 public charging points in 25 European countries.

Shell also signed an agreement with high-powered charging network operator IONITY to offer charging points in 10 European countries starting with 80 of its biggest highway stations, allowing drivers to travel long distances. IONITY is a joint venture between BMW Group, Daimler AG, Ford Motor Company and the Volkswagen Group, which was formed to create a network of 350-kilowatt chargers next to major highways in Europe.

## HYDROGEN

In Germany, the government is supporting the development of a national network of hydrogen electric fuel stations across the country by 2023. We are working on this project with our joint-venture partners in H2 Mobility Germany. The partnership comprises French gas supplier Air Liquide, German car manufacturer Daimler, Austrian oil and gas company OMV, German engineering firm Linde and French oil and gas company Total. The hydrogen will be delivered by truck as a gas to retail sites. Under the terms of the partnership, at least 50% of the hydrogen sold must be produced without emitting greenhouse gases. At the end of 2017, Shell already had nine hydrogen filling stations at its retail sites in Germany.

In 2017, we started work with Honda and Toyota, supported by the California state government, to build seven hydrogen refuelling stations across Northern California. Shell already has two hydrogen stations in Los Angeles, California.

In the UK, we are collaborating with ITM Power, a company specialising in hydrogen fuel-cell products, to make hydrogen fuel available at three Shell retail sites in the south-east of the country. The first of the UK stations opened in February 2017. We are assessing the potential for similar projects in Austria, Belgium, Canada, France, Luxembourg, the Netherlands, Switzerland and the rest of the USA.

In January 2017, we helped launch the Hydrogen Council, a global coalition of chief executives working to raise the profile of hydrogen's role in the transition to a low-carbon energy system.



Shell is building a reliable network of premium fast chargers for electric vehicles along the main roads of the Netherlands.

## DIGITAL TECHNOLOGIES

Digital technologies support our activities. For example, we have developed an app in the UK called FarePilot that helps taxi drivers quickly identify high-demand areas to find their next fare and potentially save them fuel. In the USA, our Fitcar app will transform a regular car into a connected car that can provide maintenance alerts and information on the engine. Through our innovation arm, Shell Technology Ventures, we have invested in "tiramizoo", a German start-up whose online technology connects retailers with customers.

## BIOFUELS

Biofuels are expected to play a valuable role in the changing energy mix. They can be a cost-effective way to reduce carbon dioxide emissions in the transport sector, as long as their production is managed in a responsible way.

Shell is one of the largest blenders and distributors of biofuels worldwide. We purchase biofuels to blend into our fuels in line with country-specific regulations. In addition to understanding blended biofuel emissions, we want to ensure that other environmental impacts from their production are well managed – such as the effect on soil, air and water – and there is a positive impact on the livelihoods of local communities.

The start of the Raízen joint venture (Shell interest 50%) in Brazil in 2011 marked our first move into the large-scale production of biofuels. We also continue to look for opportunities to invest in the development of advanced biofuels.

For more details on our approach to biofuels refer to [www.shell.com/biofuels](http://www.shell.com/biofuels).

## KEY DEVELOPMENTS IN BIOFUELS

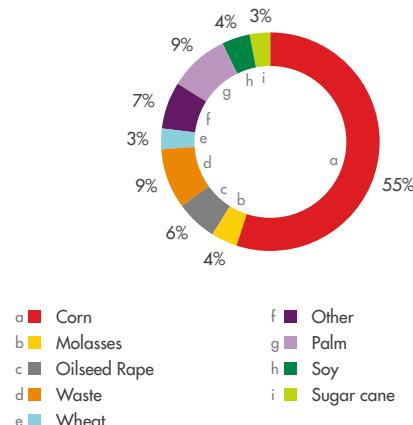
We continue to support the adoption of international sustainability standards including the Round Table on Responsible Soy (RTRS), the Roundtable for Sustainable Palm Oil (RSPO) and Bonsucro, an organisation for the certification of sugar cane. We also support the Roundtable for Sustainable Biomaterials and the International Sustainability and Carbon Certification (ISCC) for feedstocks.

Three-quarters of the biofuels we purchase are from North American or European feedstock producers. Both regions have good agricultural practices and sustainability rules relating to areas such as land-use restrictions and limits for greenhouse gas emissions.

By 2020, we aim to have 100% of the sugar-cane ethanol and South American soy biodiesel used in Shell blended biofuels certified as sustainable.

100% of the palm oil that we blend is already certified by RSPO or the ISCC, or covered by offsets from the RSPO certificate trading system.

## Global bio-component purchase [A] by feedstock



[A] Does not include purchases by Raízen or Motiva.

In 2017, we concluded a support project with the Federation of Argentine Farmers (AFA), to help them become RTRS certified. The federation is comprised of 17,000 small- and medium-sized soy farms in Argentina and represents around 20% of the country's soy growers. We worked on the project with Cefetra, a large European animal feed trading company, which has taken a leading role in sourcing sustainable soy meal for its European customers.

## PRODUCING BIOFUELS WITH RAÍZEN

In 2017, our joint venture Raízen (Shell interest 50%) produced around 2 billion litres of low-carbon ethanol from Brazilian sugar cane. Around 44% of Raízen's ethanol and 38% of its sugar production was certified as sustainable to the standards set by Bonsucro.

Raízen's production process is designed to minimise its environmental impact. By the end of 2017, 20 of Raízen's 24 sugar-cane mills were certified to the Bonsucro standard.

Raízen purchases around half of the sugar cane it uses as a raw material from independent suppliers. Since 2014, the company has worked with two non-governmental organisations, Imaflora and Solidaridad, on a programme to help its suppliers become more sustainable producers. The suppliers complete a confidential assessment against a list of sustainability criteria which enables Solidaridad to prepare individual improvement guides. The programme currently covers 99% of third-party sugar cane, meaning that 2,130 suppliers have completed the assessments and are working on improvements. In 2017, Raízen issued a good practices manual to help suppliers move through the programme.

In 2015, Raízen launched the ReduSa programme aimed at reducing water consumption and waste generation when growing sugar cane. This was achieved by decreasing overall water use per tonne of ground cane and reducing water consumption in the industrial processes by recycling the water used. In two years, water usage was reduced by 8 billion litres, equivalent to the annual consumption of a city of 135,000 people in Brazil.

For more details on Raízen, see the company's [sustainability report](#).



Raízen, our joint venture in Brazil, uses the latest technology to produce ethanol from sugar cane, with an annual production capacity of more than 2 billion litres.

### DEVELOPING ADVANCED BIOFUELS

We continue to invest in the research and development of new ways to produce biofuels from sustainable feedstocks such as waste and cellulosic biomass from non-food plants.

Raízen started operating its first cellulosic ethanol plant in 2015 at its Costa Pinto mill in Brazil. Production in 2017 was 10 million litres. Over time, the mill is expected to produce around 40 million litres a year of advanced biofuels from sugar-cane residues.

In 2017, we completed construction of a plant at Shell Technology Centre Bangalore, India, which demonstrates a technology called IH2 that turns waste into transport fuel. The plant can process around five tonnes a day of non-food biomass, such as wood, algae, municipal waste and aquatic plants. The plant is the final stage of the R&D process before possible scaling up and commercialisation.

We continue to look for opportunities to invest in third-party technologies and to collaborate in developing them for commercialisation.

### POWER

Power is the fastest-growing segment of the energy system.

Today, electricity provides around 20% of global final energy consumption and we expect that figure could grow to as much as 50% by 2060.

To help meet this demand, Shell aims to become an integrated power player and grow, over time, a material new business. To achieve this, we will continue to expand our power generation and trading capability and expand our marketing efforts to even more customers.

We are also working to deliver more electricity generated by natural gas and renewable energy, from developing wind and solar projects, to selling electricity generated by renewable sources.

### SELLING AND TRADING POWER

We are expanding our business in marketing and selling electricity, including power from renewable sources, in the Americas and Europe. In 2017, our North American gas and power marketing and trading business managed more than 10,500 megawatts (MW) of power generation, with over one-third of that electricity produced by renewables.

In 2017, we acquired Texas electricity group MP2 Energy, which supplies commercial and industrial customers with energy, including wind and solar power. The acquisition gives us direct access to the large commercial and industrial electricity markets in Texas and the eastern USA.

We have started to buy more power from renewable producers. In 2017, we signed agreements to buy more than 200 MW of capacity from wind farms and solar parks in Italy, the Netherlands, the UK and Spain.

We made our first move into supplying electricity directly to homes in February 2018, with the acquisition of First Utility, which provides energy to around 825,000 homes in the UK.

We are exploring potential business models for solar power, including developing power plants.

We are supporting the development of voluntary procurement of power from solar energy. This includes our investment in the Singapore-based Sunseap Group, which has around 160 MW capacity of distributed solar contracts, an electricity retailer licence in Singapore and large-scale solar projects.

### WIND AND SOLAR POWER GENERATION

Shell has more than 15 years' experience in wind power and continues to explore the possibilities of wind-related technologies, including the combination of wind and gas to manage intermittency.

In the USA, Shell WindEnergy has joint ventures (Shell interest 50%) with a Shell share capacity of about 370 MW from 553 wind turbines, as well as one venture in the Netherlands (Shell interest 50%) with a Shell share capacity of 50 MW from 36 wind turbines.

In the Netherlands, we have an interest in the consortium that was awarded the concession by the Dutch government in December 2016 to develop the Borssele III and IV offshore wind farm projects, which are to be located 20 kilometres off the Dutch coast. These two wind farms are designed to have a total maximum capacity of 680 MW, enough to power around 825,000 households. In January 2018, Partners Group signed an agreement to join the projects, diluting our interest in the consortium from 40% to 20%. The final investment decision is yet to be taken on this project.

In 2018, we signed an agreement to acquire a minority interest (43.83%) in Silicon Ranch Corporation, a US developer, owner and operator of around 900 MW capacity of operational or contracted solar projects.



Our share of capacity from wind power projects is more than 400 megawatts.

## Energy-efficient products

Gains in energy efficiency are some of the quickest and least costly ways of addressing environmental challenges across a range of sectors.

Energy efficiency can deliver up to 38% of what is needed to keep global warming below two degrees Celsius (2°C) by 2050, according to the International Energy Agency.

Engines and machines consume huge amounts of energy to overcome friction. In a typical car, friction alone accounts for around 20% of the fuel burned.

Shell's advanced technology and customer knowledge has helped us develop a range of lubricants and other products to help customers save energy and reduce emissions (see [www.shell.com](http://www.shell.com)).

### FUEL-SAVING LUBRICANTS

Working with the Netherlands-based haulage firm Van der Lee, we have helped to increase the fuel efficiency of its vehicles over the last three years.

Tests on part of the company's fleet found that using one of our longer-lasting advanced heavy-duty lubricants, Shell Rimula, they could lower fuel consumption by an average of 2.1%. For a typical Van der Lee Volvo truck with a 13-litre engine travelling around 100,000 kilometres each year, this translates into around 600 fewer litres of fuel burned.

Across the company's 160 Volvo trucks, this could mean a reduction in CO<sub>2</sub> emissions of around 250 metric tonnes. Van der Lee has now upgraded all its Volvo fleet to use Shell Rimula.

### KEEPING CHINA'S GAS BUSES ON THE ROAD

Shell Rimula helped improve the efficiency of a large fleet of public buses in Qingdao City, in eastern China, by

### ENERGY ACCESS

We also plan to grow the part of our business that provides energy to those who have insufficient access to it today. This will typically involve renewable power combined with storage and other sources of energy.

In this area, Shell has invested in the following companies:

- SolarNow, a Dutch company that provides rooftop solar energy modules to off-grid households and entrepreneurs in East Africa. SolarNow has 47 branches in Uganda and five in Kenya.
- SteamaCo, a UK-based company that sells off-grid smart metering technology to companies developing mini-grids in Africa, Asia and Latin America.

extending the interval between maintenance stops. In a bid to tackle emissions, the city fuelled around 40% of its buses with cleaner-burning liquefied natural gas. The buses covered up to 1,000 kilometres per week and required an oil change every 14,000 kilometres, or around every three months.

By switching to Shell's engine oil, the company running public transport in the city more than doubled the amount of time its fleet could stay on the road between oil changes and made significant savings from the reduced amount of oil used.

### LOWER ENERGY SOLUTION FOR PACKAGING FIRM

The German packaging company AGI Freden reduced the energy consumption of its injection moulding machine by 4% by switching to our specialised lubricant hydraulic fluid, Shell Tellus. This lubricant, designed to last longer, will also help the company save on hydraulic fluid consumption and maintenance costs.



Shell helped the Netherlands-based haulage firm Van der Lee to further increase the fuel efficiency of its vehicles.

# Research and development

Shell continues to invest in research and development to improve the efficiency of our products, processes and operations, and to commercialise new technologies for the transition to a low-carbon energy future.

## HIGHLIGHTS IN 2017

- We invested \$922 million in research and development.
- In the USA, we agreed to support the Energy Biosciences Institute's research into using biochemical processes to store or deliver energy.

- We signed an agreement with Brazil's industry association SENAI to collaborate on technology innovations in the oil and gas sector.
- We extended our support for the largest clean-tech incubator in the USA, Greentown Labs, where start-ups build their prototypes.

We develop and deploy technology to increase the value or reduce the cost of our projects or otherwise enhance the performance and profitability of our own and our customers' businesses.

We operate a global network of technology centres, with major hubs in Houston, USA; Amsterdam, the Netherlands; and Bangalore, India. Thousands of employees across the network work on research and development (R&D) projects including turning natural gas into more efficient and cleaner fuels, unlocking oil from rock layers thousands of metres below the sea surface, and reducing Shell's net carbon footprint.

R&D projects often involve collaborations with public or private entities, including universities, government laboratories, technology start-ups and incubators.

We invested \$922 million in R&D in 2017 compared with \$1,014 million in 2016.

The majority of our research focuses on the near term, to help our existing businesses to reduce capital and operating costs, and to enhance customer products and services. This research also focuses on ways to lower energy consumption. For the long term, we aim to quickly acquire deeper insights into the science and engineering that underpins new energy technologies that can help create a lower-carbon future.

## SHELL GAMECHANGER

Shell GameChanger works with start-ups and businesses on unproven early-stage ideas with the potential to impact the future of energy. We provide companies with support, expertise and seed funding, while they maintain independence to make their own decisions.

## SHELL TECHNOLOGY VENTURES

This is our corporate venturing arm. It invests in companies that are developing promising technologies that complement Shell's businesses – mainly in oil and gas, new energies and information technology.

## SHELL TECHWORKS

Based in Massachusetts, USA, Shell TechWorks accelerates the adoption of proven technologies from other industries and applies them to the oil and gas sector. Founded in 2013, the programme has collaborated with companies, universities, research institutes and start-ups to help develop and deploy technology quickly and cost-effectively.

For more details on how we innovate through R&D, see [www.shell.com](http://www.shell.com)



In 2017, we completed construction of our Shell Technology Centre Bangalore, India.

# Managing operations

We work to reduce our environmental impact and manage our operations safely and responsibly. Safeguarding and respecting people – our employees, contractors and neighbours – is fundamental to how we do business.

## IN THIS CHAPTER

- 28** Our activities in Nigeria
- 32** Divestments
- 33** Decommissioning
- 34** Working for solutions in Groningen
- 34** Shales

## Our activities in Nigeria

Shell companies in Nigeria have continued to contribute to economic development in Nigeria with safety and security as our top priorities.

Shell has interests in several companies in Nigeria which are major contributors to the economy. They produce oil and natural gas, distribute gas to industries in the country, produce liquefied natural gas (LNG) for export, generate revenues for the government and provide social investment. Shell companies in Nigeria are also working with federal and state government agencies, communities and civil society groups, such as non-governmental organisations, to try to create a safe operating environment.

In 2017, an agreement between The Shell Petroleum Development Company of Nigeria Ltd (SPDC), the operator of the SPDC Joint Venture (SPDC interest 30%), and its government partner, the Nigerian National Petroleum Corporation, came into effect. This agreement provides an improved structure to finance future oil and gas projects and commercialise the country's large gas resources. Improved funding will enable the SPDC Joint Venture to explore more opportunities particularly in shallow water offshore and to increase onshore gas supply to the domestic market.

### SAFETY OF STAFF AND CONTRACTORS

The safety of staff and contractors in Nigeria remains our top priority. We continue to strengthen our safety culture around Shell companies in Nigeria with our Goal Zero ambition of no harm and no leaks including partly through a programme to connect senior leaders with contractor CEOs to promote best safety working practices. We also continued to run campaigns for employees and contractors in our production operations to help them better understand Shell companies in Nigeria's work culture, reflect on their leadership and suggest improvements to maintain a safe workplace.

### SECURITY IN THE NIGER DELTA

We continued to address safety and environmental challenges related to both operational spills and illegal activities, such as oil theft in parts of the Niger Delta. Although there has been no damage to key oil and gas infrastructure caused by militant activity since November 2016, the security situation remains volatile in this region of the country.

Shell companies in Nigeria continue to work closely with federal and state government agencies, communities and civil society to ensure that operations are carried out in a safe environment.

### LOCAL CONTENT INITIATIVES

To enable Nigerian ownership of key equipment such as rigs, helicopters and marine vessels, Shell companies in Nigeria continue to support the development of local people and companies. For example, over the past seven years, Shell Nigeria Exploration and Production Company Limited (SNEPCo) has provided support to improve training and safety standards at Caverton Helicopters, one of the biggest aviation logistics providers in sub-Saharan Africa.



SNEPCo has provided support to improve training and safety standards at Caverton Helicopters.

Current and former Shell employees transfer their technical and project management skills to all sectors of the Nigeria oil and gas industry. Several of the growing indigenous oil and gas producing companies are run by former staff of Shell companies in Nigeria. In September 2017, the annual Global Nigerian Forum in Aberdeen, the UK, sponsored for the fourth year by SNEPCo, provided a platform for Nigerian professionals in the UK to connect with Nigerian companies about participating in offshore exploration activities in their home country.

### **SOCIAL INVESTMENT PROGRAMMES**

Shell companies in Nigeria work with all tiers of government, communities and civil society to fund and implement social investment programmes. Some of these investments are mandated by federal legislation, such as requiring all oil companies in Nigeria to contribute funds from their annual budgets to the Niger Delta Development Commission.

At state government and local community levels, Shell companies in Nigeria focus their social investment activities on areas such as enterprise development, education, health and access to energy. Since launching in the 1950s, the Shell companies in Nigeria scholarship scheme has supported thousands of students to study both in Nigeria and abroad. Several leading figures in Nigeria today were part of the scheme in the 1960s and 1970s.

In 2017, SPDC Joint Venture (JV) and SNEPCo continued to invest in the Cradle-to-Career scholarship programme, which pays for less privileged children from rural communities to attend some of the country's top secondary schools. Since 2010, 480 students have received Cradle-to-Career scholarships from the SPDC JV and 268 from SNEPCo. Read about one student in Rivers State who received the SPDC JV scholarship.

The SPDC JV also supports community-driven development programmes in the Niger Delta. Since 2006, the programmes have been delivered through the global memorandum of understanding (GMoU). This agreement brings together communities, government representatives, SPDC and non-governmental organisations and provides secure five-year funding for community projects of their choice. For more details on how one GMoU scholarship benefited students and communities, see [www.shell.com.ng](http://www.shell.com.ng).



Dikiburi Diri founded an education training academy in Nigeria after receiving a scholarship to the USA under an SPDC joint venture GMoU initiative.

We work with our partners to explore opportunities to increase access to affordable, reliable and sustainable energy sources for off-grid low-income households, small- to medium-sized businesses and communities in Nigeria, particularly in the Niger Delta.

We have funded All On, an independent Nigerian investment company, which in 2017 approved investments that included solar home system provider Lumos and the country's leading electricity mini-grid company Green Village Electricity. All On provided a grant to Co Creation Hub, Nigeria's leading tech innovation hub, to seed and incubate up to 10 new companies working to improve access to energy. It also signed a three-year partnership with the US Africa Development Foundation to match their grant funding with debt financing for up to 30 Nigerian off-grid energy providers.

### **External voice: "Our work helped contain a cholera outbreak"**

In 2017, our partnership with SNEPCo provided around 50,000 internally displaced people in the Dikwa area of northeast Nigeria with humanitarian aid in the form of health, water, sanitation, hygiene and nutrition services. The integrated nature of services provided was one of the contributing factors to containing the cholera outbreak in Dikwa.



### **Satish Raj Pandey**

Acting Country Director, Family Health International (FHI 360), Abuja, Nigeria

## SOCIAL AND ECONOMIC CONTRIBUTION

- \$23 billion: economic contribution from the SPDC JV partners to the Nigerian government from 2013–2017.
- \$1.1 billion: Shell share of royalties and corporate taxes paid to the Nigerian government in 2017 (SPDC \$0.4 billion; SNEPCo \$0.7 billion).
- 94%: Shell companies in Nigeria contracts awarded to Nigerian companies in 2017.
- \$0.76 billion: Shell companies in Nigeria spend on contracts awarded to Nigerian companies in 2017.
- 95%: employees of Shell companies in Nigeria are Nigerian citizens in 2017.
- \$109.9 million: SPDC JV and SNEPCo contribution to Niger Delta Development Commission in 2017 (Shell share \$40.2 million).
- \$60.2 million SPDC JV, SNEPCo and Shell Nigeria Gas direct spending on social investment projects in 2017 (Shell share \$19.2 million).
- \$228 million disbursed by the SPDC JV to GMoU clusters for financing of development projects and programmes since 2007.
- 6,780 Niger Delta youth trained in enterprise development and management and 3,493 provided with business start-up grants since 2003.
- 8,192 (secondary) and 5,034 (university) SPDC JV and SNEPCo educational grants awarded since 2011.

## NIGERIAN LITIGATION

The authorities in various countries are investigating allegations of bribery and corruption over Shell's investment in Nigerian oil block OPL 245 and the associated 2011 settlement of litigation. In Italy, Shell and four former Shell employees were remanded to trial commencing in May 2018. We are disappointed by this decision but we believe the trial judges will conclude that there is no case against Shell or its former employees.

Shell attaches the greatest importance to business integrity. It is one of our core values and is a central tenet of the Business Principles that govern the way we do business. Shell has clear rules on anti-bribery and corruption and these are included in our Code of Conduct for all staff. There is no place for bribery or corruption in our company.

## SPILL RESPONSE AND PREVENTION

When a leak is identified on SPDC JV or SNEPCo assets, production is suspended and efforts are made to contain any spilled oil as part of our emergency spill response. We carry out this response in compliance with government regulations and in line with other standards at Shell-operated ventures globally. A joint investigation visit team comprising representatives of SPDC, regulators, government security agencies, state government and communities, is dispatched to spill sites to establish the cause, volume of oil spilled and what further action is required.

The vast majority of oil spills in the Niger Delta continue to be caused by crude oil theft or sabotage of pipelines, as well as illegal oil refining. In 2017, close to 90% of the number of oil spills from SPDC JV facilities was due to illegal activities. Regrettably, spills also occur due to operational reasons.

Regardless of the cause, SPDC cleans up and remediates areas impacted by spills that come from its facilities. In the case of operational spills, SPDC also pays compensation to people and communities impacted by the spill. Once the clean-up and remediation are completed, the work is inspected, and, if satisfactory, approved and certified by Nigerian government regulators.

SPDC works with government agencies, non-governmental organisations and communities to prevent and minimise spills from illegal activity. In 2017, we continued air and ground surveillance as well as installing antitheft mechanisms on equipment and pipelines to mitigate

third-party interference and ensure that spills are detected and responded to as quickly as possible. There were daily flights over the pipeline network to identify any new spill incidents or illegal activities.

Since 2012, SPDC has worked with the International Union for Conservation of Nature to enhance remediation techniques and protect biodiversity at sites affected by oil spills in SPDC's areas of operation in the Niger Delta. In 2017, SPDC launched new initiatives, such as a Niger Delta biodiversity strategy and a toolkit which provides guidance on restoring mangroves that will help to strengthen its remediation and rehabilitation efforts.

## CLEAN-UP EFFORTS IN OGONILAND

SPDC is working with the relevant stakeholders to implement the 2011 UN Environmental Programme (UNEP) report on Ogoniland. Over the last six years, SPDC has taken action on all the UNEP recommendations addressed specifically to it as operator of the joint venture and has completed the majority of these recommendations.

The UNEP report recommended the creation of an Ogoni Restoration Fund with \$1 billion capital, to be co-funded by the Nigerian government, the SPDC JV and other operators in the area. SPDC is supporting and contributing its share to the fund and on behalf of the SPDC JV made \$10 million available in 2017 to help set up the Hydrocarbon Pollution and Remediation Project (HYPREP), a government-led body to clean up contaminated sites. The body agreed to \$33 million in funding for areas such as emergency water supply, scoping of contaminated sites and alternative livelihood programmes.

Throughout 2017, SPDC representatives continued to actively support the clean-up process within the governance framework established in August 2016 by the Nigerian government. Some stakeholders have expressed concern about the pace of reaching decisions and taking action on the clean-up process. The Nigerian government and HYPREP strongly advocate setting up a transparent governance structure before starting actual clean-up.

#### CLEAN-UP AND REMEDIATION OF BODO

In 2015, SPDC - on behalf of the SPDC JV - and the Bodo community signed a memorandum of understanding granting SPDC access to begin the clean-up of areas affected by two operational spills in 2008. As part of this, two contractors were selected to conduct the clean-up and be overseen by an independent project director. The clean-up project suffered a delay in 2016 and most of 2017 due to difficulties accessing the sites.

After significant engagement with the communities and other stakeholders, managed by the Bodo Mediation Initiative, the clean-up and remediation activities at Bodo started in September 2017. The clean-up will consist of four phases: clean-up of free-phase surface oil; remediation of soil; restoration of mangroves; and monitoring. Should activities continue uninterrupted, the process is expected to take around three years. However, for it to be successful, the repeated re-contamination of remediated sites due to crude oil theft and illegal refining must end.

#### SPILLS AND RESPONSE DATA

Crude oil theft from SPDC JV's pipeline network amounted to around 9,000 barrels of oil a day (b/d) in 2017, an increase from around 6,000 b/d in the previous year. The increase in 2017 can in part be explained by the militant-induced shutdown of the Forcados export terminal in 2016, which reduced opportunities for third-party interference. This demonstrates that continued air and ground surveillance as well as the action by the government security forces remain necessary to prevent crude oil theft. Since 2012, SPDC has removed more than 950 illegal theft points.

The number of operational spills from Shell companies in Nigeria increased from eight in 2016 to nine in 2017. However, the volume of oil spilled in operational incidents decreased to 0.1 thousand tonnes compared to 0.3 thousand tonnes in 2016.

The number of sabotage-related spills in 2017 increased to 62 from 48 in 2016. Theft and sabotage caused close to 90% of the number of spills of more than 100 kilograms from SPDC JV pipelines, with the balance being operational spills.

In 2017, 92 sites were remediated and certified (out of 251 identified for this work), with 32 in Ogoniland. During 2017, 84 new sites requiring remediation were identified, of which eight are in Ogoniland. In total, there are 243 oil spill sites that require remediation.

#### External voice: "We simply cannot blame one party for all the woes in the Niger Delta"

In the past four and half years, initially as co-chairman, and now as chairman, I can confirm that it's been an intense, prolonged and sometimes quite complex and frustrating process. I'm glad to say that despite all the challenges, we've been able to collectively start the clean-up of the polluted sites in Bodo community. We couldn't have done this without the sustained commitment and tenacity displayed by both SPDC and the Bodo community.

The Bodo mediation process is a delicate process based on trust and confidentiality. As an activist and a constructive critic of some of the practices by the international oil companies in the Niger Delta, I've come to realise that responsibilities are shared and we simply cannot blame one party for all the woes in the Niger Delta. Therefore, it would take the collective efforts of the federal, state and local governments, IOCs, civil society and the communities to resolve some of these intricate challenges. What we have achieved so far in the Bodo clean-up exercise is proof that it is possible to do so.

The main priority of the Bodo Mediation Initiative is to ensure that as we move smoothly from phase one to phase two of the clean-up, all parties, in particular the Bodo community and SPDC remain committed to the Initiative's process and clean-up of the Bodo community.



**Inemo Samiama**

Chairman of the Bodo Mediation Initiative, Bodo, Nigeria

Shell made significant progress towards the completion of our three-year \$30 billion divestment programme, which is an important part of our strategy to reshape into a world-class investment and to strengthen our financial framework.

## HIGHLIGHTS IN 2017

- We completed divestments worth around \$22.3 billion over the period 2016-2017.
- We sold our stake in Australian energy company Woodside Petroleum.
- We sold the majority of our oil sands interests in Canada.

We made good progress on our 2016-2018 \$30 billion divestment programme by the end of 2017, with deals worth \$22.3 billion completed.

We sold non-operated shareholdings in assets as well as entire businesses. In each transaction, Shell carried out extensive due diligence to ensure that the buyer had the capabilities to uphold, or even improve, delivery with respect to safety, security, the environment and responsibilities to neighbouring communities.

### DIVESTING CANADIAN OIL SANDS

In March 2017, we announced the sale of the majority of our oil sands assets to Canadian Natural Resources Limited (Canadian Natural) and reduced its share in the Athabasca Oil Sands Project (AOSP) from 60% to 10%. Canadian Natural became the operator of the AOSP upstream mining assets from June 1, 2017.

We continue to operate the Scotford complex, which includes a bitumen upgrader and the Quest carbon capture and storage project (Shell interest 10%) located next to the refinery and chemical plants.

To ensure a successful transition, we developed an employee engagement plan in line with our Code of Conduct and antitrust requirements to address questions from the 3,000 staff moving to Canadian Natural. We worked with local community and business leaders, including indigenous communities, to respond to questions and concerns. We assumed the financial obligation for agreed communities and encouraged submissions for social investments up to the divestment date. We formalised the handover and assignment of any established future obligations. Once all regulatory approvals were in place and full operational readiness and conditions were met for a safe transition, we transferred assets and operatorship to Canadian Natural.

- We completed the sale of a number of UK North Sea assets and our onshore upstream operations in Gabon, and announced the divestment of our upstream business in Ireland.

Throughout the divestment process, we ensured our customers and suppliers were updated on the transaction to manage expectations and ensure there were no service disruptions.

### SELLING GABON ONSHORE INTERESTS

In March 2017, we announced that after 50 years of activities we would divest all our onshore oil and gas operations and related infrastructure in Gabon. We sold our onshore operated and non-operated interests in the country to Assala Energy Holdings, a new energy company funded by US investment firm The Carlyle Group.

From early in the sales process, we communicated the sensitivity of the ecologically diverse habitat to all potential buyers. During the due diligence process, we contracted an independent social and environmental consultancy to provide insight into the impact of operations in and around the onshore facilities. The Carlyle Group also hired a separate independent consultancy to provide insights and to verify the findings of the original due diligence work.

We engaged a cross section of community, government and non-governmental organisations to explain the divestment and introduce the new owners to the communities likely to be affected. The sale to Assala Energy was agreed with the intention that operations would continue.

We expect Assala Energy to make managing the impact of its operations on biodiversity and communities as high a priority as we did. To date, Assala Energy has confirmed it will continue the Gabon biodiversity programme which we had worked on previously with our research partner the Smithsonian Conservation Biology Institute.

# Decommissioning

Safe and responsible decommissioning is a priority for Shell. This includes restoring the surroundings of platforms and facilities in line with relevant legislation, while taking our own environmental standards into account.

## HIGHLIGHTS IN 2017

- In the UK, the single lift of the Brent Delta platform marked the world's heaviest offshore lift, by the world's largest construction vessel.
- We submitted decommissioning plans for the Tapti field to Indian authorities.

- We decommissioned the Cougar platform in the USA and donated parts of the structure to an artificial reef programme.

Decommissioning is part of the normal life cycle of every oil and gas structure when a facility reaches the end of its life. A growing number of oil and gas platforms and facilities are ageing so decommissioning will increase over the next few decades. Every decommissioning is different and needs to be tailored to the facility design, the local context and the local legislative requirements. Some of our more complex decommissioning projects take place offshore.

In 2017, we started preparing to decommission the Tapti field, a former BG project in India. We jointly operate the project (Shell interest 30%) with the Indian National Oil Company, Oil and Natural Gas Corporation and Reliance Industries Limited. Production stopped in March 2016 and work is under way to plug 38 wells and close down five platforms and four pipelines. In India more broadly, we contribute to government-led work on the development of regulations and guidelines for decommissioning projects.

In the Gulf of Mexico, we decommissioned the Cougar platform, which has produced more than 31 million barrels of oil over the last two decades. In 2017, we used a specially-designed vessel to lift the top part of the

platform and deck, then place it on a barge to be transported to shore for cleaning and recycling or disposal. The same vessel was used to move the platform's 105 metre-tall and 3,000-tonne support structure across about 80 kilometres of open water to its resting place as an artificial reef. We donated the structure to the Louisiana artificial reef programme and made a \$619,000 contribution to help maintain and monitor the reef. It will provide a habitat for a variety of marine life, including red snapper and amberjack fish.



The Brent Delta platform was transported to the Able UK Seaton Port yard in Hartlepool, UK, where at least 97% of the material will be recycled.

## BRENT DELTA PLATFORM TOPSIDE SINGLE LIFT

Our largest decommissioning project to date is the Brent oil and gas field, which lies in the North Sea between the UK and Norway. Preparation for decommissioning the four Brent platforms – Alpha, Bravo, Charlie and Delta – started more than a decade ago.

We based our decommissioning recommendation on options from about 300 scientific and technical studies. This work included consultation with around 180 interested parties and an independent review to validate the science and engineering.

In 2015, the UK regulator approved the Brent Delta decommissioning programme to remove the topside of the platform in a single lift. The removal was carried out in April 2017 by Pioneering Spirit, the world's



The Brent Delta platform weighs the same as 2,000 London buses and is as high as the London Eye.

largest single lift construction vessel, making it the heaviest lift of its kind offshore. The 24,200 tonne lift marked the culmination of about five years of study and engineering work.

# Working for solutions in Groningen

The Nederlandse Aardolie Maatschappij B.V. joint venture operates the Groningen gas field in the Netherlands. Regrettably, production from the Groningen field has caused earthquakes. Some of these earthquakes have damaged homes and buildings, and caused worry for the people of Groningen.

Since 1963, the Nederlandse Aardolie Maatschappij B.V. (NAM) joint venture (Shell interest 50%) in partnership with the Dutch government, has operated the Groningen gas field, one of the world's largest onshore gas fields.

The Dutch Ministry of Economic Affairs has limited gas production in Groningen significantly since 2014 in response to earthquakes caused by extraction. Various other measures have been taken to reduce the social impacts, including improving the way damage claims are handled as part of the programme to repair and strengthen houses and local primary schools and launching socio-economic development programmes. Production limits are set in areas where earthquakes cause the greatest damage and highest social impacts.

## DIFFERENT ROLE FOR NAM

In 2017, NAM's role in handling damage claims and the building strengthening programme was handed over to the National Coordinator Groningen. This was an important step to improve credibility and restore trust in the region. NAM remains liable for any damage or loss directly caused by these induced earthquakes. NAM continues to work to rebuild relationships with the people of Groningen, for instance through open and honest face-to-face conversations.

## IMPROVING PERSPECTIVE

Since 2014, NAM has taken steps to help improve the situation in Groningen, including investing in the NAM Livability and Sustainability programme and on a personal level through conversations with members of the community. With this programme, NAM supports local initiatives, often co-financed by other parties and the local communities, in order to build relationships in areas where NAM has had a long-term presence. This is important as scientific research shows that social cohesion positively contributes to the community's resilience and its ability to deal with the impact of earthquakes.

The programme has provided financial support for around 200 local initiatives to strengthen structures affected by earthquakes. This includes providing support for houses and improving the running costs of sports facilities by installing solar panels.

# Shales

Shales – also known as tight gas and oil – continue to play an important role in meeting global energy demand. Shell uses advanced, proven technologies, including hydraulic fracturing, and follow our operating principles to unlock these resources safely and responsibly.

## HIGHLIGHTS IN 2017

■ In Canada, around a third of our water demand in the Fox Creek facility was met by reusing produced water and waste water.

- We recycled produced water at a development in the Permian asset in the USA to significantly reduce groundwater consumption in hydraulic fracturing.
- Our new Waterton radio tower construction project contributed to local conservation efforts in Canada.

Shell expects shales to become a significant growth priority for the company beyond 2020. We are involved in seven shale projects in North America. In Canada, we are active in the Duvernay and Wet Montney oil plays in Alberta along with the Montney gas play in British Columbia. In the US, we are active in the Marcellus and Utica gas plays in Appalachia, the Delaware Basin portion of the Permian play and a non-operated position in the Haynesville gas play. Outside of North America, we are also active in the Vaca Muerta shale play in Argentina.

Shell upholds five global principles, the [Onshore Operating Principles](#), which govern the onshore shale activities where we operate and where hydraulic fracturing is used. The principles cover safety, air quality, water protection and usage, footprint and engagement with local communities. We review the principles annually and update them as new technologies, challenges and regulatory requirements emerge. We actively engage with communities, industry participants and other groups to bring about improvements in the sector.

In our operations, we continue to take action to address air quality and control fugitive emissions, reducing the potential for our impact on the environment. We implement voluntary methane leak detection and repair programmes across all our shale sites, by primarily using optical gas imaging cameras. We are also looking at next generation detection technologies.

## IMPROVING WATER USE IN CANADA

We have worked for several years to improve water management at our facilities in Canada, first in Groundbirch, British Columbia, and then in Fox Creek, Alberta. In August 2017, the Canadian Association of Petroleum Producers recognised Shell's efforts as an example of industry best practice for water management.

We have taken steps to reduce our overall fresh water footprint and minimise the impact to other water users from our oil and natural gas operations. We have also been looking at ways to reduce overall water demand through completion design and reusing water. Previously, we agreed with the municipality to use Fox Creek's treated waste water for hydraulic fracturing and in return we

helped upgrade the town's reclaimed water facilities. In 2017, around a third of Shell's water demand in the Fox Creek asset was met by produced water and waste water.

We have been pursuing similar initiatives in Groundbirch where we worked with the nearby city of Dawson Creek to build a reclaimed water facility to treat and recycle the city's waste water for local industries and the community.

Read more about water recycling at our [Permian](#) project in Texas.

### ADDRESSING ENVIRONMENTAL SENSITIVITIES

When implementing projects, we try to find solutions which minimise impacts on the environment. In 2017, our Waterton Complex in Alberta, Canada, needed to replace a support cable for its communications system. However, the mountainous terrain meant installing a new radio system was the only feasible option. As a result, we had to build two radio towers, including one on a ridge near Waterton Lakes National Park, which involved addressing several environmental sensitivities.

To minimise the environmental impact, we placed the radio tower on the ridge during frozen ground conditions,

using track equipment and solar panels. We also installed a watering system for livestock, which protects the habitat in nearby Yarrow Creek, and a new water well with an above ground pipe drilled. We consulted with the local community and landowners throughout the project to ensure it was executed in a way that preserves the local environment and contributes to local conservation efforts.

The communications system works well and was built in collaboration with local landowners and communities.



In Canada, we installed two radio towers at our Waterton shales project, which involved addressing several environmental sensitivities.

# Our contribution to society

Our contribution to society includes providing people with access to energy products. The company also contributes through paying taxes, procuring local goods and services, hiring locally and supporting social investment programmes.

All this is underpinned by our core values of honesty, integrity and respect for human rights.

## Key contributions data



**22%**

of senior leaders are women and around half of graduate recruits are also female



**\$ 15.6 billion**

dividends distributed



**424,580**

**training days**

for employees and JV partners



**\$ 59.1 billion**

payments to governments



**1,697**

jobs created through LiveWire



**\$ 42.2 billion**

spent on goods and services worldwide



**86,000 people**

employed by Shell



**\$ 111 million**

spent on social investment



**\$ 922 million**

spent on research and development in 2017



**30 million**

customers served every day at our retail sites

## Sustainable development goals

In 2015, the UN adopted 17 sustainable development goals (SDGs), which seek to address the world's biggest challenges, including ending poverty, improving health and education, making cities sustainable and tackling climate change.

Governments are responsible for prioritising and implementing approaches that meet the SDGs. But achieving these tasks will require collaboration between civil society, governments, the private sector, non-governmental organisations and the public.

We welcome the SDGs and we continue to develop our approach to how we can help achieve them. All the SDGs are relevant to Shell's operations to varying degrees and we are already contributing to many of these goals. In 2017, we prioritised six of the goals that have particular significance for Shell across our global business. Through IPIECA, the global oil and gas industry association for environmental and social issues, we have collaborated

### IN THIS CHAPTER

- 36** Sustainable development goals
- 38** Tax and transparency
- 39** Our people
- 40** Local content and skills development
- 42** Access to energy
- 42** STEM education
- 43** Shell Foundation

with the UN Development Programme and the World Bank's International Finance Corporation to develop a shared understanding of how our industry can most effectively support the goals. Together, we launched the report *Mapping the Oil and Gas Industry to the Sustainable Development Goals: An Atlas*.

The priority SDGs for Shell are highlighted in the graphic below.



## 7 ☼ ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY

Access to reliable and safe energy enables economic and social development and improves health, education and livelihoods. We aim to enable energy access by helping develop local energy markets and supporting entrepreneurs and partners in the development and distribution of energy solutions. (See [Access to Energy](#) and [Local content and skills development](#).)

**Read more on Shell.com:**

- [Access to energy](#)
- [Local employment and enterprise](#)
- [Shell LiveWire](#)

## 8 ⚒ DECENT WORK AND ECONOMIC GROWTH

Employment is a critical route out of poverty and towards prosperity. We provide jobs and aim to follow labour, health and safety standards. We encourage local businesses to be part of our supply chain, and encourage our suppliers to meet Shell standards. We work with governments and others to offer training to build local skills and expertise. We support entrepreneurs through various programmes, including the Shell LiveWIRE programme, which helps young people start their own businesses. We also contribute to economic growth by paying taxes and royalties to local governments. (See [Living by our principles](#), [Local content and skills development](#), [Contractors and suppliers](#) and [Tax and transparency](#).)

**Read more on Shell.com:**

- [Revenues for governments](#)
- [Human rights](#)
- [Supporting enterprise development and entrepreneurs](#)



## BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALISATION AND FOSTER INNOVATION

Shell often upgrades or builds infrastructure required for our projects, including roads and ports, and aims to minimise our impact on the local area. We support off-grid energy projects that can provide reliable, affordable energy in rural areas with little or no energy infrastructure.

Innovation is critical for sustainable growth. We spend around [\\$1 billion](#) each year on research and development to turn ideas into commercially viable technologies. Our innovations include fuels and lubricants that help customers use less [energy](#), and technologies that improve the energy and [water efficiency](#) of our own operations.

**Read more on Shell.com:**

- [Innovation though R&D](#)
- [Fresh water](#)
- [Shell engine oils and lubricants](#)

## 12 ∞ RESPONSIBLE CONSUMPTION AND PRODUCTION

We aim to protect the environment and respect our neighbours. We work hard to avoid harm to people and set ourselves high environmental standards. This includes a focus on managing our [greenhouse gas emissions](#), minimising our use of fresh water, conserving biodiversity and preventing spills and leaks. We meet and often exceed regulatory requirements.

We invest in a range of lower-carbon technologies and fuels and continue to work on improving the energy efficiency of our fuels and lubricants. Shell is taking part in several initiatives to encourage the adoption of hydrogen electric transport, and is developing a service that supports the charging of electric vehicles. We are one of the largest blenders and distributors of biofuels worldwide and are developing advanced biofuels that convert non-food plants into cellulosic ethanol.

**Read more on Shell.com:**

- [Biofuels](#)
- [Shell engine oils and lubricants](#)
- [Our approach - environment](#)
- [Product stewardship](#)



## CLIMATE ACTION

We are seeking cost-effective ways to manage greenhouse gas (GHG) emissions and see potential business opportunities in developing such solutions. We seek to contribute to reducing global GHG emissions in a number of ways: supplying more natural gas to replace coal for power generation; progressing [CCS](#) technologies; implementing [energy-efficiency](#) measures in our operations where reasonably practical; developing new fuels for transport such as advanced [biofuels](#) and [hydrogen](#); and participating throughout the power value chain with a focus on [natural gas](#) and renewable electricity. To support this, we continue to advocate the introduction of effective government-led carbon pricing mechanisms.

We fully support the Paris Agreement, and its goal of keeping the rise in global temperatures to below two degrees Celsius. After having carefully listened to our critics, supporters and shareholders, we have set a long-term ambition to reduce the net carbon footprint of our energy products in step with society's drive to reduce GHG emissions.

#### Read more on Shell.com:

- Shell scenarios
- Climate change and energy transitions

We work with governments, academics and industry specialists, and partner with companies and organisations to help meet the world's growing energy needs. We share ideas and expertise to help encourage innovation.

We work with others to help reduce our impact on the environment and on people, to improve the quality of nature around our operations and to enhance benefits to local communities by implementing social investment programmes. Partnerships are also essential to help enhance safety and environmental standards and practices within our industry.

#### Read more on Shell.com:

- Innovating together
- Environmental and community partners
- Working with others

## Tax and transparency

Tax binds governments, communities and businesses together. Revenue transparency provides citizens with important information to hold their government representatives accountable and to advance good governance.

### HIGHLIGHTS IN 2017

- We paid more than \$59.1 billion in taxes and royalties to governments around the world.
- We paid \$6.3 billion in income taxes. Our government royalties were \$3.7 billion.

- We collected \$49.1 billion in excise duties, sales taxes and similar levies on our fuel and other products on behalf of governments.

### OUR APPROACH

We comply with applicable tax laws wherever we operate. We are transparent about our tax payments to governments and strive for an open dialogue with them. This approach helps us to comply with both the letter and the spirit of the laws. For Shell, being transparent is also about showing how developing energy resources provides governments with an opportunity to generate revenues, support economic growth and enhance social development.

### PRINCIPLES

In line with the Shell General Business Principles, we support several external voluntary codes, including the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises and the Business and Industry Advisory Committee to the OECD Statement of Tax Principles for International Business. We endorse the responsible tax principles set out by the B Team, a non-profit initiative formed by a group of global business leaders, and we work towards full implementation of these principles.

### TRANSPARENCY

In 2012, we were one of the first energy companies to voluntarily publish revenues that our operations generate through income taxes, royalties and indirect taxes for governments around the world. As of 2016, we make mandatory disclosures under the Reports on Payments to Governments Regulations 2014, and we file our Payments to Governments Report with the UK's Companies House.

The report covering calendar year 2017 has been published on [www.shell.com/payments](http://www.shell.com/payments).

### TAX STRATEGY

It is the right of governments to determine tax policies and tax rates and to draft tax laws accordingly. They do so under strong competition for capital and investment, which is internationally mobile. It is not the role of business to form views on what level of taxation is adequate or required. We use legitimate tax incentives and exemptions designed by governments to promote investment, employment and economic growth.

When considering the viability of investments, tax is one of the factors we examine. Income tax is just one part of the overall tax regime considered. We expect to pay tax on our income in the country where activities take place, and believe double taxation of the same activity by different jurisdictions should be avoided. Shell supports efficient, predictable and stable tax regimes that incentivise long-term investment. We expect the laws to be applied consistently, creating a level playing field for all.

### GOVERNANCE OF TAX

Shell's Board of Directors is responsible for maintaining a sound system of risk management and internal control, and for regularly reviewing its effectiveness. This system also covers taxation, which forms an integral part of the Shell control framework. Annually, the Board conducts a review of the effectiveness of Shell's system of risk management and internal control, including financial, taxation, operational and compliance controls.

## COLLABORATING WITH OTHERS

Shell supports cooperative compliance relationships with tax authorities on the basis of the framework proposed by the OECD Forum on Tax Administration. We have these relationships in the UK, the Netherlands, Singapore and Italy, and a pilot relationship in Austria. Shell is also part of the OECD pilot International Compliance Assurance Program, which aims to facilitate open and cooperative engagements between multinational companies and tax administrations.

We provide the authorities with timely and comprehensive information on potential tax issues. In return, we receive treatment that is open, impartial, proportionate, responsive and grounded in an understanding of our commercial environment. This approach improves the transparency of our tax affairs and allows Shell to better manage its tax-related risks throughout the life cycle of each project.

Transparency is only effective if all parties in a country follow the same disclosure standards. Shell is a founder and board member of the Extractive Industries Transparency Initiative. Consistent with the Initiative's requirements, we continue to advocate mandatory country-by-country global reporting, as most tax payments are made at the corporate level to national governments. We support unified revenue reporting rules and standards applicable to all multinationals, irrespective of their ownership or place of business.

Shell is actively involved in revenue transparency discussions and we are working to develop an approach that takes into account the views of the relevant parties involved, including industry, governments and civil society.

# Our people

The quality of our people is essential to the success of the company. We work to maintain a productive and healthy organisation, employ and develop talented people, strengthen our leadership, and enhance employee performance through strong engagement.

## HIGHLIGHTS IN 2017

- We employed an average of 86,000 people in more than 70 countries.
- We recruited around 400 graduates, 1,400 experienced professionals and 3,700 people for Shell Business Operations.

- Around 45% of graduate recruits came from universities outside of Europe and the Americas.
- Around half of our graduate recruits are female.
- We provided 424,580 training days for employees and joint-venture partners.

In 2017, we employed an average of 86,000 people in more than 70 countries, with more than 40% of our workforce operating in countries outside Europe and North America. We strive to maintain strong relations with our employees. Dialogue between management and employees takes place directly and through employee representative bodies. We offer multiple channels for employees to report, confidentially and anonymously, breaches of the Shell General Business Principles or our Code of Conduct, or other concerns.

We provide equal opportunity in recruitment, career development, promotion, training and reward for all employees, regardless of gender, ethnicity, sexual orientation or physical ability. We actively monitor diversity on a global level and measure the representation of women and local nationals in senior leadership positions. Shell believes that diverse teams led by inclusive leaders can improve business performance.

Shell aims to manage the impacts of business changes on people respectfully and as consistently as possible. Affected employees are supported in their search for alternative employment as appropriate by country law and policy.

## EMPLOYEE ENGAGEMENT

The annual Shell People Survey is one of the main tools we use to measure employee views on a range of topics. In 2017, we started using a new methodology for this assessment. In addition to providing team leaders with improved reports, the rating scale changed from percentage favourable to an average index and the scores reflect the new methodology. Based on this new rating scale, the average employee engagement score remained stable

in 2017 with 76 points, similar to 2016 (previously reported as 79%).

The survey also measures employee views on the inclusiveness of their workplace. In 2017, we achieved 81 index points for our diversity and inclusiveness index.

## WORKFORCE DIVERSITY

Embedding the principles of diversity and inclusion in the way we do business gives us a better understanding of the needs of our staff, partners, suppliers and customers. A diverse workforce and an inclusive environment that respects and nurtures different people is a way to improve our safety and business performance.

Our diversity and inclusion approach focuses on hiring, developing and retaining the best.

We provide equal opportunity in recruitment, career development, promotion, training and rewards for all employees, including those with disabilities. In 2017, we introduced a workplace accessibility service at our major locations to ensure that all employees have access to reasonable adjustments so that they can perform their work effectively.

Shell also became the first major integrated oil and gas company to announce a global minimum standard of 16 weeks paid maternity leave, effective from 2018. More information on this can be found on our [website](#). In 2017, we were ranked highly in the Workplace Pride global LGBTI (Lesbian Gay Bisexual, Transgender Intersexed) inclusive workplace benchmark and earned a 100% score in the Human Rights Campaign Corporate

Equality Index. Shell was also among The Times (UK) Top 50 Employers for Women in 2017.

We actively monitor diversity on a global level, measuring representation of women and local nationals in senior leadership positions, and have processes in place to identify and mitigate any biases. At the end of 2017, the percentage of women in senior leadership positions was 22% compared with 20% at the end of 2016. We continue to measure and work to improve our gender balance by making female leaders more visible and accessible as role models, by providing leadership programmes for women and by embedding diversity and inclusiveness in our policies and processes.

The representation of senior local nationals is monitored in 20 principal countries. We measure the percentage of senior nationals employed in Shell compared with the number of senior positions in their home country. The

reporting shows two categories: local national coverage greater than 80% (10 countries in 2017) and less than 80% (10 countries in 2017). There was no change from the 2016 numbers.



In 2017, Shell ranked high up on the Workplace Pride global LGBTI inclusive workplace benchmark. The pictures shows the pride flag on a product tank at our Pernis refinery in the Netherlands.

## Local content and skills development

Shell buys goods and services from local suppliers as part of our approach to share the benefits of oil and gas development with the wider economy.

We contribute to employment creation directly and indirectly: directly through the employment of company staff and the purchase of goods and services; indirectly through the employment, subcontracting and procurement activities of our contractor and suppliers, and through wider economic effects.

We buy goods and services from local suppliers that meet our standards as part of our approach to share the benefits of oil and gas development to the wider economy. In some cases, we support businesses in developing the skills required to meet these standards.

Our supplier principles integrate social considerations in the contracting and procurement processes. In 2017, we spent \$42.2 billion on goods and services worldwide, of which around 58% was in the USA, Canada, the UK, the Netherlands and Nigeria. In 2017, we spent around \$4.9 billion in countries that, according to the UNDP Human Development Index 2016, have a gross domestic product of less than \$15,000 a year per person. In these countries, Shell companies spent 80% with local companies.

In 2017, we worked with the Australian government on a development programme to support local suppliers to the Queensland Gas Company (QGC) (Shell-operated, majority interest) coal seam gas project. We provided 12 local suppliers with a dedicated business advisor to help them develop a customised improvement plan to grow and diversify their business. The Australian government matched our funding with AUD\$20,000.

At the *Prelude* floating liquefied natural gas facility, we awarded contracts to Australian waste management company Rusca Environmental Solutions for onshore waste and cleaning services. This is a new business area for the company, which is 100% indigenously owned, and is expected to create further opportunities for indigenous sub-contractors.

In *Nigeria*, we use locally manufactured goods and service companies which create jobs in the communities in

which we operate. In 2017, Shell companies in Nigeria spent around \$0.76 billion on contracts for Nigerian companies. Access to financing has been a challenge for suppliers to Shell companies in Nigeria. In collaboration with leading banks in the country, the SPDC Joint Venture (SPDC JV) and the Shell Nigeria Exploration and Production Company Limited continue to fund a mechanism that offers local contractors faster access to loans at cheaper interest rates.

## COMMUNITY SKILLS AND ENTERPRISE DEVELOPMENT

Through our social investment programmes, we support economically viable enterprise development and skills programmes that create valuable opportunities for local people and communities, while adding value to our supply chain.

We support the building of new businesses to generate local employment and our *Shell LiveWIRE* programme, helps young entrepreneurs turn their ideas into reality.

*Shell LiveWIRE* marked its 35<sup>th</sup> anniversary in 2017 and now operates in 15 countries in eight languages. In 2017, through the programme, 4,159 people were trained, 450 businesses were established, 465 existing businesses were supported, 1,697 jobs were created and 10 businesses entered the Shell supply chain.

*Shell LiveWIRE* entrepreneurs increasingly focus on energy solutions such as affordable and clean energy for low-income communities. For example, *Innovate Energy*, is a company that offers an external phone battery rental service powered by renewable energy.

Nigeria has one of our most successful *Shell LiveWIRE* programmes, with a total of \$66,200 awarded to 60 young entrepreneurs from Ogoniland, all of whom completed its enterprise development programme. In the Middle East and North Africa, where *Shell LiveWIRE* is called *Intilaqaah*, we trained 1,920 participants in 2017 – 52% of whom were women – and helped start up 186 businesses. In Saudi Arabia, Ghazael Aldossary, one of many female *Intilaqaah* entrepreneurs, has set up two businesses in the chemical and shipping industries with 45 employees.

In the Philippines, we have a community-based enterprise development and biodiversity programme called Turismo at Negosyo Dulot ng Ingat Kalikasan (Tourism and Business Through Protecting Nature). The programme supports sustainable tourism by mobilising community involvement and creating alternative income opportunities, all while protecting and conserving Palawan's biodiversity. In 2017, the programme provided 67 local jobs and generated more than \$90,000 in revenues from supported enterprises.

In Tanzania and Kenya, we are supporting a programme called E4D/Employment and Skills for Eastern Africa with the German, British and Norwegian governments. This programme aims to improve access to jobs and economic opportunities for local people in natural resource-based industries and related sectors. By the end of 2017, the partnership, had raised more than 35 training programmes to industry standards and provided training for around 13,000 people. So far, 73% of the graduates have found employment.



Our enterprise development programmes are helping young Tanzanians grow their businesses.

### THE ENERGY OF COFFEE

We are working with a start-up called bio-bean, which turns coffee waste into fuel. The company won Shell LiveWIRE's Innovation Award in 2013 and has since gone on to produce bio-mass pellets and briquettes called Coffee Logs. These are now sold at Shell retail sites across the UK.

In 2017, bio-bean helped power some of London's buses using biofuel made partly from its waste coffee grounds. The company collects and processes 50,000 tonnes of waste grounds a year. Every tonne of waste coffee grounds recycled using bio-bean's technology saves 6.8 tonnes of CO<sub>2</sub> emissions.

The collaboration forms part of our #makethefuture campaign, which demonstrates how we are providing access to cleaner energy to improves lives.

### External voice: "Shell's support was crucial to my start-up's success"

Ciclo Orgânico is an organic waste collection and composting business that makes money through customer subscriptions. I founded the company as part of Shell's LiveWIRE programme in Brazil in 2015.

The programme helped me build the company from the initial concept to planning and final execution so was crucial to our success. One of the biggest benefits was the support I received in developing my business plan. This guides me to this day whenever I am faced with hard decisions.

Shell also connected me to a network of entrepreneurs, specialists and mentors. It was a wonderful experience and I am grateful for all the support I received from Shell.



**Lucas Chiabi**

Entrepreneur, Ciclo Orgânico, Brazil

## Access to energy

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Globally, around 1.1 billion people have no electricity and a billion more only have access to unreliable and unsafe power networks. Nearly 3 billion people rely on solid fuels for cooking.

Reliable and safe energy enables economic and social development, and improves the health, education and livelihoods of people around the world. Energy access plays an important role in achieving the [UN's sustainable development goals](#), in particular goal 7 "Ensure access to affordable, reliable, sustainable and modern energy".

Our [New Energies business](#) is pursuing commercial opportunities to provide energy to those who have insufficient access to it. Access to energy is also one of our three global social investment themes through which we aim to provide access to reliable, affordable and cleaner energy, to spur socio-economic progress in local communities.

In Myanmar, we worked with [PACT](#), a non-profit organisation, to provide access to sustainable energy for around 20,000 people in 2017. We have improved the livelihoods of around 35,000 people since the start of the programme in 2015.

Renewable energy committees were set up in 76 villages to train people to install and maintain solar power systems in their homes, and to manage renewable energy funds that provide initial capital to purchase the solar power systems.

In 2017, we piloted a fund to encourage our teams to work with local partners to design and implement small local energy access projects using a sustainable community business model. The fund has so far supported four projects and will monitor their success during 2018.

We continued to support our partner [The Global Alliance for Clean Cookstoves](#) with its activities in India, China and Nigeria. In China, we sponsored activities to help cookstove manufacturers expand into international markets and share best practices with partners abroad. We also supported the Alliance in Nigeria, where we sponsored a workshop in Lagos in 2017, to help clean cooking enterprises improve their business plans and attract more funding. Thirty-four participants from 11 states in Nigeria attended the workshop. We continued to support the Alliance's Spark Fund, which provides growth capital and capacity development to help cookstove enterprises reach commercial viability. By the end of 2017, the Alliance and its partners had distributed an estimated 80.9 million clean or efficient stoves and fuels, and are on track to exceed their goal of reaching 100 million households by 2020.

In addition, we support access to energy through the [All On](#) programme and initiatives of [Shell Foundation](#) globally.

## STEM education

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Shell is working with schools and academia to excite young people about the wealth of career opportunities available to them in science, technology, engineering and mathematics (STEM).

We support STEM education programmes in 16 countries where we operate. We are helping to deliver a growing, diverse and talented population of future innovators and leaders who can find solutions to help meet greater energy demand while reducing carbon emissions. [NXplorers](#) is our global STEM programme which seeks to enthuse and empower young people and equip them with the tools and skills to solve some of the world's biggest challenges. In 2017, we launched NXplorers in Brazil, Nigeria and [Egypt](#), with plans to launch in other countries including India, Australia, the United Arab Emirates and Oman in 2018. Our goal is that more than 1 million young people participate in the programme worldwide by 2020.

Our STEM programmes also focus on teachers. In Brazil, where a lack of qualified science and technical professionals is hampering the country's overall development, we launched a project in 2012 that continues to provide teacher training, teaching aids and resources. This includes an award for teachers that recognises the role they play in influencing others and changing their students' perspective on life. The winning teachers travelled to London on an education trip in 2017.

We held festivals in the Netherlands, Singapore, the UK and the USA in 2017 to support our efforts to promote STEM careers. Around 30,000 visitors, including 10,000 schoolchildren, attended the five-day Generation Discovery festival in the Netherlands.

In 2017, Shell made a second investment of more than £1 million in Tomorrow's Engineers, a UK STEM programme. Through our investment, we aim to give hands-on engineering experience and career information to more than 160,000 children by 2020.



Our social investment programmes are exciting young people about careers in science, technology, engineering and maths.

# Shell Foundation

Shell Foundation is an independent charity that applies a business approach to the global development challenges of access to energy and sustainable mobility.

Shell Foundation (SF) provides business support, grants and market connections to help pioneering social entrepreneurs prove new business models in low-income communities.

SF selects partners with the potential to benefit 10 million people within a 10-year timeframe, achieve financial independence and spur international replication.

Since 2000, SF has deployed \$279 million in grants to early-stage businesses and new market builders operating in Africa, Asia and Latin America.

## 2017 SOCIAL ENTERPRISE PARTNER HIGHLIGHTS

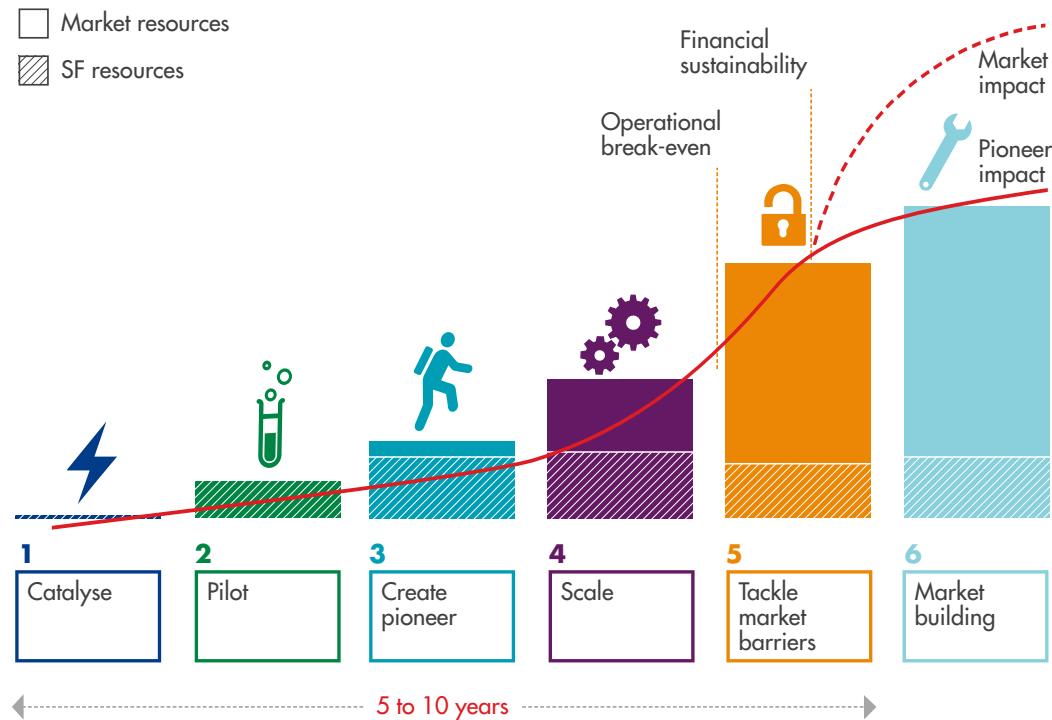
Sistema.bio makes biodigester equipment that converts farm waste into renewable energy. This can be used for cooking, heating or electricity. The process also reduces greenhouse gas emissions from livestock farming. So far, more than 4,100 units have been installed across Mexico and Latin America, improving the lives of 24,600 people.

In 2017, SF supported Sistema.bio to expand their operations into Kenya and India, where 800 units have been sold to date.

M-KOPA provides low-income consumers in East Africa with financing to purchase solar energy products on a pay-as-you-go basis. M-KOPA acquired over 600,000 products to date, benefiting more than 3 million people. In 2017, it raised a new working capital facility of \$55 million with a consortium of commercial lenders that will help the company to reach 1 million more homes by 2020.

Tugende offers affordable finance to motorcycle taxi drivers in Uganda, most of whom have limited access to banking products and services. Tugende enables these drivers to buy vehicles and increase their earnings. The company also offers road safety training, safety equipment and insurance. In 2017, Tugende doubled its loan portfolio and revenue and has served more than 10,000 customers in seven locations. In total, Tugende has transferred \$2.6 million in funds to customers and improved their credit. Around a third of customers used their improved financial status to start new ventures or invest in existing businesses.

## Shell Foundation's six-step theory of change



## Shell Foundation's impact to date



# Working together

We collaborate with partners, contractors, suppliers, non-governmental organisations and other businesses around the world.

Together, we are achieving goals in operational excellence, best practice on sustainability challenges and improving standards within the energy sector.

## IN THIS CHAPTER

- 44** Living by our principles
- 45** Human rights
- 46** Contractors and suppliers
- 48** Our business partners
- 48** Environmental and social partners
- 51** Collaborations

## Living by our principles

Our core values of honesty, integrity and respect for people underpin our work with contractors, suppliers, non-governmental organisations and others.

### HIGHLIGHTS IN 2017

- We screened around 10 million potential trading partners against a range of watch lists to meet our requirements for anti-bribery and corruption, anti-money laundering and trade compliance.
- Internal investigations confirmed 261 substantiated Code of Conduct allegations. As a result, we dismissed or terminated the contracts of 73 employees, contract staff or contractor employees.
- Most of the Code of Conduct violations related to protection of assets, data privacy, conflicts of interest and harassment.

The [Shell General Business Principles](#) detail our responsibilities and set the standards for the way we conduct business. We aim to do business fairly, ethically and in accordance with all applicable laws.

All Shell employees and contract staff must follow our [Code of Conduct](#), which guides employees on how to apply the Shell General Business Principles in line with our core values. Employees and contract staff are also required to complete Code of Conduct training and to confirm they understand their personal responsibilities under the Code of Conduct. Contractors and consultants are also required to act consistently with the Code of Conduct when acting on our behalf.

Shell employees, contract staff and any third party can report any potential breaches of the Code of Conduct confidentially and anonymously through a variety of channels, including the [Global Helpline](#), which is operated by an independent provider.

### INVESTIGATING CODE BREACHES

Shell has specialists who investigate concerns or allegations about a breach of our Code of Conduct. If a violation is confirmed, we take appropriate action up to and including contract termination or dismissal. We maintain a stringent no retaliation policy to protect any person making a good faith allegation.

Internal investigations confirmed 261 substantiated Code of Conduct violations in 2017 compared with 341 in 2016. We dismissed or terminated the contracts of 73 employees, contract staff or contractor employees, compared with 114 in 2016.

## Shell global helpline statistics in 2017



**1007**

**ALLEGATIONS REPORTED**  
to the Shell Global Helpline



**202**

**DISCIPLINARY ACTIONS TAKEN**  
(including 73 contract terminations or dismissals)

### SCREENING FOR INTEGRITY AND COMPLIANCE

Various national and international laws prohibit business involvement with certain individuals, entities and organisations. Our anti-bribery and corruption and anti-money laundering and trade compliance programmes set out the requirements for screening business partners.

These checks provide an overview of the key risks and allow us to manage these risks appropriately. Using a risk-based approach, we screen potential business partners before and during the contractual relationship. In 2017, we carried out 7,243 enhanced pre-screenings for higher risk contracts. Additionally, Group counterparties (around 10 million) are screened on a continuous basis against a range of trade compliance, anti-bribery and corruption and anti-money laundering watch-lists.

### MANAGING ETHICAL RISK

In 2017, we launched a training programme for our 500 most senior leaders covering a range of ethical risks faced by the energy industry. The programme simulates realistic situations and requires leaders to make real-time decisions on which they receive instant feedback. Leaders are faced with risks covering bribery and corruption, money laundering, antitrust, data privacy and trade compliance.

## Human rights

We recognise our responsibility to respect human rights and our approach applies to all of our employees and contractors. It is informed by the Universal Declaration of Human Rights, the core conventions of the International Labour Organization, and the United Nations Guiding Principles on Business and Human Rights.

We have embedded human rights into our policies, business systems and processes. We believe this integrated approach allows us to efficiently and effectively manage human rights within our existing ways of working.

We focus on four areas where respect for human rights is particularly critical to the way we operate: labour rights, communities, supply chains and security. Our [Community Feedback Mechanism](#) and [Global Helpline](#) enable us to meet our commitment to provide access to remedy.

We consult with international organisations, companies and civil society to understand and respond to current and emerging human rights issues relevant to our business. For example, we collaborate with [The Danish Institute for Human Rights](#) to assess and improve our approach. We are members of the Business for Social Responsibility human rights working group which enables us to engage with companies across industries. We participate in IPIECA, the global oil and gas industry association for environmental and social issues, to share social performance good practice and guidance tools that can be used more widely. We actively adhere to the [Voluntary Principles on Security and Human Rights](#) and participate in FPIC Solutions Dialogue, hosted by the non-profit organisation [Resolve](#), to promote the practical implementation of [Free Prior and Informed Consent](#).

### Approach to human rights

#### Commitment to human rights

**Shell General Business Principles**

**Code of Conduct**

**Shell Supplier Principles**

#### Focus areas

##### Communities

We work with communities to understand their priorities and concerns. Managing our impact on communities is essential to being a responsible company.

##### Security

Shell aims to keep staff and facilities safe, while respecting the human rights and security of local communities

##### Labour rights

We respect the rights of our staff and suppliers by working in alignment with international conventions and guidelines.

##### Supply chains

The Shell Supplier Principles include expectations for contractors and suppliers concerning human rights.

#### Access to remedy

**Community Feedback Mechanisms**

**Shell Global Helpline and internal channels**

# Contractors and suppliers

Shell aims to work with contractors and suppliers that behave in an economically, environmentally and socially responsible way, as set out in our Shell General Business Principles. The Shell Supplier Principles cover our requirements for suppliers in business integrity, health and safety, social performance and labour and human rights.

In 2017, Shell spent \$42.2 billion on goods and services from 33,505 suppliers globally.

Suppliers who work to deliver Shell projects and help run our operations are invited to register with our supplier qualification system ([SQS](#)). Certain areas of our supply chain may pose a higher risk to labour rights due to their location and the nature of the goods and services we procure. In these cases, we use a defined set of criteria to identify potential supply chain risks and, where we see

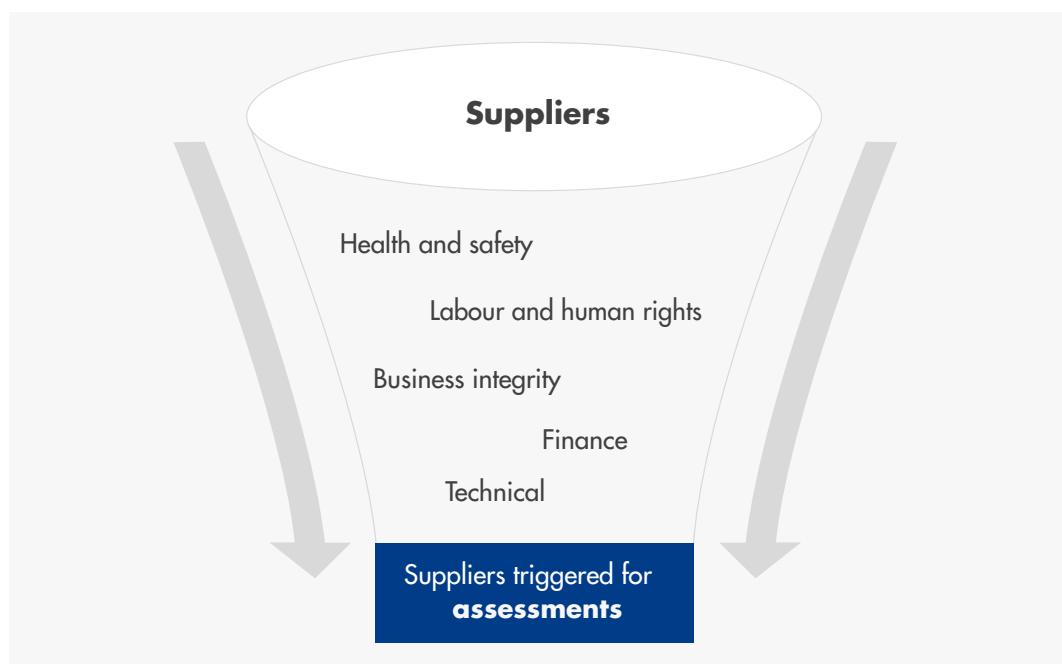
risk, we ask suppliers to undertake due diligence assessments prior to the award of a contract. We require our suppliers to declare whether they have a process in place to assess and manage social risks with their own suppliers.

If gaps are identified, we may work with suppliers and contractors to help them understand how to close these gaps, implement corrective action – which may include on-site audits from Shell – or we may consider terminating the contract.

This risk-based approach is shared in several external regulatory declarations that describe how we manage human rights risks in our supply chains, most recently in our statement under Section 54 of the UK Modern Slavery Act 2015.

## Applying risk filters

When we assess our suppliers, we use a combination of the type of work they do and the country in which the work will be delivered to identify suppliers we consider high risk for potential labour rights violations.



## Labour rights risk analysis 2017



## RESULTS AND WORKING WITH SUPPLIERS TO CLOSE GAPS

The results of our supplier assessments are summarised in a green/amber/red rating depending on the number and significance of any gaps between our requirements and the supplier's policies or performance.

We engage with each supplier that has serious gaps to ensure they have a correction plan. The most common gaps found during our supplier assessments, which typically relate to policy rather than performance gaps, are:

- freely chosen employment;
- child labour avoidance;
- working hours, wages and benefits;
- dormitory, housing and working conditions;
- humane treatment, equal opportunities and freedom of association; and
- supply chain and performance management.

## CONTRACTOR SAFETY LEADERSHIP

We share our safety experience and standards with other operators, contractors and professional organisations, including the International Association of Oil & Gas Producers (IOGP). For more details on how we helped raise industry standards in 2017, see the [Safety](#) section.

## SHELL Ariba PROCUREMENT: SHARP

We have adopted a new contracting and procurement platform to make it as easy and smooth as possible to do business with Shell. SAP Ariba, a market standard solution, has replaced some of our IT systems and will be known as Shell Ariba Procurement, or SHARP. It enables us to process procurement data more efficiently, reduce costs and track purchase orders and invoices in real time. For more details on ways Shell Ariba Procurement is improving our supply chain see [www.shell.com](http://www.shell.com)

SHARP also helps suppliers easily take part in online sourcing or tenders and provide their web catalogues for Shell employees wishing to place orders. This [video](#) gives a supplier's perspective on what it has meant to them to join SAP Ariba.

## CARE FOR PEOPLE

Good working and living conditions help to bring about a safer and more productive working environment. Our approach to worker welfare means supporting the needs of the individual worker, their relationship with their family and connections with colleagues. We aim to provide a home away from home for people by delivering a standard of accommodation and facilities that improves their quality of life and well-being, and as a result promotes safe and productive work.

In Shell contracts, suppliers agree to provide and maintain safe and healthy working conditions for all supplier personnel. In 2017, we ran a series of engagements with Shell procurement teams in higher-risk locations to raise awareness and improve understanding of contractor worker welfare. For some services in these locations, we also require contractors to develop a worker welfare plan that includes ethical recruitment practices and no use of forced labour. In our Singapore operations, for example, an opportunity was identified for our contractors to improve on-site and off-site welfare of workers, as well as clarify worker recruitment practices. An element of this included building awareness of worker welfare and the correlation to increased performance in safety, productivity, quality and retention with government and local industry bodies. Several changes have been made, including in on-site and off-site infrastructure, fatigue management, and transport, all done with a strong voice from the workers themselves.



We engage with each of our suppliers that have serious gaps in their policies or performance to ensure they have a correction plan.

# Our business partners

Shell often work in joint ventures with national and other international energy companies. Our business partners bring important skills and experience to a joint venture.

## NON-OPERATED VENTURES

More than half of Shell's joint ventures (JVs) are not operated by Shell. For these ventures, our Shell JV representatives and the Shell-appointed member(s) of the JV board require our partners to adopt the Shell commitment and policy on health, safety, security, environment and social performance (HSSE&SP) or one materially equivalent to our own. They are also required to put in place standards to adequately address HSSE&SP risks.

When these JVs implement our control framework, or a similar approach, Shell teams carry out independent audits or participate in the JV's own auditing programmes. This provides assurance on the JV's compliance. We also offer to review the effectiveness of the framework's implementation, overseen by the JV's board of directors.

We periodically evaluate the health, safety, environment and community risks of the JV. If the JV is falling below expectations, plans will be put in place, in agreement with the other partners, to improve performance.

In 2017, we connected 159 community liaison officers and experts in social performance in operated and non-operated ventures with contractors via a virtual platform. This network aims to share knowledge and discuss

challenges and holds regular teaching sessions focused on respectful engagement with communities close to our operations. This also enabled our business leaders to share their priorities and ensure contractors comply with standards of behaving in a socially responsible way.

We also continued to work with our partners on how to adopt the Shell greenhouse gas (GHG) and energy management process. For example, we supported Brunei Shell Petroleum (BSP, Shell interest 50%) to assess its GHG emissions to a reasonable level of assurance. We ran GHG and energy management workshops with other ventures such as Petroleum Development Oman (PDO, Shell interest 34%), Badr Petroleum Company in Egypt (Bapetco, Shell interest 50%) and Karachaganak Petroleum Operating B.V. (KPO, Shell interest 29%). These workshops helped to identify opportunities to improve their GHG emissions management.

An important part of our efforts to keep JV staff, contractors and communities safe is our focus on a culture of road safety. In 2017, PDO worked with the police and the Oman Road Safety Association to raise awareness about safe road behaviour. The initiative was launched in 2013 and has so far reached about 8,000 customers. In the city of Salalah, for example, the campaign focused on promoting safe driving habits, including respecting speed limits, not using mobile phones while driving and wearing seat belts at all times. The campaign featured in Shell service stations and at a police road safety exhibition with various interactive and educational activities.

# Environmental and social partners

Shell collaborates with environmental and developmental organisations to bring important insights to our work to protect the environment and contribute to the well-being of communities where we operate.

Our environmental partners can bring specific expertise to our projects in areas such as biodiversity and livelihoods, while at the same time advancing their own scientific or conservation knowledge by working on our projects.

Our social partners help us tackle a range of community or human rights topics. They help us address specific priorities such as boosting local employment and improving road safety.

## ENVIRONMENTAL PARTNERS OPERATING IN SENSITIVE LOCATIONS

We partner with major conservation organisations to understand how to protect areas that are rich in biodiversity known as critical habitats.

### Majnoon

The Majnoon marshlands form one of the world's largest inland delta systems. In 2016, the Mesopotamian marshes north of the Majnoon field were recognised as a UNESCO World Heritage Site. In 2017, we worked with environmental organisations Flora & Fauna International, Nature Iraq and Wetlands International to bring together experts in the field to develop a biodiversity monitoring plan for Majnoon. They considered the latest techniques and technologies that could be deployed to better monitor the risks to biodiversity in the region, including using satellite imagery, radar and DNA analysis. We also worked with the International Union for Conservation of Nature (IUCN) and 30 government officials in Basrah, southern Iraq, to share best practices in protected area management.

### Niger Delta

Based on recommendations from the IUCN Niger Delta panel, in 2017 Shell Petroleum Development Company of Nigeria Limited published a study on bioremediation of oil spills in Niger Delta soils. Bioremediation is a process that involves stimulating growth of microorganisms that help to degrade the pollutants. The study helped confirm the best remediation techniques to treat contaminated soil for the area in which we operate in Nigeria.

Working with the IUCN Niger Delta panel and regulators, we also developed a new framework for remediation of soil and groundwater. The framework is based on the latest science and best practice, taking into account the climate, land-use and how people live and work in the area. This framework will be tested in 2018. The collaboration has also led to a Niger Delta biodiversity strategy and a toolkit which provides guidance on restoring mangroves.

### Oman

In 2017, Shell Development Oman continued to support Wetlands International's bird survey at Barr Al Hikman wetlands, a globally significant wetland for more than 550,000 waterbirds. This initiative is helping to build scientific knowledge and understanding of the area. It supports Oman's plans for the initiative to be recognised under the Ramsar Convention, an international treaty for the conservation and sustainable use of wetlands.

## USA

In 2017, we worked with The Nature Conservancy to launch an online tool to monitor migratory species in the Gulf of Mexico and the Caribbean Sea, both areas where Shell has operations. The portal includes details on fish, sea turtles, mammals and birds to provide information on migration patterns and possible threats to the species. For more information, see the [Migratory Species Conservation Programme site](#).

## NATURE-BASED SOLUTIONS

We work with The Nature Conservancy to better understand how investing in natural climate solutions can help address the global climate challenge. This includes exploring how nature-based projects, such as large-scale reforestation, can reduce CO<sub>2</sub> levels in the atmosphere while improving the livelihoods of local communities and preserving biodiversity and wildlife. These projects can generate carbon credits which are used to compensate for emissions elsewhere as part of a 'biological bridge' to a lower carbon future.

## ENGAGING EMPLOYEES

We partner with Earthwatch through Project Better World, an employee volunteer scheme that enables Shell staff to make a meaningful contribution to global science and conservation. The programme also gives staff a more strategic and informed understanding of Shell's sustainability strategy and goals.

In 2017, 50 Shell employees from 12 countries took part in Earthwatch Expeditions to South Africa, the UK and the USA, which included a learning programme to hone their sustainability leadership skills. A further 50 staff took part in other Earthwatch Expeditions to Canada and India. Over the past 19 years, the programmes have contributed around 49,000 work hours to environmental research and we welcomed the [1,000<sup>th</sup> Shell participant](#) in 2017.

Through the Earth Skills Network programme, Earthwatch continues to help Shell build staff leadership skills by supporting them to adopt a mentoring role for IUCN or UNESCO protected areas. We have supported 51 protected areas since 2009, including six in 2017.

## PARTNERING FOR CONSERVATION

Over the past 20 years, we have funded around 270 projects with our conservation partners in the USA, including the National Fish and Wildlife Foundation, to support the protection, restoration and management of habitats in the Gulf of Mexico. This approach includes using wetlands, reefs, marshes and outer island barriers to reduce coastal erosion.

In 2017, we widened our focus. We joined the Killer Whale Research and Conservation Program, a public-private partnership to help the killer whale population recover in the Pacific Northwest. The programme awards grants to projects for improving food supply and the quality and management of habitats.

Read more about [Shell's environmental and community partners](#).

## **External voice: "We are helping companies build natural capital into their decision-making"**

Improving how businesses value, manage and account for their impacts on nature forged the first International Union for Conservation of Nature (IUCN)-Shell collaboration back in 1999. We have worked to improve Shell's biodiversity management and environmental performance and, in return, Shell has shared valuable insights with us on IUCN's business engagement tools.

Our collaboration is built on applying scientific evidence to improve conservation in the world of business. Together in 2017, we launched a pilot framework to help companies include natural capital in their decision-making.

IUCN and Shell don't always see eye-to-eye and we accept that sometimes our positions may differ. But with mutual trust and respect, these differences become a strength in working through challenges. Shell's support for IUCN-led independent, scientific and technical advisory panels, for example, has helped address contentious environmental issues in places such as the Niger Delta and the Russian Far East.



**Stewart Maginnis**

Global Director, Nature-based Solutions Group,  
International Union for Conservation of Nature

## SOCIAL PARTNERS

### RESPECT FOR HUMAN RIGHTS

We consult with international organisations, companies and civil society to understand and respond to current and emerging [human rights](#) issues relevant to our business. We have collaborated closely with The Danish Institute of Human Rights since 1999 to assess and improve our approach. In 2017, the institute developed an analysis to help us improve our transparency, advised us on industry benchmarking, and supported us to strengthen the application of internal metrics in some of our key areas.

### DISASTER RELIEF

We partner with [Mercy Corps](#) to meet urgent needs, help people to recover from crises and build stronger futures. For example, in 2017, we donated \$100,000 to Mercy Corps in response to the drought in the Lower Shabelle region of Somalia helping reach 1,950 households.

Mercy Corps' response, with Shell's support focused on three areas:

1. **Food:** distributing about two months of food rations to recently displaced people in the emergency camp in Baidoa and the worst affected villages of Lower Shabelle;
2. **Water:** providing 10,000 litres of safe, drinkable water twice a week for two months for displaced families and 10,000 litres of water for both human and livestock use to households in four villages in the Lower Shabelle region; and
3. **Hygiene:** promoting hygiene awareness for displaced people to reduce the risk of acute watery diarrhoea or cholera outbreaks.

In north-east Nigeria, with Shell's support, Mercy Corps provided emergency humanitarian relief to 1,000 vulnerable families in Dikwa, Borno State. This response included distributing kits containing essential household items and providing people with the skills, tools and seeds needed for basic agriculture and cultivation, to help them rebuild and become more resilient to future shocks and stresses.

### DIALOGUE WITH INDIGENOUS COMMUNITIES

In 2016, as part of our acquisition of BG, we entered into a partnership with RESOLVE, a non-profit organisation that founded the [Free Prior Informed Consent \(FPIC\)](#) Solutions Dialogue in 2012, and we are an active member of the FPIC Solutions Dialogue steering committee. This enables us to improve our approach to developing projects through better engagement with indigenous communities.

### DEVELOPING SKILLS AND ENTERPRISES

From 2012 to 2017, we provided funding for GroFin, a finance company and long-standing partner of Shell Foundation that invests in small- and medium-sized enterprises in the Middle East and North Africa, to launch

the Nomou job creation programme. Now active in Oman, Jordan, Iraq and Egypt, Nomou has invested around \$46 million, helping to sustain more than 12,000 jobs, 17% of which are held by women. This programme has created around \$120 million of additional economic value to date. 2017 was the last year Shell provided funding for GroFin.

In Tanzania and Kenya, we are supporting a programme called E4D/Employment and Skills for Eastern Africa with the German, British and Norwegian governments. The programme aims to improve access to jobs and economic opportunities for local people in natural resource-based industries and related sectors. By the end of 2017, the partnership raised more than 35 training programmes to industry standards and provided training for around 13,000 people. So far, 73% of the graduates have found a job.

### External voice: "Helping Shell conduct business responsibly"

The Danish Institute for Human Rights was one of the first human rights organisations to work in partnership with business. Our work with Shell goes way back. They contributed to the development of our human rights compliance assessment tool, which continues to be one of the most comprehensive tools for businesses to understand how their policies, procedures and performance align with over 80 international human rights instruments.

In recent years, we worked with Shell on research that is helping further strengthen human rights implementation in the company, explore new concepts, developments and opportunities for Shell to help it conduct its business in a responsible way. This includes respecting the rights of communities.



**Catherine Bloch Veiberg**

Danish Institute of Human Rights, Corporate Engagement Programme Manager, Denmark

# Collaborations

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Shell's work with organisations around the world gives us insight into our business, while the sharing of knowledge and experience with others contributes to better practices.

We define collaboration as all forms of working with organisations outside Shell. These collaborations range from working with organisations on a project to sponsoring a particular group. We collaborate with a variety of companies, academics, think tanks and individuals. We also play an active role in many trade organisations across the world on a wide range of topics.

As a member of IPIECA, the global oil and gas industry association for environmental and social issues, we discuss and share industry best practice on topics including *biodiversity*, *climate change* and *resettlement*.

Some of the views of the organisations with which we participate may differ from our own. For example, we may not always agree with their opinions on topics such as climate change. In these cases, we make our views known within the organisation and seek to influence its position on certain policies.

In June 2017, we joined the Global Industry Alliance, a public-private partnership of the International Maritime Organisation, which brings together maritime industry leaders to support the development of more energy-efficient and lower-carbon shipping.

We aim to reduce our methane emissions and are working with seven other energy companies to further reduce methane emissions from natural gas facilities around the world.

We have been engaging with the Task Force on Climate-related Financial Disclosures (TCFD) before and after its launch of financial disclosure recommendations in June 2017, which help investors to see which companies are resilient through the energy transition. As a member of the TCFD's Oil & Gas Preparer Forum, we are working with three other oil and gas companies to develop more specific guidance on meaningful disclosures building on existing good practices.

## Collaborations overview

The table shows some of the organisations we collaborate with globally on topics such as environmental sustainability, climate change and technology. Shell also works with many community-based organisations.

	Environmental sustainability	Human rights and social responsibility	Safety and technical standards	Technology and innovation	Transparency and governance
American Petroleum Institute (API)	■		■	■	■
Bonsucro	■	■			
Center for Sustainable Shale Development (CSSD)	■	■			
Danish Institute for Human Rights (DIHR)		■			
Energy Institute (EI)			■	■	
Energy Transitions Commission (ETC)	■				
Extractive Industries Transparency Initiative (EITI)					■
Global Alliance for Clean Cookstoves	■	■			
Global Gas Flaring Reduction Partnership (GGFR)	■				■
Global Road Safety Partnership (GRSP)			■		
International Association of Oil and Gas Producers (IOGP)	■	■	■	■	■
International Audit Protocol Consortium (IAPC)	■		■		
International Emissions Trading Association (IETA)	■				
IPIECA (industry association for environmental and social issues)	■	■	■		■
Network of Employers for Traffic Safety (NETS)			■		
Roundtable for Responsible Soy (RTRS)	■	■			
Roundtable on Sustainable Palm Oil (RSPO)	■	■			
UN Global Compact	■	■			■
Oil and Gas Climate Initiative (OGCI)	■				
World Business Council for Sustainable Development (WBCSD)	■	■	■		■

# Our performance and data

Each year, we measure our global performance and report on the safety of our operations, our impact on the environment and our contribution to communities.

## IN THIS CHAPTER

- 52** Environment
- 56** Emissions and flaring
- 59** Safety
- 64** Social performance
- 67** About our data
- 68** Environmental data
- 69** Social and safety data

## Environment

We carefully consider the potential environmental impact of our activities and how local communities might be affected during the lifetime of a project.

### HIGHLIGHTS IN 2017

- We started working with nature-based projects to compensate for greenhouse gas emissions while improving the livelihoods of local communities and preserving biodiversity.
- We recorded our lowest volume of operational spills.
- The Australian government approved a biodiversity offsetting plan from the Shell-operated QGC gas project.

We aim to comply with all applicable environmental regulations, continually improve our performance and prepare for future challenges and opportunities. We use external standards and guidelines, such as those developed by the World Bank and its International Finance Corporation, to inform our approach.

Our global environmental standards include requirements for managing our emissions, minimising our use of fresh water and conserving biodiversity. Within our operations, we also focus on reducing our energy use, flaring less gas and preventing spills and leaks.

When planning new projects, we carry out detailed assessments of the potential environmental, social and health impacts. These assessments help us manage and reduce impacts on the environment and communities during construction, operation and, when relevant, decommissioning.

As a member of the Natural Capital Coalition, we also continue to follow and contribute to work on the evolving concept of natural capital – the value of nature to people, society, businesses, and the economy. This helps us to better understand its potential applications.

Read more about [Shell and the environment](#).

### BIODIVERSITY

We seek to understand and respond to any potential impacts our activities may have on biodiversity or ecosystem services. This covers the benefits that people or businesses derive from ecosystems, such as food and clean water.

In our projects and operations, our primary aim is to avoid impacts on biodiversity and ecosystem services. Where avoidance is not possible we aim to minimise our impact. Where our operations have affected biodiversity and the communities who rely on biodiversity for their livelihoods, we take measures to help restore habitats or ecosystems. We look for opportunities to make a positive contribution to biodiversity conservation in the communities where we operate.

To help us improve our environmental performance, including protecting biodiversity, we work with scientific and conservation organisations around the world. For example, at our [Stones deep-water project in the Gulf of Mexico](#), we share deep-water data with marine scientists.

We develop biodiversity action plans when operating in areas that are rich in biodiversity, known as critical habitats, to assess and mitigate our impact on local biodiversity and dependent communities.

## BIODIVERSITY IN AUSTRALIA

In 2017, the Australian government approved a biodiversity offsetting plan from the Shell-operated QGC gas project which included protecting an area with a rich ecosystem.

QGC had acquired the Valkyrie property in 2015 as a biodiversity offset to compensate for clearing vegetation and habitat for the development of gas resources. It is located next to the Dipperu National Park and contains large areas of eucalyptus woodlands, endangered brigalow woodlands, semi-evergreen vine thickets, riparian vegetation and wetlands.



The Valkyrie property provides a refuge for fauna. It will help to regenerate endangered ecosystems and can be used for nature-based carbon storage and ecological research.

## WATER

The availability of fresh water is a growing challenge in some parts of the world. Increasing demand for water resources, growing community expectations, and water-related legislation might affect our ability to secure access to fresh water and to discharge water from our operations.

We design and operate our facilities to help reduce their fresh water use. We manage our water use carefully, and we tailor our use of fresh water to local conditions because water constraints affect people at the local or regional level.

In water-scarce areas, we develop water management plans for our facilities. These plans describe the long-term risks to water availability and define measures to minimise our use of fresh water or recommend alternatives to fresh water, such as recycled water, processed sewage water and desalinated water.

We work together with organisations, such as the World Business Council for Sustainable Development (WBCSD) and IPIECA, the global oil and gas industry association for environmental and social performance. For example, we contributed to WBCSD's publication and case studies on circular water management, published in 2017.



We manage our water use carefully, and we tailor our use of fresh water to local conditions because water constraints affect people at the local or regional level.

## WATER RECYCLING IN TEXAS

Shell has taken steps to improve water recycling in one area of the [Permian shale asset](#) in west Texas, USA. Previously, we transported groundwater used for hydraulic fracturing through a 21 kilometre pipeline due to limited local water supply in this area. Since late 2016, we have replaced about 40% (or around 0.37 million m<sup>3</sup>) of this water by recycling produced water near a new development area. Permian now reuses produced water sourced from three saltwater disposal facilities.

## WATER MANAGEMENT

We develop technologies to treat, reuse and recycle water from our operations so that we can manage our water footprint in a responsible way while meeting environmental standards.

Where appropriate, we look for ways to treat water from our operations using natural solutions such as constructed wetlands. At our research and technology centre in Doha, Qatar, we run a pilot programme to evaluate the effectiveness of constructed wetlands in removing various chemical components found in the gas field waste water. Tests over the past two years have shown the technology is feasible and we are now testing other waste-water streams for treatment.

At the Petroleum Development Oman (PDO, Shell interest 34%) joint venture operations in the Omani desert, the [Nimr reed beds](#) are used to naturally clean the water that is extracted alongside oil production. PDO is also investigating the potential of using some of the water to irrigate crops that are tolerant to high levels of dissolved salt.

Read about our fresh water use in 2017 in the [Environmental performance section](#).

Read more about [Shell](#) and water.

## MANAGING WASTE

We aim to reduce the amount of waste we generate and to reuse or recycle materials, wherever possible. For example, in 2017, seven of our downstream manufacturing sites sent more than 50% of their waste generated during the year for recycling or reuse. Of these seven, four sites sent more than 80% of their waste for recycling and reuse.

We determine if waste is hazardous to ensure it is managed properly. In Tunisia, we addressed a

long-standing challenge to responsibly dispose of a significant volume of solid sulphur waste that we had stored on site due to the lack of disposal facilities for this waste in North Africa that met international standards. After studying potential disposal options, we transferred the solid sulphur to an international standard disposal facility in Norway for final disposal.

Read more about [Shell and managing waste](#)

## RECYCLING MANUFACTURING WASTE IN THE USA

In Michigan, USA, where we make catalysts for refineries and chemical plants, we now recycle waste from the manufacturing site by sending it to a local company for use in the production of cement. We previously sent the waste to a landfill but it now forms

a component to make clinker, an ingredient in the process of making Portland cement. The initiative has significantly reduced our volume of waste and reduced costs.

## SOIL AND GROUNDWATER

We assess and carefully manage the risks of potential soil and groundwater contamination. We also conduct scientific research on the risks of contamination from petroleum activities and share our findings with government agencies to support the development of environmental guidelines.

In China, for example, local and national environmental regulations are emerging in response to rapid urbanisation and the government's aim to return significant portions of contaminated land to productive use. In 2017, we shared our expertise in managing land contaminated by oil and gas activity to help Chinese regulators and research institutes develop comprehensive sustainable, risk-based approaches.

## PRODUCT STEWARDSHIP

Product stewardship at Shell means protecting employees, customers, communities and the environment from potential hazards caused by our products when they are manufactured and used.

We work to understand and communicate the potential health, safety and environmental impacts of the products Shell makes to ensure they are managed responsibly throughout their life cycle, from production to final disposal or reuse.

We ensure this by:

- checking the safety of all our products and assessing their potential harmful effects;
- assessing how suitable the products are for each market;
- communicating the hazards and risks of our products; and
- complying with applicable regulations.

Before we decide to sell a product in a new market, we assess the risks of using it in a new way, and the applicable regulatory requirements. This enables us to manage the risks posed by a product, and even to selectively choose whether to participate in certain market end-uses based on those risks.

We communicate the potential hazards associated with products through product labelling and safety data sheets. These documents explain how to safely manage the products.

We also monitor changing regulations in countries where we manufacture, sell or import products.

Here you can access our [safety data sheets](#).

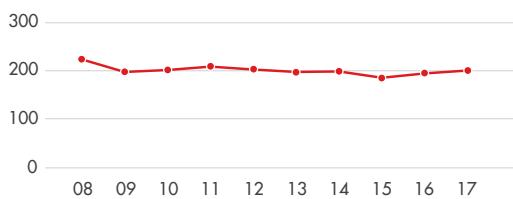
You can also read more about our product stewardship, as well as understand our commitment to animal welfare in relation to product safety testing in our [annual reports](#).

## ENVIRONMENTAL PERFORMANCE

We improved or maintained our environmental performance across many business areas during 2017. This was due to operational improvements as well as reduced activities at some of our facilities and divestments. Details about our environmental performance are provided below and in the [Greenhouse gas emissions](#), [Managing methane emissions](#) and [Flaring](#) sections.

### Fresh water withdrawn

million cubic metres

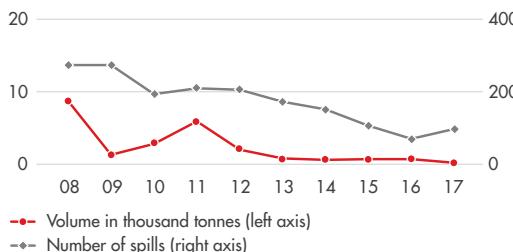


### SPILLS

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

The volume of operational spills of oil and oil products in 2017 was 0.3 thousand tonnes, a decrease of around 60% from 2016. The number of operational spills increased to 99 from 72 in 2016. We have programmes in place to improve the long-term trend for the number of operational spills (See 10-year data table).

### Spills – operational [A]



[A] Over 100 kilograms.

### ENERGY EFFICIENCY

Improving the energy efficiency of the facilities we operate is one of the ways we manage our greenhouse gas (GHG) emissions. The main metric is energy intensity, the amount of energy consumed for every unit of output.

Shell-operated facilities and proposed projects that generate more than 50,000 tonnes of GHG emissions a year are required to produce a GHG and energy management plan with annual updates.

These plans must include the sources of GHG emissions, as well as a forecast of expected emissions at the site for

## MANAGING WATER USE

In 2017, our intake of fresh water was 201 million cubic metres, about the same as 2016. Around 80% of our fresh water consumption was used for manufacturing oil products and chemicals, with the balance mainly consumed in oil and gas production. Around 40% of fresh-water intake was from public utilities such as municipal water supplies.

### Fresh water consumed

million cubic metres

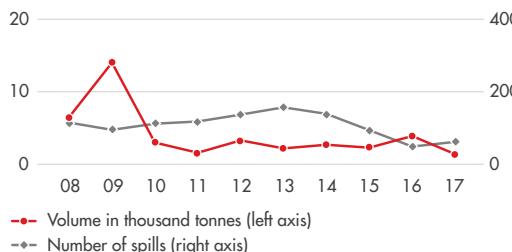


The number of spills caused by sabotage and theft increased to 62 from 49 in 2016. The volume of these spills decreased to 1.4 thousand tonnes in 2017 from 3.9 thousand tonnes in 2016. Sabotage and oil theft remained a significant cause of spills in the [Niger Delta](#), [Nigeria](#).

In 2017, we also recorded four spills of 0.3 thousand tonnes in total caused by the hurricane Harvey in the USA.

We investigate and learn from all spills to improve our performance and we clean up the areas around our operations that are affected by spills, irrespective of the cause. As of the end of March 2018, there were 3 spills under investigation in Nigeria that may result in adjustments to our figures.

### Spills – sabotage [A]



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

at least 10 years, and must identify options for improving energy efficiency or reducing emissions.

Some of the ways Shell improved energy efficiency include making our equipment more reliable through regular maintenance, by smart scheduling of maintenance activities or by installing more energy-efficient equipment.

The overall energy intensity index of our chemical plants and refineries in 2017 was similar to the year before: our chemical plants improved to 88.2 in 2017, from 91.0 in 2016 and our refineries improved to 94.8 in 2017 from 95.4 in 2016.

### Energy intensity – chemical plants

chemicals energy index [A]



[A] CEI calculation methodology changed in 2015; therefore, data for prior years are not directly comparable.

### Energy intensity – refineries

refinery energy index [A]



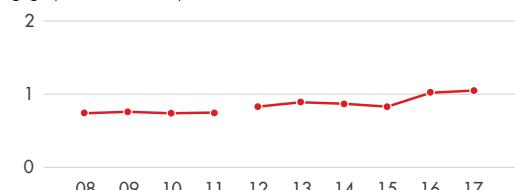
[A] Indexed to 2002; based on 2006 Solomon EIITM methodology.

We aim to achieve superior energy-efficiency performance at our 17 operated refineries and chemicals plants and each site has a CO<sub>2</sub> and energy-management plan. We invest in combined heat and power units and implement heat integration and waste gas recovery systems. We exchange steam turbine drives with electrical motors and replace end-of-life equipment with higherefficiency types. We have incorporated top-quartile energy-efficiency technology into the design of our new-build chemicals plant in Pennsylvania, USA.

In 2017, the overall energy intensity for the production of oil and gas in our Upstream and Integrated Gas businesses (excluding liquefied natural gas and gas-to-liquids) increased slightly compared with 2016, mainly due to lower production from the NAM joint venture (Shell interest 50%) in the Netherlands. We expect it will be difficult to maintain the energy intensity levels of recent years, as existing fields age and new production comes from more energy-intensive sources. This may increase our upstream energy intensity over time.

### Energy intensity – upstream

(excluding Oil Sands, GTL and LNG)  
gigajoules/tonne production [A]



[A] 2012-2015 data are reported in accordance with IPIECA/API/OGP guidance 2010.

### OTHER AIR EMISSIONS

We track emissions released into the atmosphere from our upstream and downstream facilities and work to reduce air pollution from our operations. This includes making investments to lower our emissions of nitrogen oxides, sulphur oxides and volatile organic compounds that are released during oil and gas production and processing. These pollutants can affect air quality in the areas where we operate. We evaluate and take action to mitigate potential adverse impacts of our emissions.

Our sulphur oxides emissions in 2017 remained relatively flat at 81 thousand tonnes compared with the previous year (83 thousand). A decrease in emissions due to divestment of Port Dickson refinery in Malaysia in 2016 was offset by higher emissions from the Bukom site in Singapore.

Our nitrogen oxides emissions decreased from 122 thousand tonnes in 2016 to 107 thousand tonnes in 2017. The decrease was mainly due to the change in oil sands mining reporting boundary and changes in calculation methodologies at some of our facilities (for example in Australia to align with regulatory methodologies).

Our emissions of volatile organic compounds (VOCs) decreased to 95 thousand tonnes in 2017 compared with 146 thousand tonnes in 2016. This was mostly due to a decrease of venting at our facilities in Majnoon, Iraq. We expect our VOC emissions to further decrease in the coming years as a result of our efforts to reduce flaring and venting.

## Emissions and flaring

We track emissions released by our facilities and work to reduce air pollution from our operations. We have technologies and work practices in place to help find and address unintended emissions in our operations and we also implement reduction programmes.

### GREENHOUSE GAS EMISSIONS

Shell tracks emissions released by our upstream and downstream facilities and works to reduce air pollution from our operations.

We report our greenhouse gas (GHG) emissions in line with the recommendations of the Intergovernmental Panel on Climate Change. Shell's Health, Safety, Security, Environment and Social Performance (HSSE&SP) Control Framework defines standards and accountabilities at each

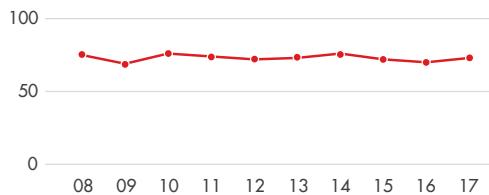
level of the organisation, and sets out the procedures people are required to follow. For example, our environmental standards include the requirement that all Shell-operated facilities that generate more than 50,000 tonnes of GHG emissions have GHG and energy management plans.

### OUR PERFORMANCE

Our direct GHG emissions increased from 70 million tonnes carbon dioxide (CO<sub>2</sub>-equivalent) in 2016 to 73 million tonnes CO<sub>2</sub>-equivalent in 2017. Our 2016 base year GHG emissions did not change by more than 5% in 2017 and therefore the base year has not been recalculated.

## Direct greenhouse gas emissions

million tonnes CO<sub>2</sub> equivalent



The main reasons for the overall increase in our GHG emissions were the inclusion in our data from May 2017 of the facility previously operated by the Motiva joint venture in the USA and the return to production of previously shut-down units at the Bukom site in Singapore. These increases were partly offset by *divestments* (for example in Canada, Gabon, Malaysia and the UK) and reduced production at our Pearl gas-to-liquids (GTL) plant in Qatar.

In 2017, around 50% of our direct GHG emissions came from our refineries and chemical plants. The production of oil, gas and GTL products accounted for around 45% of our GHG emissions, and our shipping activities accounted for around 2%. We continue to work on improving operational performance and *energy efficiency* to manage GHG emissions.

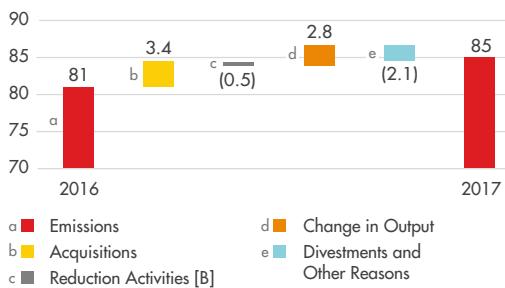
The indirect GHG emissions associated with the generation of the energy we purchased (from electricity, heat and steam) were 12 million tonnes on a CO<sub>2</sub> equivalent basis in 2017 compared with 11 million tonnes CO<sub>2</sub> equivalent in 2016. The increase is mainly due to the inclusion of former Motiva refineries and a rise in production at our QGC facilities in Australia. These emissions were calculated using a market-based approach, as defined by the World Resources Institute GHG Protocol.

We estimate that the CO<sub>2</sub> emissions from the use of our refinery and natural gas products by others were around 579 million tonnes in 2017, which represents less than 2% of the world's emissions.

(See more on [www.shell.com/ghg](http://www.shell.com/ghg))

## GHG movements from 2016 to 2017 [A]

million tonnes CO<sub>2</sub> equivalent



[A] Direct and energy indirect greenhouse gas emissions. Numbers have been rounded so some totals may not agree exactly.

[B] Does not include 1 million tonnes of CO<sub>2</sub> captured and sequestered by our Quest CCS project in Canada in 2017.

## MANAGING METHANE EMISSIONS

Methane is a more potent GHG than CO<sub>2</sub>. It has 34 times the global warming potential of CO<sub>2</sub> over a 100-year time frame, according to the UN Intergovernmental Panel on Climate Change Fifth Assessment Report.

We have a range of technologies and work practices in place to help find and address unintended – or fugitive – methane emissions in our operations. We also implement energy-efficiency measures, as well as flaring and venting reduction programmes. Our *Methane Fact Sheet* provides a comprehensive account of our voluntary initiatives to reduce methane emissions. Actions to further reduce our emissions will continue to be a focus in coming years.

## HIGHLIGHTS IN 2017

- We joined the Oil and Gas Methane Partnership, a global voluntary methane emissions reduction programme under the Climate and Clean Air Coalition.
- We launched our latest methane detector pilot at our oil and gas exploration asset in Alberta, Canada.
- Shell and seven energy companies agreed to guiding principles to further reduce methane emissions from their natural gas assets.

In our onshore unconventional operations, we regularly use leak detection and repair (LDAR) programmes, which have infrared cameras to help identify fugitive leaks. We use LDAR in Australia, Canada, the Netherlands, Trinidad and Tobago, Tunisia and the USA, among others, and will continue to extend this approach across our operations.

## COLLABORATING ON EMISSIONS REDUCTION

In January 2017, we joined the *Climate and Clean Air Coalition Oil & Gas Methane Partnership*, which brings together industry, governments and non-governmental organisations to improve understanding of methane emissions and work to reduce them. Later in the year, we submitted a detailed plan of our operations that will initially participate in the partnership.

As a member of the Oil and Gas Climate Initiative (OGCI), we are working with experts to improve methane data collection and our understanding of the natural gas life cycle. Shell is working with governments, the oil and gas sector and regulators, to manage methane emissions effectively. We advocate government policies that will support the reduction of methane emissions across all sectors of the economy.

In October 2017, OGCI members committed to a range of measures including establishing a methodology to improve the collection, verification and reporting of methane emission data in 2018. We actively test new technologies in this area through our membership of OGCI Climate Investments. This collaboration, launched in 2016, will invest \$1 billion over 10 years in low-carbon technologies.

Shell is working with industry, as well as international institutions, non-governmental organisations and academia, to make progress on improving methane management. In November 2017, Shell and seven energy companies signed [guiding principles for reducing methane emissions](#) across the natural gas value chain, from production to the final consumer.

In December 2017, Shell joined the Environmental Partnership in the USA, which requires companies to apply voluntary methane reduction measures in areas such as leak detection and the repair, replacement or upgrade of equipment. The partnership was developed by American Petroleum Institute (API) and includes 25 of its members – companies that account for around a quarter of gas production in the USA. Non-API members can also sign up to the partnership.

We have participated in the [EPA Natural Gas STAR](#) programme for many years. This programme encourages oil and gas companies to adopt technologies and practices that reduce methane emissions.

We also collaborate on research with Eurogas, the association representing the European gas industry, and the Natural and bio Gas Vehicle Association, on methane emissions in the gas supply chain in Europe.

#### **Rocky Mountain House pilot**

In June 2017, Shell launched a [methane detector pilot](#) at our Rocky Mountain House project in Canada. The pilot is part of the Methane Detectors Challenge, which is a collaboration between the Environmental Defense Fund, oil and gas companies, US-based technology developers and other experts.

#### **OUR PERFORMANCE**

In 2017, our total methane emissions were 123 thousand tonnes. Methane emissions contributed less than 5% of Shell's GHG emissions on a CO<sub>2</sub>-equivalent basis. More than 60% of our reported methane emissions in 2017 came from flaring and venting in our upstream and midstream operations.

We report our methane emissions in accordance with applicable regulations and industry standards. We also engage in industry-wide work on developing more accurate reporting methods, such as through IPIECA, the global oil and gas industry association for environmental and social issues.



We have installed methane detection technology at our unconventional gas project near Rocky Mountain House, Canada.

#### **FLARING**

The flaring of natural gas wastes valuable resources and contributes to climate change. We are working hard to reduce flaring associated with oil and gas production.

When oil is extracted from a reservoir, gas is also produced as the oil is brought to the surface. This is known as associated gas. This gas can be captured and used alongside the oil. When there are no facilities to gather the gas, or they have insufficient capacity, it is sometimes flared, or burned off. Flaring is also carried out for safety reasons to relieve pressure in the production system.

Shell's policy is to reduce any routine flaring or venting of associated gas at our operations to a level as low as technically and economically feasible. We also aim to minimise operational flaring required for safety reasons such as during the start-up of a new facility. Our flaring policy is set out in our Health, Safety, Security, Environment and Social Performance (HSSE&SP) Control Framework. It includes the requirement that all facilities must be designed to export, use or reinject associated gas and that all facilities have to meet strict performance criteria.

Shell has been an active member of the World Bank-sponsored Global Gas Flaring Reduction partnership since 2002. This public-private partnership helps reduce flaring by working collaboratively to find alternative uses for gas that would otherwise be flared. As part of the partnership, the World Bank has developed the Zero Routine Flaring by 2030 initiative, which Shell signed in 2015. This encourages governments, companies and development organisations to work together to end flaring. The initiative aims to identify ways to use gas from oil production – for example, to generate electricity for local communities.

#### **OUR PERFORMANCE**

Flaring of gas in our Upstream and Integrated Gas businesses contributed around 11% of our overall direct GHG emissions in 2017. Almost half of this flaring took place at facilities where there was no infrastructure to capture the associated gas.

Close to 80% of flaring from Shell-operated assets in 2017 occurred in Iraq, Nigeria, Malaysia and Qatar. Our flaring increased by slightly less than 10% from 7.6 million tonnes in 2016 to 8.2 million tonnes in 2017. This was primarily a result of increased production in Nigeria following the return to production of fields previously closed due to security issues. Work continues to bring additional gas gathering facilities online in Nigeria to reach our goal of no routine flaring by 2030.

In Iraq, the Majnoon facilities (Shell interest 45%) captured about 44% of associated gas that otherwise would have been flared in 2017. The gas was exported to a local power plant for electricity generation.

Basrah Gas Company (BGC, Shell interest 44%) is a non-operated joint venture with Iraq's South Gas Company and Japan's Mitsubishi. It captures gas that would otherwise be flared from three non-Shell-operated oil fields in southern Iraq (Rumaila, West Qurna 1 and Zubair) for use in the domestic market. In 2017, BGC processed an average of 676 million standard cubic feet of gas each day from these fields to produce electricity.

These projects are helping to improve the power infrastructure of the country and deliver much-needed energy to the population. They involve collaboration with the Iraqi government, joint-venture partners, domestic companies and non-governmental organisations.

## Safety

We work to deliver energy responsibly and safely, while looking after our employees, contractors, local communities and the environment. We strive to help improve safety performance throughout the energy industry.

### HIGHLIGHTS IN 2017

- Following work by a Shell led task force, the International Association of Oil & Gas Producers published recommended practices for addressing safety risks at fabrication sites, which have now been adopted for all Shell projects.

### Malaysia

In Malaysia, associated gas flaring at the Gumasut (Shell interest 29%) and Kikeh fields was eliminated by introducing a system in 2016 that injects gas back into the hydrocarbon reservoir. In 2017, the system worked as expected and production from the oil field was maximised.

### Qatar

In Qatar, at our Pearl gas-to-liquids plant (Shell interest 100%), flaring takes place for operational reasons. In 2017, further enhancements to the plant were made to reuse more waste gas. (See [Natural gas](#)).

### Flaring – upstream

million tonnes CO<sub>2</sub> equivalent [A]



[A] includes Upstream and Integrated Gas

We work to build a strong safety culture and leadership within Shell. Our Goal Zero ambition is to achieve no harm and no leaks across our operations. To accomplish this, we focus on the three highest-risk areas of safety in our activities: personal, process and transport.

Employees and contractors, wherever they work, must meet our safety standards and requirements, including following our 12 Life-Saving Rules. We strive to reduce risks as far as is technically and financially feasible, and to minimise the potential impact of any incident. These standards also apply to any joint ventures we operate. We work with our contractors to ensure they understand our safety requirements and we help them build skills and expertise to improve their safety performance where needed.

We investigate all incidents and aim to learn from them. Since 2014, around 100,000 employees and contractors have taken part in learning sessions. The sessions focus on how an incident with a potential safety risk could have been prevented and teach participants how to apply the lessons learned in their line of work.

Read more about [Shell and safety](#)

### PERSONAL SAFETY

Everyone who works for us, or with us, has an important part to play in making Shell a safer place. We aim for a safety culture that goes beyond compliance to one where people feel listened to and cared for and comfortable raising concerns.

We run an annual safety day that gives our employees and contractors the opportunity to learn how they can manage the safety hazards in their work and share ideas with each other. Conversations in 2017 focused on the three themes of care, dilemmas and avoiding becoming complacent about everyday risks.

### PROCESS SAFETY

Process safety management is about keeping our hazardous substances in pipes, tanks and vessels so they do not cause harm to people or the environment. It starts with designing and building projects and is implemented throughout the life cycle of these facilities to ensure they are operated safely, well-maintained and regularly inspected.

Read about our [process safety](#) performance in 2017.

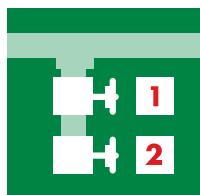
## PROCESS SAFETY FUNDAMENTALS

In 2017, we launched a set of fundamental rules for process safety tasks to enable employees to prevent the release of hazardous materials. These rules help us carry out tasks that are critical for operating safely.

They are based on the process safety operating practices rolled out across our manufacturing business in 2016. By the end of 2017, the number of process safety events related to operational integrity in this business fell by around 30%.

### 10 process safety fundamentals

Always use two barriers for hydrocarbon and chemical drains and vents



Do not leave an open drain or critical transfer unattended



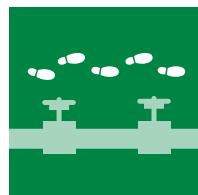
Take interim mitigating measures in case of failure of Safety Critical Equipment



For all defined high-risk activities, follow the procedures and sign off after each step



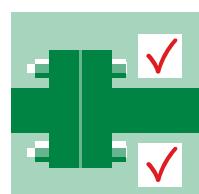
Walk the Line – Verify and validate any line up change



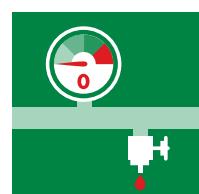
Do not make a change without a proper Management of Change



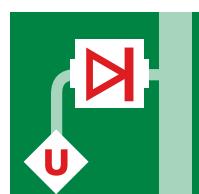
Verify for complete tightness after maintenance work



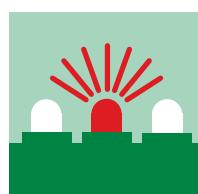
Always check that equipment is pressure free and drained, and provides safe isolation before starting maintenance work



Perform Management of Change and install backflow protection when connecting utilities to process



Respond to critical alarms



## TRANSPORT SAFETY

Moving large numbers of people, products and equipment by road, rail, sea and air brings safety risks with it. We work closely with specialist contractors and industry bodies to reduce risks.

We have taken proactive steps to improve safety in shipping, for example, working with our global shipping and maritime partners on a programme to improve the quality and consistency of their safety management and on tools to help learn from incidents. In 2017, we carried out around 400 vessel visits to engage mariners on safety and to understand how to implement the programme better in future.

Road traffic accidents claim around 1.25 million lives every year, according to the World Health Organization. Shell employees and contractors drive a combined distance of around 650 million km each year in more than 70 countries. We run road safety programmes, such as our mandatory defensive driving course, which teaches safe techniques and behaviour.

We require everyone driving more than 7,500 km a year on company business and those who drive in high-risk countries to take the in-vehicle defensive driving course. In 2017, 2,900 people completed the course.

Outside our operations, we also work to improve road safety in several communities and countries where we operate.

Our performance indicators report on personal and process safety in line with industry standards. Outside our reporting scope and therefore not reflected in these indicators is a devastating road-tanker incident that occurred in Pakistan in June 2017. A tanker, operated by a contractor, was transporting fuel from the Shell Pakistan Limited oil terminal in Karachi to Vehari when it overturned in the central Punjab province resulting in a fuel spill. Following the accident, people from a nearby village approached the site to collect the fuel spilling from the tanker. Tragically, the fuel ignited and more than 200 people died and more were injured. Shell Pakistan Limited is implementing a long-term relief plan for those impacted.

Read about our transport safety performance.

## ROAD SAFETY IN MYANMAR

In Myanmar, Shell helped launch a road safety campaign in 2017 to educate drivers and the communities along the Yangon-Naypyidaw highway, a road known for its high accident rate. We ran this in partnership with the Myanmar Red Cross Society and the Global Road Safety Partnership.

The programme also teaches children and adults about safe road use, as many drive motorbikes or are pedestrians along the high-speed expressway. More than 6,000 people participated in the workshops in 11 villages. We also launched a nationwide online awareness campaign.

## ROAD SAFETY IN THE PERMIAN BASIN

We have taken proactive steps to improve road safety around the Permian Basin, in Texas, USA, where we have significant shale acreage. Rising oil and gas production activity in recent years has led to increased traffic and more serious accidents and fatalities. In 2015, around 200 people were killed in road accidents in 15 counties, accounting for around 33% of all fatalities reported in Texas.

In June 2015, Shell led the formation of the multi-stakeholder Permian Road Safety Coalition. The coalition has worked to improve road infrastructure and best practice on road safety for oil and gas companies operating in the area. It has also called for funding from local and state governments and rolled out an annual public education and awareness campaign. In 2016, 118 people were killed in road traffic accidents across the 15 counties.

## EMERGENCY PREPAREDNESS AND RESPONSE

We make sure that we have the necessary resources to deal with spills, leaks, fires and explosions. We regularly test our oil-spill and emergency response procedures and capability to ensure employees and contractors can respond rapidly to an incident.

In 2017, we trained around 2,000 employees in six large-scale exercises to test different response scenarios to potential oil spills at refineries, offshore wells and vessels. All the exercises involve our emergency response contractors and the local authorities. One simulation exercise in The Hague, the Netherlands, for example, focused on a large marine oil spill. Part of the emergency response for the 200 trainees involved mobilising *deep water* equipment to cap the leaking well and then collect the oil in a vessel.

During drilling operations, we gather and analyse information about wells to better understand the geology of the area. Pressure and temperature sensors track conditions in real time so that we can immediately detect any changes. Shell-operated drilling activities are monitored from a global network of onshore operating centres which allows oversight and timely technical support.

### **Internal voice: "We pooled the industry's best technology and ideas to improve well safety"**

The Subsea Well Response Project is a unique group of nine oil and gas companies that came together following the BP Macondo incident in 2010 to prevent any occurrence of this kind happening again. It has pooled the best technologies, ideas and plans from all the companies involved. In 2017, we saw the culmination of these efforts with the delivery of a new set of containment hardware called Offset Installation Equipment.

One of the challenges we faced was that as a group of nine companies, we were not all aligned on how much effort would be required. We broke the process down into smaller steps, first agreeing to invest in capping stacks, which created time and space to work on the feasibility for a containment solution that could be supported by all the companies. As containment reached its investment decision, we continued working in parallel to mature a solution to cap shallow water wells: the Offset Installation Equipment.

I am very proud of what the project achieved, but there is still a significant responsibility on everyone involved to use this equipment properly to prevent future incidents.



**Arne Kolle**

Subsea Well Response Finance Manager, Stavanger,  
Norway

## HURRICANE HARVEY EMERGENCY RESPONSE

In August 2017, Hurricane Harvey forced Shell to safely shut down the Shell Deer Park manufacturing complex, shut in deep water Gulf of Mexico facilities and temporarily close the Houston lubricants plant. Many pipelines were down or had reduced feeds and several facilities in the region suffered supply issues. It was critical to get Shell facilities safely back online and to supply our customers.

We sent response teams to remote locations to provide much-needed support to staff and residents in the region. Among several other contributions made by Shell and staff, we donated \$1 million to the Hurricane Harvey disaster relief fund of the American Red Cross and provided office space for people involved in the response.

## RAISING INDUSTRY STANDARDS

We share our safety experience and standards with other operators, contractors and professional organisations, including the International Association of Oil & Gas Producers (IOGP).

In 2017, IOGP published recommended practices for addressing safety risks at fabrication sites. Shell led the task force within the IOGP which developed these recommended practices and is now working on a set of enabling activities and a resource library to support their implementation. From June 2017, we adopted recommended practices at all Shell projects.

In 2017, together with several South Korean shipyards, we developed a set of common safety practices that are being implemented at all fabrication yards in the country.

Shell's Prelude floating liquified natural gas facility and the Appomattox hull, our deep-water development in the Gulf of Mexico, were both built in South Korea.

## APPOMATTOX

The Appomattox development is a cornerstone of our global deep-water strategy. The hull was completed and arrived in Texas, USA in 2017. Construction of the host platform and fabrication of undersea infrastructure is now under way and Appomattox is on track for first oil by the end of the decade.

Appomattox is one of Shell's first major projects to implement construction site safety standards, a predecessor to the IOGP's recommended safety practices for fabrication site construction. These standards are being applied by all of Appomattox's major fabrication and installation contractors. They address key construction safety hazards such as dropped objects, working at height, lifting and hoisting, and confined space entry. They also provide a framework of activities for health, safety, security and environment leadership, care for the workforce, training, and upfront planning.



The Appomattox project hull is prepared for its journey from Geoje, South Korea to Ingleside, Texas, USA, to complete the semi-submersible host platform's construction.

Shell will also deploy an advanced well-capping stack for Appomattox, allowing us to quickly shut-down operations in the unlikely event of a spill.

## WORKING WITH OUR CONTRACTORS

We work with our contractors to ensure they understand our safety requirements and together we build skills and expertise to improve safety performance.

Since 2014, executives from Shell have partnered with chief executive officers of major contractor partners to identify strategies and practical steps to improve the safety culture and achieve our Goal Zero ambition of no harm and no leaks, including driving standardisation together. The initiative now includes 18 contracting companies.

## SHARING OUR RESILIENCE PROGRAMME

Resilience is about working through difficult experiences and having the ability to bounce back quickly.

Our contractor partners Subsea 7 and Heerema Marine Contractors, together with four other engineering and construction firms, have developed a series of training videos on resilience for offshore crews based on Shell's resilience programme. The

International Marine Contractors Association is now adopting the approach and making it available to all contractor members from 2018.

Our programme improves not only employee resilience, but employee engagement as well. Shell data show a correlation between engagement and safety performance: a 1% increase in engagement can result in a 4% improvement in safety performance.

## SECURITY

Managing security risks is part of our effort to protect our staff, contractors, nearby communities and the environment.

In line with our goal of no harm to people, we carefully assess the security threats and risks to our operations. We work with governments and partners to safeguard our facilities and projects and provide a secure working environment for our employees and contractors. Shell only uses armed security in countries where the threats are most severe, or if it is a requirement under local laws.

## SECURITY AND HUMAN RIGHTS

We continuously work to maintain the safety, security and *human rights* of our employees, contract staff, and local communities. The Voluntary Principles on Security and Human Rights (VPSHR) are implemented across Shell operations where there are identified threats of infraction. Shell continues to play an active role in the Voluntary Principles Initiative (VPI), and in 2017 was the chair of the Corporate Pillar, and a member of the steering committee, working with other partners on the initiative to advance security and human rights implementation.

As part of our internal implementation efforts, we include VPHSR clauses in our private security contracts and raise the principles in our engagements with public security forces. We carry out annual risk assessments and develop plans to manage the identified risks. In Tunisia, for example, we trained private security providers on VPSHR and human rights. In *Nigeria*, we continued to work with a third-party human rights institute to deliver human rights training to our operational teams. For more details on our implementation, please see our [VPSHR report](#).

## SAFETY PERFORMANCE

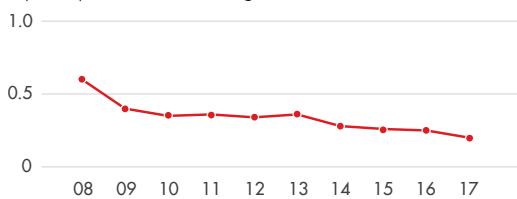
### PERSONAL SAFETY

In 2017, following steady and significant improvements in our safety performance over the past decade, the number of injuries per million working hours – the total recordable case frequency – further improved compared with 2016 and was the lowest ever. We also achieved our lowest ever level of injuries that led to time off work in 2017, measured as lost time injury frequency.

Our fatal accident rate – the number of fatalities per 100 million working hours – decreased in 2017 to the lowest ever level, but we still need to do more in this area. Regrettably, two people lost their lives while working for Shell in 2017.

### Lost time injury frequency (LTIF)

injuries per million working hours



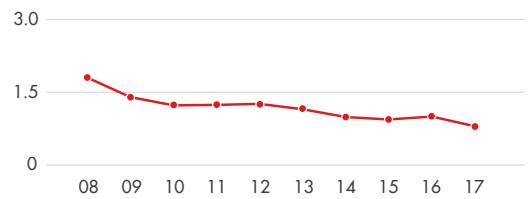
### Fatal accident rate (FAR)

fatalities per 100 million working hours



### Total recordable case frequency (TRCF)

injuries per million working hours



### Process safety

In line with industry standards, we measure and report according to the significance of the incidents, with Tier 1 as the most significant. In 2017, our process safety performance deteriorated. The number of Tier 1 and 2 operational process safety events increased from 146 to 166, of which 49 were Tier 1 and 117 were Tier 2.

In 2017, the most significant operational incidents were fires at our Enchilada offshore platform in the USA and Pulau Bukom manufacturing site in Singapore. All businesses are working hard to return to the positive trend of previous years.

Process safety events related to sabotage and theft in Nigeria are recorded separately. There was an improvement during 2017 with fewer incidents: 9 Tier 1 and 0 Tier 2 events, compared to 20 Tier 1 and 0 Tier 2 in 2016.

### Transport and road safety

We sadly recorded one road fatality in 2017, when one of our contractors was fatally injured in an accident while driving between sites in the Gold Creek area in Canada.

# Social performance

Social Performance plays a key role in delivering Shell's business strategy at the community level. Building strong relationships with people, understanding their priorities and concerns and managing our impact on them are essential to being a responsible company.

## HIGHLIGHTS IN 2017

- We made significant progress towards completing the resettlement of families in the village of Berezovka in Kazakhstan.

- We registered archaeological finds with the Iraqi government in our role as the operator of the Majnoon oil and gas field, a site of rich cultural heritage.

Our projects and operations can impact our neighbours. Our social performance team, working with environmental specialists, assesses and manages the impact of Shell's business to ensure that work is carried out in a responsible way. The team also contributes to building skills in the communities where we operate by supporting education and training programmes, and by encouraging the development of local businesses.

We apply local laws and the principles of international law in our work. Shell's Control Framework uses international standards as benchmark, such as those set out by the International Finance Corporation.

We assess and manage the potential social impact of our projects as part of integrated environmental, social and health [impact assessments](#). Our engagement is essential to identifying how we might impact people and to helping us design and apply impact monitoring and mitigation measures.

In Alberta, Canada, at the Shell Scotford complex, we consult local people who may be affected by our activities and find ways to address their specific issues. For example, in 2017 the Scotford team discussed with a local farmer how to minimise unwanted snow melt and rainwater that were running off a Shell well pad at our [carbon capture facility](#). These discussions led to a project that will divert the water and ensure the landowner's crops do not get water-logged.

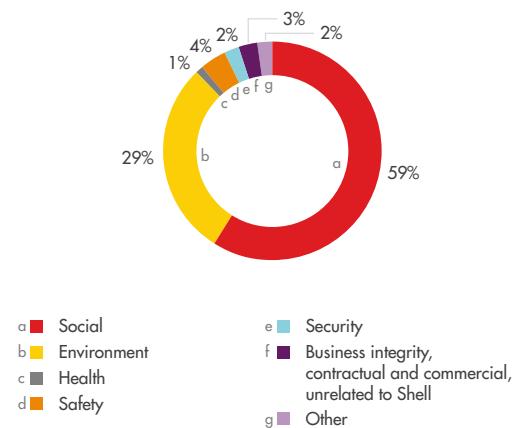
At the end of a project's life cycle, we take great care with decommissioning. In 2017, after we decided to exit the [Jinqui tight](#) gas exploration project in Sichuan province, China, we worked closely with local farmers to ensure that drill sites were restored to productive arable use, and we used recycled project materials to pave a local road and build irrigation systems for eight communities.

## COMMUNITY FEEDBACK IN 2017

Shell's network of around 100 community liaison officers act as a bridge between the local community and the project or asset. We have implemented community feedback mechanisms at all of our operations and projects to receive, track and respond to questions and complaints from community members. This enables us to capture and resolve concerns quickly in a transparent way, and to track our performance.

## Types of complaints received in 2017

Split by category



Several of our exploration locations off the coast of Colombia include Afro-descendants and Wayuu and Arahuacos indigenous groups whose main livelihood is fishing using traditional methods. We identified them as vulnerable communities and recognised that we could impact their way of life or that they could impact our operations.

We have worked to better understand the cultural norms and socio-economic needs of the region, with three Shell employees staying with communities over the last five years.

The fishermen and women reported that they often lost colleagues at sea or were frequently injured in fishing trips. Together, we evaluated the causes and frequency of the accidents and identified ways to improve safety and prevent the most serious incidents. We also provided the communities with equipment, including GPS navigation, boats and motors. Overall, 800 people were involved in the programme. You can read more about our work with these communities on [www.shell.com](http://www.shell.com).

## Social complaints received in 2017

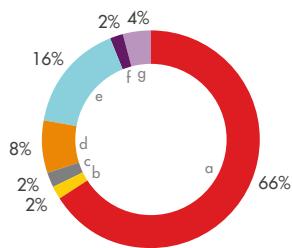
Split by category



- a ■ Benefits and local content
- b ■ Land, livelihood and property
- c ■ Other impacts
- d ■ Stakeholder engagement

## Environmental complaints received in 2017

Split by category



- a ■ Nuisance
- b ■ Flaring
- c ■ Soil or water contamination
- d ■ Water quality or quantity
- e ■ Spill
- f ■ Air quality
- g ■ Ecosystem, habitat, biodiversity or natural amenity

## RESETTLEMENT

Our operations sometimes require temporary or permanent access to areas of land or sea where people are living or working. Where resettlement is unavoidable, we work with local communities to help them relocate and maintain, or improve, their standard of living. If necessary, we help support them as they establish alternative livelihoods.

As a result of the BG acquisition, Shell became joint operator of Karachaganak Petroleum Operating BV (KPO, Shell interest 29.25%) in Kazakhstan. In 2015, the government approved an expansion of the safety perimeter around the Karachaganak field, which required two villages to relocate. Led by the regional government and funded by KPO, around 464 families from these villages were resettled in line with international best practice.

In late 2015, the first 82 families were successfully resettled. The second phase of resettlement was nearly completed by the end of 2017 and we are working with the government to ensure that the remaining 382 families in the village of Berezovka have comparable or better housing and that their livelihoods are restored. Read more about the [resettlement and the positive impact it has had on local residents' lives](#).



We are working to ensure that resettled families in the village of Berezovka, Kazakhstan, have comparable or better housing and that their livelihoods are restored.

## INDIGENOUS PEOPLES

Our activities in certain parts of the world affect indigenous peoples who hold specific rights for the protection of their cultures, traditional ways of life and special connections to land and water.

Our approach is to continue seeking the support and agreement of indigenous peoples potentially affected by our projects. We do this through mutually agreed, transparent and culturally appropriate consultation and impact management processes. In 2016, Shell developed a public position statement on Free Prior Informed Consent (FPIC), which is based on a pre-requisite to engage in dialogue with local indigenous communities and come to a joint agreement on the way forward in project development. In 2017, we shared outcomes from our involvement with FPIC with the industry through IPIECA, the global oil and gas industry association for environmental and social issues, which enables us to refine how we apply FPIC in our operations.

In Bolivia, the government requires that a percentage of capital investment in the hydrocarbon sector be applied for the social benefit of indigenous and farming communities holding collective land rights. To fulfil this requirement, Shell implemented three social investment programmes after engaging with more than 50 local communities during a 2016 seismic campaign. These programmes involved bee keeping; improving fruit and vegetable production; and building a marketing platform for the communities' agricultural products. In 2017, the Bolivian national oil and gas company recognised Shell's programme as best practice.

We entered the second phase of exploration in the country, drilling the Jaguar exploration well in 2017. Building on the same methodology, together Shell and the local Weenhayek communities decided that the required social investment funds would be used to sustainably increase local agricultural production in communal lands surrounding the well for the duration of the project.

## CULTURAL HERITAGE

Cultural heritage can be tangible, such as treasured artefacts, or intangible, such as language and traditions. Our specialists work to preserve cultural heritage near our operations.

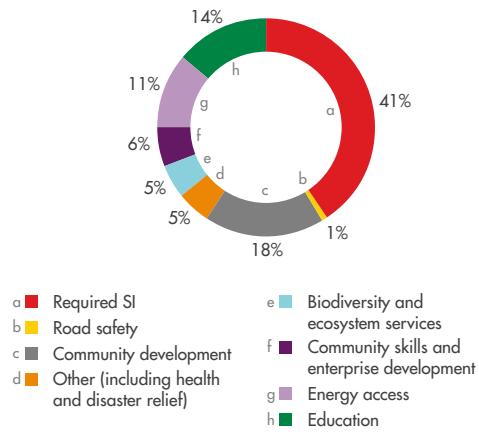
In 2017, Shell was the operator of the Majnoon oil and gas field in Iraq, a site of rich cultural heritage due to its proximity to the area widely held to be the cradle of civilisation. Shell formally registered archaeological finds with the Ministry of Antiquities and handed over the artefacts to the Basrah Museum in 2017, leaving a positive legacy of valuable archaeological data and management practices. You can read more about our work to protect Majnoon's heritage on [www.shell.com](http://www.shell.com).

## SOCIAL INVESTMENT

We invest in community projects to help people to benefit from social and economic development. This investment is sometimes voluntary and sometimes required by governments, or as part of a contractual agreement. The intent of our social investment programmes is to benefit both Shell as well as society or the environment. Areas on which social investment programmes are focused are determined by local community needs and priorities.

### Social investment in 2017

proportion of spend



We aim to deliver business growth and have a positive impact on people. To help us achieve this we have three global social investment themes:

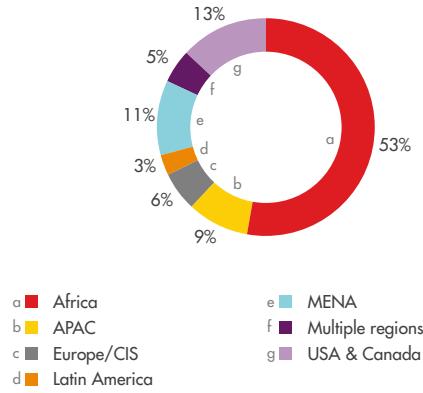
- **access to energy;**
- **science technology engineering and mathematics (STEM) education; and**
- **community skills and enterprise development.**

In 2017, we spent \$189 million on social investment of which 41% was required by government regulations or contractual agreements. We spent \$111 million on voluntary social investment, of which around \$57 million was in line with our global themes. The remaining \$54 million was spent on local programmes for community development, disaster relief, education, road safety, health and biodiversity.

Almost \$107 million of our total social investment spend in 2017 was in countries that are part of the United Nations Development Programme's Human Development Index 2016. These countries have a gross domestic product of less than \$15,000 a year per person. Significant support is also provided in the form of voluntary work by Shell employees and equipment donations.

### Social investment in 2017

split by region



# About our data

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We began reporting voluntarily on our environmental, safety and social performance with the first Shell Report in 1997. We support transparency and share information and data in this report and on our company website.

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

We provide all non-financial data in this report on a 100% basis for companies and joint ventures where we are the operator. Environmental data pertain to our direct operations 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. We refer to the number of people employed or contracted on a "full-time equivalent" basis.

Operations acquired or divested during 2017 are included only for the period in which we operated these assets. Other data are collected from external sources, staff surveys and other internal sources as indicated.

We only include data in this report that were confirmed by the end of March 2018. 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.

## ASSURANCE

We have clear standards and reporting requirements for our health, safety, security, environment and social performance (HSSE&SP) data.

Shell facilities are required to comply with these standards, which define management roles and responsibilities, the scope of data at facilities and how data are calculated and collected. These standards are part of our HSSE&SP Control Framework.

To ensure we provide accurate information, our data assurance process of HSSE&SP data is also a key element of the HSSE&SP Control Framework. The process flows from the facility all the way up to central group level. Some examples of what is controlled through this process are:

- self-assessments at the facility level;
- internal audits at all levels of the company;
- quarterly reviews and assessments of the data at all levels;
- an annual series of meetings between leaders at the group level and senior business managers to discuss outcomes and reporting parameters; and
- a formal sign-off by Shell's senior country leaders

The Report Review Panel of independent experts helps to 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 (GHG) data for 2017. Limited assurance means nothing has come to the auditor's attention that would indicate that the GHG data and information as presented in the GHG Assertion were not materially correct.

The assurance statements are available at [shell.com](http://shell.com).

Conversions into US and Canadian dollars are based on the average exchange rates for 2017.

## Environmental data

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Greenhouse gas emissions (GHGs)</b>										
Direct total GHGs (million tonnes CO <sub>2</sub> equivalent) [A]	73	70	72	76	73	72	74	76	69	75
Carbon dioxide (CO <sub>2</sub> ) (million tonnes)	70	67	68	73	71	69	71	72	66	72
Methane (CH <sub>4</sub> ) (thousand tonnes)[B]	123	138	132	126	120	93	133	128	127	126
Nitrous oxide (N <sub>2</sub> O) (thousand tonnes)	1	1	1	1	1	1	1	2	2	2
Hydrofluorocarbons (HFCs) (tonnes)	23	21	18	16	17	23	22	23	25	23
Energy indirect total GHGs (million tonnes CO <sub>2</sub> equivalent) [C]	12	11	9	10	10	9	10	9	9	n/c
<b>Flaring</b>										
Flaring (Upstream) (million tonnes CO <sub>2</sub> equivalent) [D]	8.2	7.6	11.8	13.0	7.4	7.7	10.0	10.4	7.8	8.8
Flaring (Upstream) (million tonnes hydrocarbon flared) [D]	2.5	2.3	3.5	3.8	2.1	2.3	3.4	3.6	2.6	2.8
Nigeria [E]	0.8	0.5	0.9	1.3	1.1	1.5	2.0	2.4	1.9	2.3
Rest of the world [E]	1.7	1.8	2.6	2.5	1.0	0.8	1.4	1.2	0.7	0.5
<b>Energy intensity</b>										
Upstream excl. oil sands, LNG and GTL (gigajoules per tonne production) [D], [F]	1.05	1.02	0.83	0.87	0.89	0.83	0.75	0.74	0.76	0.74
Refineries: Refinery Energy Index [G]	94.8	95.4	95.4	94.9	95.6	98.4	100.8	101.8	102.2	98.9
Chemical plants: Chemicals Energy Index	88.2	91.0	91.6	90.3	89.8	91.7	90.8	89.3	92.0	93.0
<b>Acid gases and VOCs</b>										
Sulphur oxides (SO <sub>x</sub> ) (thousand tonnes SO <sub>2</sub> )	81	83	88	97	99	113	136	139	141	175
Nitrogen oxides (NO <sub>x</sub> ) (thousand tonnes NO <sub>2</sub> )	107	122	104	146	156	147	146	159	142	150
Volatile organic compounds (VOCs) (thousand tonnes)	95	146	125	151	89	89	129	147	126	130
<b>Ozone-depleting emissions</b>										
CFCs/halons/trichloroethane (tonnes)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.4
Hydrochlorofluorocarbons (HCFCs) (tonnes)	7	8	8	6	8	8	12	21	24	26
<b>Spills and discharges [H] [I] [J]</b>										
Sabotage spills – volume (thousand tonnes) [K]	1.4	3.9	2.3	2.7	2.2	3.3	1.6	3.0	14.0	6.5
Sabotage spills – number [K]	62	49	95	139	157	137	118	112	95	115
Operational spills – volume (thousand tonnes)	0.3	0.8	0.8	0.7	0.9	2.1	6.0	2.9	1.4	8.8
Nigeria [L]	0.1	0.3	0.2	0.3	0.4	0.2	5.3	0.7	0.3	7.1
Rest of the world	0.2	0.5	0.7	0.4	0.5	1.9	0.7	2.2	1.1	1.7
Operational spills – number	99	72	108	153	174	207	211	195	275	275
Nigeria [M]	9	8	16	38	31	37	64	32	37	42
Rest of the world	90	64	92	115	143	170	147	163	238	233
Hurricane spills – volume (thousand tonnes) [N]	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil in effluents to surface environment (thousand tonnes) [O]	1.2	1.0	1.0	0.9	1.0	1.0	1.3	1.6	1.5	1.7
<b>Water</b>										
Fresh water withdrawn (million cubic metres)	201	195	186	199	198	203	209	202	198	224
Fresh water consumed (million cubic metres)	150	152	141	165	n/c	n/c	n/c	n/c	n/c	n/c
<b>Waste disposal</b>										
Hazardous (thousand tonnes)	638	658	455	529	770	820	740	1,048	962	688
Non-hazardous (thousand tonnes)	1,382	1,491	1,680	1,674	2,065	2,295	1,850	1,079	1,139	996
Total waste (thousand tonnes) [P]	2,202	2,148	2,135	2,203	2,835	3,115	2,590	2,127	2,101	1,684

[A] Greenhouse gas emissions (GHG) comprise carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride. 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 (IP/IECA/API/IOGP) indicate that several sources of uncertainty can contribute to the overall uncertainty of a corporate emissions inventory. 2015-2017 emissions are calculated using Global Warming Potential factors from the IPCC's Fourth Assessment Report. Data for prior years were calculated using Global Warming Potential factors from the IPCC's Second Assessment Report.

[B] We have updated our 2015/2016 figures following review of data.

[C] These emissions were calculated using the market-based approach in line with the GHG Protocol Corporate Accounting and Reporting Standard.

[D] The term upstream in this context includes assets and activities from our Upstream, Integrated Gas and Oil Sands operations.

[E] Nigeria includes SPDC onshore operations (0.6 million tonnes flared in 2017) and SNEPCo offshore operations (0.1 million tonnes flared in 2017). Flaring from the Majnoon field in Iraq and from Malaysia amounted to 0.9 and 0.1 million tonnes of hydrocarbons respectively in 2017. Due to the rounding of numbers, flaring volumes for Nigeria and the rest of the world might not add up to the exact total volume of flaring.

[F] Since 2012, data are prepared in accordance with IP/IECA/API/IOGP guidance 2010. Data for prior years are not directly comparable.

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

[H] All spill volumes and numbers are for spills over 100 kilograms. Due to the rounding of numbers, spill volumes for Nigeria and the rest of the world might not add up to the exact total volume of spills.

[I] As of the end of March 2018, there were 3 spills under investigation in Nigeria that may result in adjustments.

[J] Spills data for 2016 have been updated for Nigeria following completion of investigations.

[K] All sabotage- and theft-related spills have occurred in Nigeria except in 2016 (one spill of 0.001 thousand tonnes) and 2015 (one spill of 0.005 thousand tonnes).

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

[M] Nigeria includes SPDC onshore operations (8 operational spills in 2017) and SNEPCo offshore operations (1 operational spill in 2017).

[N] 2017 data reflect 4 spills caused by Hurricane Harvey in the USA.

[O] We have updated our 2016 figures following review of data.

[P] In 2017, we sent waste off-site for recycling or reuse, or sold close to 600 thousand tonnes of material that would otherwise have been disposed of as waste.

n/c = not calculated.

## Social and safety data

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Fatalities [A]</b>										
Total number	2	3	7	5	5	8	6	12	20	26
Employees	0	0	1	3	0	3	1	0	1	2
Contractors	2	3	6	2	5	5	5	12	19	24
Fatal accident rate (FAR)	0.4	0.53	1.11	0.74	0.79	1.32	0.96	1.56	2.3	3.4
Fatalities per 100 million working hours (employees and contractors)										
<b>Injuries and process safety incidents [A]</b>										
Total recordable case frequency (TRCF)	0.8	1.0	0.9	1.0	1.2	1.3	1.2	1.2	1.4	1.8
Injuries per million working hours (employees and contractors)										
Lost time injury frequency (LTIF)	0.2	0.25	0.26	0.28	0.36	0.34	0.36	0.35	0.4	0.6
Lost time injuries per million working hours (employees and contractors)										
Operational process safety events										
Tier 1 [B]	49	39	51	57	65	91	n/c	n/c	n/c	n/c
Tier 2 [B]	117	107	169	194	246	308	n/c	n/c	n/c	n/c
<b>Illnesses</b>										
Total recordable occupational illness frequency (TROI)	0.30	0.40	0.60	0.96	0.77	0.51	0.66	0.76	0.6	1.2
Illnesses per million working hours (employees only)										
<b>Security</b>										
Using armed security (% of countries)	14	17	19	24	19	17	14	9	17	17
Using armed company security (% of countries)	1	1	1	1	3	0	1	1	1	1
Using armed contractor security (% of countries)	3	7	8	10	8	10	9	6	10	9
<b>Gender diversity [C]</b>										
In supervisory/professional positions (% women)	29.1	28.0	28.0	29.0	28.8	28.1	27.3	26.3	26.4	24.7
In management positions (% women)	22.3	21.0	20.0	21.0	18.8	18.2	17.6	17.0	16.1	15.3
In senior leadership positions (% women)	22.2	20.0	19.0	18.2	17.2	16.2	16.6	15.3	14.0	13.6
<b>Staff forums and grievance procedures</b>										
% countries with staff access to staff forum, grievance procedure or other support system	100	100	100	100	100	100	99	100	99	100
<b>Child labour (% countries with procedures in place)</b>										
Own operations	100	100	100	100	100	100	100	99	98	100
Contractors	100	100	100	100	100	100	97	96	97	99
Suppliers										
<b>Forced labour (% countries with procedures in place)</b>										
Own operations	100	100	100	100	100	100	100	99	98	n/c
Contractors and suppliers	100	100	100	100	100	100	97	95	89	n/c
<b>Integrity</b>										
Code of Conduct violations [D]	261	341	217	267	181	209	226	205	165	204
<b>Contracting and procurement</b>										
Estimated expenditure on goods and services in lower-income countries (\$ billion) [E] [F]	4.9	4.4	6	14	12	14	12	13	12	12
<b>Social investment [G]</b>										
Estimated voluntary social investment (equity share) (\$ million) [S]	111	103	122	160	159	149	125	121	132	148
Estimated social investment spend (equity share) in lower-income countries (\$ million) [H]	107	96	43	73	74	67	45	61	54	61

[A] In line with industry standards, we distinguish three contract modes. Mode 1: contractor/supplier performs work under Shell's HSSE Management System (HSSE MS); Mode 2: contractor/supplier performs work under its own HSSE MS, which is materially equivalent to the Shell's HSSE MS; Mode 3: contractor/supplier performs work under its own HSSE MS. Also in line with industry standards, we report on safety performance only for contract modes 1 and 2.

[B] Process safety events are classified based on guidance from the IOGP and API. In 2017, there were 9 Tier 1 and 0 Tier 2 sabotage-related events.

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

[D] Code of Conduct violations represent the number of reported incidents in the Shell Global Helpline (excluding queries or customer service queries), which have been investigated and closed during the relevant period and where the allegation was found to be (at least partially) true.

[E] Estimated expenditure in countries where gross domestic product amounts to less than \$15,000 per year per person (source: UNDP Human Development Index 2015). In 2015, the UNDP index update no longer includes some of the countries in which Shell invests, which impacts on our reported spend amount.

[F] From 2013 onwards, this figure only includes the amount spent on goods and services by Shell group companies.

[G] 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.

[H] 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 2016).

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

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

n/c = not calculated.

## Definition and Cautionary note

Divestments is a measure used to monitor the progress of our divestment programme. This measure comprises proceeds from sale of property, plant and equipment and businesses, joint ventures and associates, and other Integrated Gas, Upstream and Downstream investments, reported within "Cash flow from investing activities (CFFI)" in the Consolidated Statement of Cash Flows, adjusted onto an accruals basis and for any share consideration received or contingent consideration recognised upon the related divestment, as well as proceeds from the sale of interests in entities while retaining control (for example, proceeds from sale of interest in Shell Midstream Partners, L.P.), which are included within "Change in non-controlling interest" in "Cash flow from financing activities (CFFF)".

The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate legal entities. In this report, "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 Royal Dutch Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. "Subsidiaries", "Shell subsidiaries" and "Shell companies" as used in this publication refer to entities over which Royal Dutch Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as "joint ventures" and "joint operations" respectively. Entities over which Shell has significant influence but neither control nor joint control are referred to as "associates". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

We also refer to "Shell's net carbon footprint" in this report. This includes Shell's carbon emissions from the production of our energy products, our suppliers' carbon emissions in supplying energy for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions but, to support society in achieving the Paris Agreement goals, we aim to help and influence such suppliers and consumers to likewise lower theirs. The use of the terminology "Shell's net carbon footprint" is for convenience only and not intended to suggest these emissions are those of Shell or its subsidiaries.

This report contains forward-looking statements (within the meaning of the US Private Securities Litigation Reform Act of 1995) 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 "aim", "ambition", "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 report, 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. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this report 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 Form 20-F for the year ended December 31, 2017 (available at [www.shell.com/investor](http://www.shell.com/investor) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this report and should be considered by the reader. Each forward-looking statement speaks only as of the date of this report, April 9, 2018. 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 report.

We may have used certain terms, such as resources, in this report that the 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](http://www.sec.gov).

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