Sustainability Report 2016

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1. Overview

1.1. Introduction from our group chief executive

[To be included in January pack]

1.2. Our key issues

We report on the issues which matter most to our stakeholders and our business.

We engage

We talk to our stakeholders – the many individuals and organizations who are affected in some way by BP's activities – throughout the year.

Contractors, suppliers and partners
Customers
Employees
Governments and regulators
Industry peers
Non-governmental organizations
Shareholders and analysts

We listen

Our stakeholders often have differing concerns and priorities. Some groups are interested in how we are responding to the climate change, while others expressed interest in the value we create in the societies where we operate. Some questions were clearly of high interest across stakeholder groups such as:

How is BP's Energy Outlook integrated into your strategy?
Are you looking to increase your renewables portfolio?
How do you maintain priority on safety in a low cost environment?
How do you assign accountability for sustainability risks in BP?
What are you doing to reduce methane emissions?
How does your strategy change in water-stressed areas?
How are you managing human rights risks in your supply chain?

We assess

Issues are prioritized according to how important they are to our stakeholders and how they could impact BP's ability to deliver its strategy. We validate the issue prioritization with external stakeholders and our board committee responsible for sustainability-related issues.

We report

We select the issues to include in our reporting based on their materiality – if they are rated as either medium or high in terms of stakeholder concern and business impact, we include them.

In addition to addressing the themes frequently raised across stakeholder groups, we have made a change to the structure of our report – organizing it according to our top six material issues. This is to enable or stakeholders to find the issues that matter most to them more easily.

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Our top six issues for 2016 are:

Managing risks and impacts page [xx]
Our framework for managing sustainability risks from local operations to the board, and our approach to maintaining a diverse and ethical workplace.

Taking action on climate change page [xx]
How our view of the energy outlook to 2035 feeds in to our strategy in a lower carbon world, along with the actions we are taking to address the climate challenge.

Focusing on safe operations page [xx]
What we are doing to keep our people safe in a low-cost oil price environment, including how we prepare for emergency events.

Managing local impacts to the environment page [xx]
How we tailor our approach to managing water, air quality and sensitive areas to meet local conditions.

Respecting human rights page [xx]
What we are doing to assess and manage human rights risks in our business and our supply chain.

Maximizing value to society page [xx]
The measures we take to enable the communities where we operate to benefit from our presence.

[Box text]
View our five-year performance data and our key performance indicators on page xx.
See what we do, from finding oil and gas through to marketing fuels and products, on page xx.

1.3. BP at a glance
[To be included in January pack]

1.4. BP around the world
[To be included in January pack]

1.5. Our performance
[To be included in January pack]

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2. Managing our risks and impacts

The global nature of our business exposes us to a range of geopolitical developments. External market conditions can also have an impact with low oil prices leading to reductions in our workforce, capital expenditure and operating costs. While supply and demand are moving towards a better balance, we will continue to manage our risks proactively, so that we can deliver energy safely and sustainably.

What we are doing

→ Assessing our risks: we analyse risks across our business so that we can protect the welfare of our workforce, the environment and local communities.

→ Managing our environmental and social impacts: we apply our internal standards to different stages of the life of an operation to maintain responsible practices throughout.

→ Providing an open and ethical environment: we clarify the principles and expectations of how we work at BP in our code of conduct.

→ Developing a skilled and capable workforce: we are simplifying the way we work while retaining the capabilities we need to operate safely and efficiently.

2.1. Governance of sustainability issues

[Content to be included in draft 2 including graphic]

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2.2. Assessing our risk

We work in a high-hazard industry and risk management is key.

In order to deliver energy to the world safely and sustainably, we must identify and proactively manage risks of many forms, from the strategic and commercial, to the operational.

Strategic and commercial risk

We look at strategic and commercial risks across the group, for example climate change, geopolitical risk and BP's financial resilience.

Public policies relating to climate change and carbon pricing could increase costs and reduce future revenue and strategic growth opportunities for BP. We are working to help make sure our business is sustainable – commercially, environmentally and in a lower-carbon future.[1]

The nature of our business means BP is exposed to a range of political developments around the world and subsequent changes to the operating and regulatory environment. We seek to manage this risk through our relationships with governments and stakeholders. In addition, we closely monitor events and implement risk mitigation plans where appropriate.[2]

External market conditions can impact our financial performance. We actively manage this risk through BP's diversified portfolio, our financial framework, regular reviews of market conditions and our planning and investment processes.[3]

See *bp.com/annualreport* for more information on our risk management.

Operational risk

We prioritize the safety and reliability of our operations to protect the welfare of our workforce, local communities and the environment.

The three lines of defence

Our operating businesses are our first line of defence. They are responsible for identifying and managing risks and bringing together people with the right skills and competencies to do this. They verify their own conformance with safety and operating requirements and are also subject to independent scrutiny and assurance.

The second line of defence is our safety and operational risk team, which works alongside operating businesses to set clear requirements; maintains an independent view of operating risk; provides assurance on how risks are being assessed and managed; and intervenes when appropriate to bring about corrective action.

Our group audit team is the third line of defence, visiting sites on a risk-prioritized basis, including third-party drilling rigs, to check how they are managing risks.

BP's operating management system

Our operating management system (OMS) is a group-wide framework designed to help us manage risks in our operating activities and drive performance improvements.

OMS brings together BP requirements on health, safety, security, the environment, social responsibility and operational reliability, as well as related issues, such as maintenance, contractor relations and organizational learning, into a common management system. It sets out the rules and principles that govern key risk

[1] AR/20-F 2015
[2] AR/20-F 2014
[3] AR/20-F 2015

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management activities such as inspection, testing, competency development and business continuity and crisis response planning.

We review and amend our group requirements within OMS from time to time to reflect BP's priorities and experience or changing external regulations. Any variations in the application of OMS – in order to meet local regulations or circumstances – are subject to a governance process.

OMS also helps us improve the quality of our operating activities. All businesses covered by OMS undertake an annual performance improvement cycle and assess alignment with the applicable requirements of the OMS framework.

[Link OMS framework part 1]

Board oversight

We identify certain risks as being a high priority for particular oversight by the board. For 2017 this includes [financial resilience, geopolitical risk, security, ethical misconduct, legal and regulatory non-compliance, trading non-compliance, cybersecurity and incidents associated with the drilling of wells, operating facilities and the transportation of hydrocarbons.][4]

Encouraging employees to think before they click

The energy sector is one of the most prominent targets of cyber criminals, according to the US Department of Homeland Security[5], and companies such as BP face this threat on a global scale. Consequently we rank cybersecurity as one of the highest priority risks of the company.

We deal with attempted cyber attacks on our business every day and these attacks often target our people. Employees are our front line of defence against these attacks and we promote behavioural change to help mitigate this growing risk. We focus on six simple, memorable and actionable rules and aim to make an emotional connection with our employees. We deliver this through a wide variety of methods, from films and e-learning to sessions delivered by senior managers and our network of 'cyber ambassadors'.

One of our rules addresses the risk presented by 'phishing'. Phishing is a technique used to gain personal and confidential information by tricking people into revealing it and is also used to spread 'malware', software used to steal information without your knowledge. So we remind staff to 'think before you click' and be vigilant for phishing emails, calls and other suspicious requests for information and to report any such attempts to our security operations centre.

We gauge the understanding of our employees in this area by conducting 'ethical phishing' tests. The number of employees failing to spot one of these tests has fallen by more than 60%[6] across the company since 2012. Also, the number of employees reporting 'ethical phishing' attacks has increased significantly[7], meaning that our employees are more likely to spot and report a phishing attack than fall victim to it. The programme has delivered real change in awareness, but we remain vigilant as the threat continues to evolve.

2.3. Managing our environmental and social impacts

We aim to manage environmental and social impacts throughout the life cycle of our operations – from early project planning to operations and decommissioning.

[4] AR/20-F 2015
[5] Evidence needed (Pauline Peters).
[6] Project Poseidon September 2016 – PG.pptx (Elizabeth Longridge).
[7] Evidence needed – taken from SC awards US document (Elizabeth Longridge).

Our operating management system (OMS) lays out the steps and safeguards we believe are necessary to maintain responsible operations, helping our businesses around the world to understand and minimize environmental and social impacts.

We apply our internal practices and external standards, such as the ISO 14001 environmental management standard, at different times over the life of an operation to:
- Identify and assess potential impacts in the planning stages.
- Take appropriate steps to mitigate impacts throughout a project.
- Monitor and mitigate impacts after operations have ended.

We review our management of material issues such as climate change, air quality, biodiversity, water, how we engage with communities and human rights. This means we examine emerging risks and take actions taken to mitigate them. From there, we identify areas for improvement and work to address these where appropriate.

[Gap: Quote from someone in Upstream HSE/GOO talking about a particular example of where the screening led us to do something different – Phil M. to reach out to a contact]

Project planning

We have specific requirements and recommendations governing how we identify and manage potential impacts of projects that carry particular environmental and social risks. These apply to our major projects, projects that involve new access, those that could affect an international protected area and some BP acquisition negotiations.

We complete a screening process to identify potential impacts of these projects throughout their lifetime, such as impacts to sensitive or protected areas and water use. We also consider social aspects such as prevalence of corruption and bribery in a host country, local employment and community health and safety. We completed screening for [XX][8] projects in 2016 (2015 5, 2014 19). The number of screenings we have completed in recent years has gone down in line with reduced investment in new projects.

We then carry out impact assessments, identify mitigation measures and implement these in project design, construction and operations.

For example, when screening for an offshore drilling project in Nova Scotia, we identified the potential for cold-water corals in the project area. [Gap: update needed: We plan to conduct surveys prior to activity to identify the exact location of the corals and to determine steps necessary to mitigate potential impacts.] And prior to conducing a 3D seismic survey in the Absheron Peninsula in Azerbaijan, we studied the population of migratory and nesting birds and Caspian seals. From our findings, we determined the ideal timing for the survey in order to avoid seal migration and bird nesting season.[9]

Operations

Our operating sites can have a lifespan of several decades and our operations work to manage environmental and social impacts throughout.

Every year, our major operating sites review their environmental performance and set local improvement objectives. These can include measures for improving flaring and greenhouse gases, air quality, or reducing the potential for oil spills, waste and impacts on biodiversity.
We prioritize our efforts according to local environmental sensitivities and their impact on nearby communities. [Gap: Example needed here from Upstream HSE or Downstream S&OR]

Our sites also have processes in place to collect and respond to concerns of local communities.

[8] Evidence needed
[9] High level risk assessment: Shallow Water Absheron Peninsula Seismic Survey

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Decommissioning and remediation

We work to restore the environment when remediating or decommissioning a site or in response to an unplanned incident. When evaluating and selecting the most appropriate approach, we take into account environmental and social considerations, such as potential energy use and the views of local communities. [Gap: New example needed from Hester Cameron]

Complying with regulations

With operations in more than [70] countries[10], BP is subject to diverse and complex environmental and social laws and regulations. We manage applicable legal and regulatory health, safety, security, environmental and social requirements, through our OMS.

[Potential table idea: with examples listing projects and operations where issues identified and actions taken]

Find out more

Managing local impacts to the environment	Page [XX]
Maximizing value to society	Page [XX]
Human rights	Page [XX]

[10] Corporate reporting/Ken Cadger to check number is still accurate as at 31 December 2016

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2.4. Providing an open and ethical environment

We lay out our commitment to high ethical standards in our code of conduct.

Our code of conduct is based on our values and clarifies the principles and expectations for how we work at BP. It applies to all employees, officers and members of the board. We expect and encourage our contractors and their employees to act in a way that is consistent with our code and we take appropriate actions where we believe they have not met our expectations or their contractual obligations.

Each year, our employees[11] and our board members[12] certify that they understand the code, have abided by their responsibilities and have reported any breaches of which they were aware.

We provide our employees with training and communications on how to apply the code's principles[13]. Managers are responsible for helping their teams understand how the code guides the way in which we work and are expected to discuss this with their teams throughout the year.

Promoting ethical behaviours

We tailor programmes to raise awareness of our code and our values to take into account local conditions. For example, in Brazil, a large proportion of our workforce are agricultural employees, with varying levels of formal education and little, or no, access to computers. We designed short, interactive plays covering topics such as health and safety, workplace harassment and how to raise a concern. We also established a nominated ethics and compliance representative at each of our three mills, who helps to resolve any issues promptly through the correct channels.

We held ethics and compliance weeks in various locations, such as Angola, India and Indonesia, in 2016. During the week, employees participated in Q&A panels with senior leaders and took part in sessions on ethical dilemmas and legal compliance.

[Link: Read about the innovative ways we are bringing ethics and compliance training to our workers in Brazil]

Speaking up

We are committed to providing an open environment. We want our employees, contractors and other third parties to feel comfortable speaking up whenever they have a question about our code or see something that they feel is unsafe, unethical or potentially harmful.

Employees are encouraged to discuss their questions or concerns with their managers, relevant supporting teams or via BP's confidential helpline, OpenTalk. A total of [xxxx] people contacted OpenTalk with concerns or enquiries in 2016 (2015 1,158; 2014 1,114).[14]

[Graphic: Open Talk cases by code of conduct chapter.[15]]

Employee dismissals

The consequences for misconduct or retaliation range from coaching and performance management through to dismissal.

Our businesses dismissed [xxx][16] employees for non-conformance with our code of conduct or unethical behaviour in 2016 (2015 132; 2014 157). This excludes dismissals of staff employed at our retail service stations.

[11] My_Plan_2015_CoC.pdf – UPDATED Evidence needed
[12] Evidence needed
[13] Evidence needed
[14] OpenTalk_evidence.msg – Simon Hall NEEDS UPDATING FOR 2016
[15] OpenTalk_evidence.msg – Simon Hall NEEDS UPDATING FOR 2016

Ethics monitor

Two independent monitors – an ethics monitor and a process safety monitor – were appointed under the terms of the criminal plea agreement that BP reached with the US government in 2012. Under the terms of the agreement, we are taking actions, enforceable by the court, to further enhance ethics and compliance across BP and the safety of its drilling operations in the Gulf of Mexico.

The ethics monitor has delivered reports that include recommendations related to BP's ethics and compliance programme and code of conduct, including how it is implemented and enforced. We are working closely with the monitor who will review ongoing progress until the end of his tenure.[17]

See page [xx] for information on the process safety monitor.

Lobbying and political donations

We do not use BP funds or resources to support any political candidate or party.

We recognize the rights of our employees to participate in the political process, provided they make it clear that they do not represent BP and do not use BP time, property or equipment. Employees' rights to participate in political activity are governed by the applicable laws in the countries in which we operate. For example, in the US we support the operation of the BP employee political action committee to facilitate employee involvement and to assess whether contributions comply with the law and are publicly disclosed.

The way in which we interact with governments depends on the legal and regulatory framework in each country. We engage across a range of issues that are relevant to our business, from regulatory compliance, to understanding our tax liabilities, to collaborating on community initiatives.

[16] Data to come in January 2017. Evidence will be needed.
[17] '16Q2 SEEAC EC Report_ECSP.pdf' Simon Hall

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2.5. Developing a skilled and capable workforce

BP's performance depends on having a highly-skilled, motivated and talented workforce that reflects the diversity of the communities in which we operate.

The current low oil price has required us to adapt and reshape our organization. This had led to a reduction in overall headcount of 10,000 by 2017 [over what time period?]. Our focus is on retaining the skills we require to maintain safe and reliable operations by making sure we are doing everything we can to motivate, engage and develop our people.

We recognize that this is a stressful time for our staff, which is why we have established additional communications channels to help address employee concerns and to explain the business rationale behind the changes.

Attracting and retaining the right people

We have a preference to building capability and promoting people from within our organization and we complement this with selective external recruitment for specialist roles.

> "The millennial generation don't just want career growth; they also expect to make a positive contribution to society. So, we need to do a better job of talking about the prosperity we bring to countries, about the community development projects we deliver, about the work we are leading to address carbon emissions, and about our commitment to the energy transition."
> Bob Dudley, Group chief executive, BP

We provide a range of development opportunities – from on-the-job learning and mentoring programmes through to online and classroom-based courses. These include structured leadership courses to help employees move into more senior positions. Our average expenditure on learning and development was around $[x,xxx] per person in 2016[18] (2015 $4,000).

We maintained graduate recruitment in 2016, albeit at a reduced level. A total of [206] graduates joined BP in 2016 (2015 298, 2014 670). We are working to increase our visibility in the graduate job market and in 2016, students voted us Most Popular Graduate Recruiter in the energy and utilities sector at the Target Jobs Sector Awards.
[Graphic: BP employees by region[19]]
[Graphic: BP employees by segment[20]]

Engaging our employees

We conduct an annual survey to gather employee views on a range of business topics and to identify areas of improvement. We track employee engagement with our strategic priorities by asking questions about their perception of BP as a business and how it is managed in terms of leadership and standards. This measure was [XX]% in 2016 (2015 69%, 2014 72%)[21].
[Gap: Paragraph on results including positive and negative findings – and what we are doing as a result]

[18] Evidence needed
[19] Evidence needed
[20] Evidence needed
[21] Evidence needed

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Rewarding performance

We offer a competitive reward package, based on what our employees deliver and how they demonstrate behaviour that reflects our values. All employees must set priorities regarding their contribution to safety, compliance and risk management.

We link the remuneration of our executive team to strategy and performance. The structure reflects the long-term nature of our business and the significance of safety and environmental risks. Performance measures for pay related to safety and operational risk include recordable injury frequency, tier 1 process safety events and loss of primary containment.

See *bp.com/remuneration* for information on how we reward our board of directors.

Diversity and inclusion

We expect our people to treat each other with respect and without discrimination. To support an inclusive environment, we encourage employees to set up groups around common interests, such as ethnicity and disability.

Our gender balance is gradually improving, with women representing 28% of our BP population –its highest level to date. However, progress in recruiting and promoting women into senior management roles is slower than we would like and we have more work to do to meet our goals. It can be challenging in some disciplines and locations where women with extensive experience are in short supply.

To reflect the countries in which we operate, we are committed to increasing the national diversity of our workforce. A total of [xx]% of our group leaders came from countries other than the UK and US at the end of 2016 (2015 23%, 2014 22%).
[Table: BP employees by gender (% women)[22]]

	2014	2015	2016
All staff	31%	32%	
Graduate hires[23]	37%	46%	
Group leaders	18%	19%	
Executive team	9%	9%	

[Gap: Information re Gender pay parity, which we will be reporting against from 2017]
[We continue to support the UK government's review of gender diversity on boards, undertaken by Lord Davies in 2011, and maintain an aspiration to increase female representation to 25%.

At the end of 2016 there were [xxxx] female directors (2015 3; 2014 2) on our board of 15. Our nomination committee remains mindful of diversity when considering potential candidates.]

[22] Evidence needed
[23] Evidence needed

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3. Taking action on climate change

Working with others, BP can help drive the transition to a lower carbon future. We want to supply the energy the world needs – while bringing down the greenhouse gas emissions of our operations and product use. Governments, consumers and companies will all have to play their part to meet the climate challenge.

What we are doing

- Calling for a price on carbon
- Supplying natural gas
- Growing renewable energy
- Pursuing efficient operations
- Helping customers reduce their emissions
- Investing in technology and venture companies

[Graphical approach]

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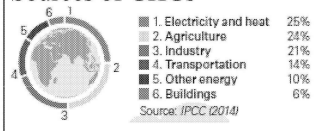
3.1. The climate conundrum

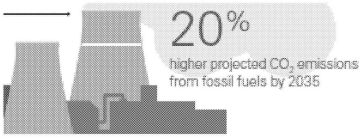
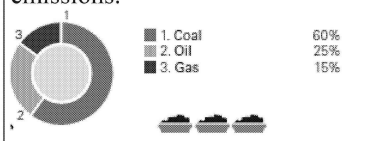
We view climate change as one of the biggest challenges the world faces today. A transition to a lower carbon world is necessary – but not an easy task.

Climate change – a complex picture

There isn't a single, straightforward answer for reducing greenhouse gas (GHG) emissions rapidly – while still meeting the growing demand for energy in emerging economies.

The science	The science is clear.	Graphic: 2 degrees	The Intergovernmental Panel on Climate Change states that substantial and sustained reduction of GHG emissions is needed to keep warming below 2°C, the threshold recognized by governments as limiting the worst impacts of climate change.
The need for energy	Many people today still don't have access to energy.		[X billion of people in the world today have limited or no electricity. This affects all aspects of their lives …].
	Energy demand continues to grow.		BP's *Energy Outlook* estimates that the demand for energy may grow by [XX%] between 2015 and 2035. Around [half] of that demand is expected to be met by oil or natural gas, with just under [10%] covered by renewables.
	Renewables and use of electric vehicles are growing fast.		Renewables are increasing at around [XX%] a year, with the electric vehicle market expanding fast as well. These options are essential, recognizing that both have low penetration today.
	New infrastructure needs to be put in place.		The scale, cost and long life of much of the world's existing energy infrastructure will influence the transition to a lower carbon future.
Impact on climate	The world relies on many activities that emit GHGs.	Graphic: Sources of GHGs[24] 	The oil and natural gas used for heat, light, industrial power and transportation account for around 37% of all global man-made GHG emissions. Agriculture and land-use changes, such as deforestation and clearing land for crops, account for about 25%.

[24] IPCC 2014 chart.
http://www3.epa.gov/climatechange/ghgemissions/global.html#two

	The need for oil, gas and coal contributes to rise in emissions.	20% higher projected CO_2 emissions from fossil fuels 	BP's *Energy Outlook* projects that global CO_2 emissions from fossil fuels may be [20%] higher in 2035 than they were in 2015. This is partly due to coal use in rapidly growing economies. This is not what BP wants to see, but what we currently think is likely. [25]
	All fossil fuels are not equal.	Factoid Mini-pie chart with potential CO_2 emissions. 	[About 60% of potential CO_2 emissions from known fossil fuel reserves would come from coal, the most carbon-intensive fossil fuel. By comparison, gas would account for around 15% of potential CO_2 emissions and is the least carbon intensive fossil fuel.] [We'll change to actual emissions.]
The actors	Governments have pledged their commitment.		The Paris Agreement came into force in 2016 – with countries accounting for at least [55%) of the world's GHG emissions communicating their contribution to holding temperature rise to well below 2°C. [Or update with forceful outcome statement from Marrakech, if exists]
	Consumers need to be actively involved.	80-90% of CO_2 emissions from oil and gas products are from their use by consumers	Around 80–90% of CO_2 emissions from oil and gas products are from their use by consumers, with the remainder generated during their extraction and development.[26]
	Companies are [xxxx….]		Companies are making efforts to reduce their own emissions [and more to come….]

[Related link to what BP is doing]

[25] Paul Appleby, EO
[26] Page 18 – OGCI report - http://www.oilandgasclimateinitiative.com/wp-content/uploads/2015/10/OGCI-Report-2015.pdf

3.2. How BP's strategy fits in a lower carbon future

BP is working to make sure our business is sustainable – commercially, environmentally and in a lower carbon future.

This is a time of change for the energy industry and our consumers, and there are many unknowns. How fast will electric vehicles, public policy and people's preferences affect the dominance of oil in transportation? Will low cost or climate concerns determine which energy source – coal, natural gas or renewables – is used to generate electricity? What transformational technologies could impact how the world secures energy?

[Note: We need to be clear if/how we think BP would be impacted in a 2 degree world.
We might need to adjust following sections if we are basing strategy on the multiple EO scenarios or single base case. In any case, we need to provide detail re our lower carbon scenario.
Also – do we want to highlight IEA450 or WEO stats?]

Our *Energy Outlook* takes the mid-term view out to 2035. We try to look past the near-term circumstances and identify the systemic trends that could affect energy demand and supply over the next two decades. We also review potential outcomes if there were a faster transition to lower-carbon world, a continued oversupply of energy or decreased demand in energy.

[To update: For example, our faster transition scenario is based on a carbon price of $100 per tonne in the OECD and other leading economies, with at least $50 per tonne elsewhere; tougher CO_2 standards for vehicles; and 80% of estimated potential energy efficiency gains for industry and buildings in place by 2035.]

BP cannot predict the future – so we shape our strategy to be resilent for what we think is the most likely case as well as a range of scenarios. We consider everything from supply and demand for energy, potential direction of climate and other public policy and technology, as well as the oil price and geopolitical environment.

Growing demand for affordable energy

Affordable energy is essential for economic prosperity. Energy provides heat and light for homes, fuel for transportation and power for industry. And, everyday objects – from plastics to fabrics – are derived from oil.

The world economy is likely to more than double from 2015 to 2035[27], largely driven by rising incomes in the emerging economies and a projected population increase of 1.5 billion.

We expect world demand for energy to increase by as much as [34%] between 2015 and 2035[28]. This is after taking into account improvements in energy efficiency, a shift towards less energy-intensive activities in fast-growing economies, governmental policies that incentivize lower-emissions and national pledges made as part of the Paris Agreement.

All sorts of energy are required

We believe a diverse mix of fuels and technologies is needed to meet growing energy demand, while supporting the transition to a lower-carbon economy.

Over the next few decades, we think oil and natural gas are likely to continue to play a significant part in meeting demand for energy. They currently account for around [56%] of total energy consumption, and we believe that will decrease to about [54%] in 2035[29]. Even in our [faster transition] scenario, oil and natural gas would meet just over [half] of all energy demand.

[27] Paul Appleby– Energy Outlook
[28] Paul Appleby– Energy Outlook
[29] Paul Appleby, Energy Outlook

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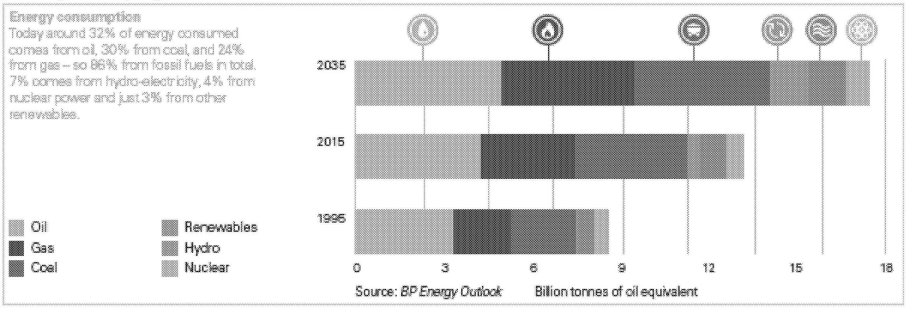
Oil is a good source of energy for transportation as it has a high energy density. That means vehicles go further on less weight and volume of fuel than alternatives. Also, oil's liquid form makes it easy to move around, globally and locally. For these reasons, we expect oil to still account for almost 90% of transportation fuels in 2035 – compared with 94% today[30]. Even with eternal forecasts of 700,000 electric vehicles in use in 2035, oil would fuel [XX%] of road transportation.

Natural gas has great advantages as an energy source: it's available at scale, relatively low cost and lower carbon than other fossil fuels. By 2035 gas is expected to provide [26%] of global energy, placing it on a par with oil and coal.

Renewables are the fastest-growing energy source. Over the past few years, there has been rapid expansion of the use of solar power due to cost reduction in manufacturing and public subsidies. They currently account for around 3% of energy consumption, and we estimate that by 2035 they will contribute around [9%] of total global energy demand[31]. With our faster transition scenario, this share would go up to [15%].

[To update graphic – delete 1995, just show 2016 and other scenarios for 2035]



Technology is advancing rapidly

We assess potential innovation out to 2050 and collaborate with external technology-focused bodies. Our *Technology Outlook* examines what technology can do in terms of accessing energy resources and how it might change the power and transport sectors, especially in the context of reducing carbon emissions. We take into consideration expected technological improvements when forecasting the cost of supplying oil and gas – and use this as a lens to review the future attractiveness of our various oil and gas resources.

Some emerging technologies – such as improved batteries, solar conversion and the use of hydrogen as a fuel – could accelerate the transition to a lower carbon future. We monitor and make selective investments in these developments.

We have prioritized 20 emerging technologies[32] for in-depth analysis – based on their strategic fit with BP and how soon and likely we think they are to break through technological and commercial barriers. We also invest in start-up companies to understand and participate in these potentially transformational technologies.

[Links to Energy Outlook and Technology Outlook]

Increasing greenhouse gas policy and regulation

We assess how potential carbon policy could affect our businesses now and in the future. This is particularly important as we expect around two thirds of BP's direct emissions will be in countries subject to carbon policy by 2020[33].

To help us anticipate greater regulatory requirements for greenhouse gas (GHG) emissions, we factor a carbon cost into our own investment decisions and engineering designs for large new projects and those for which

[30] Paul Appleby, EO
[31] Paul Appleby, EO
[32] Evidence needed – **Dan Walker** to supply
[33] Anant Prakash, Dominic Emery - RE SR2015 - GHG policy .msg

emissions costs would be a material part of the project. In industrialized countries this is currently $40 per tonne of carbon dioxide (CO_2) equivalent. We also stress test at a higher carbon price.

We consider this carbon cost, along with other factors, when assessing the economic value of an investment. To date, the internal carbon price alone has not resulted in a no-investment decision. The real benefit is that it, along with energy efficiency considerations, has encouraged projects to be set up in a way that will have lower GHG emissions.

Lower oil prices for a longer time

We test our investments against a range of oil and gas prices to check their profitability over the long term. We take into account current price levels and our long-term outlook.

[Needs to be updated. We view the lower oil prices seen in late 2014 through early 2016 as a return to price volatility. That said, we have been reviewing our strategy against this environment as we expect prices to remain lower for longer.

Importantly, the break-even price of many of our investments is going down as BP and industry suppliers reduce costs to meet with market conditions.]

Maintaining a balanced portfolio

BP strives for a balanced portfolio in terms of its resources, geography and businesses. This helps us manage changing circumstances, both expected and unforeseen.

The diversity of our portfolio – upstream, downstream and renewables – helps us to provide energy to support economic development and to contribute to a lower-carbon future. Natural gas accounts for around half of our upstream portfolio and our biofuels production has grown year-on-year.

We also think it's important to have geographical diversity of operations. This gives us access to a variety of resources and markets, and provides robustness to geopolitical events.

And, by having upstream and downstream businesses and well established trading capabilities, we have a cushion to oil price volatility as downward pressures in one part of the group can create opportunities in another.

A strategy of resilience

BP's ability to learn and adapt to challenging circumstances has been proven many times – it's part of what defines BP. So we are confident in our ability to navigate a rapidly changing world – including a lower carbon future – to come out stronger and carry on creating value for shareholders and the many users of our products and services.

Our proved reserves are produced, and historically replaced, over a 13-year timeframe on average[34]. This means we have time to adapt our investment strategy to changes in policy, market or technology conditions. For this reason, we wouldn't expect our assets to be stranded.

We are evolving our strategy so that it can be good for all seasons – allowing us to be competitive in a time when prices, policy, technology and customer preferences are shifting. That means we are proposing flexibility in our strategic approach and not a single path to success.

[Strategy graphic and text to be included in draft 2]

[34] http://www.bp.com/content/dam/bp/pdf/investors/bp-sri-meeting-presentation-13-11-15.pdf

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3.3. BP's action to help tackle climate change

[Timeline graphic]

Date	Event
1997	BP's chief executive at the time, Lord Browne, publicly acknowledges the need for precautionary action to cut greenhouse gas (GHG) emissions.
1998	BP sets target to cut emissions from our operations to 10% below 1990 levels by 2010. We meet this target in 2001 through energy efficiency efforts and flaring reduction.
1999	BP is founding member of the International Emissions Trading Association
2000	BP initiates the CO_2 Capture Project with other companies and governments, to develop and pilot CCS technology.
2000	BP partners with Princeton University on the Carbon Mitigation Initiative, set up to find solutions to the carbon and climate problem.
2003	Tsinghua-BP Clean Energy Research and Education Center launches in China.
2004	BP launches CCS project at the In Salah gas field in Algeria.
2005	BP launches its Alternative Energy business, committing to spend $8 billion by 2015. We surpassed this target in [201X].
2006	BP launches Target Neutral, our not-for-profit carbon offsetting programme.
[201X]	BP biofuels business…
2013	BP sets up the Energy Sustainability Challenge, based on the research of 15 university partners from around the world.
2014	BP joins the Oil and Gas Climate Initiative.
2014	BP endorses World Bank Carbon Pricing Statement and the Carbon Pricing Communique.
2015	BP joins the Carbon Pricing Leadership Coalition.
2015	BP signs up to The World Bank Zero Routine Flaring by 2030 initiative.
2015	BP joins the CCAC Oil and Gas Methane Partnership.
2015	BP launches Zhuhai 3 petrochemical plant, delivering 65% lower GHG emissions.
2016	BP is world's first supplier of commercial jet biofuel, supplying Lufthansa, SAS and KLM using existing infrastructure at Norway's Oslo airport.

Questions:

- When did we begin carbon trading – or what was our involvement with EU ETS?
- When did BP first start factoring in a carbon price when planning operations?
- When/what was Stanford 2? And its retirement in favour of carbon piecing (2008-9)

Working with our peers [box?]

We take an active role in the Oil and Gas Climate Initiative (OGCI), set up to accelerate actions that mitigate the greenhouse gas emissions from the oil and gas industry's operations and the use of its products. Combined, its ten member companies produce over one-fifth of the world's oil and gas[35]. OGCI's current focus areas are minimizing methane emissions and accelerating the deployment of carbon capture and storage. This is just one of the several initiatives we belong to that supports efforts to reduce emissions.

[35] OGCI website: http://www.oilandgasclimateinitiative.com/about/

We are members of multiple industry associations as they can offer opportunities to share best practice and collaborate on issues of importance to our sector. Their positions reflect a compromise of the assorted views of the membership. This means that BP's positions and trade-association positions are unlikely to be identical.

[Note: we might need to be explicit re how our advocacy is aligned with our climate change policy objectives. E.g. not a list of our climate advocacy pillars – but how climate fits into our core business advocacy. We should look at CDP submissions by peers]

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3.4. Calling for a price on carbon

BP believes that carbon pricing by governments is the most comprehensive and economically efficient policy to limit greenhouse gas emissions.

Putting a price on carbon – one that treats all carbon equally, whether it comes out of a smokestack or a car exhaust – would make energy efficiency more attractive and lower-carbon energy sources, such as natural gas and renewables, more cost competitive. A carbon price incentivizes both energy producers and consumers to reduce their greenhouse gas (GHG) emissions.

Our view is that putting a price on carbon will reduce emissions at a larger scale and at lower cost than alternative policy measures by reducing the demand for carbon intensive products. It might make our operations and products more costly in some cases. We consider that this is fair – as long as the carbon price impacts all GHG emitters equally – and we are keen to compete on this level playing field.

A global carbon price

We were pleased to see that the Paris Agreement creates the possibility for carbon pricing to help deliver global goals and national contributions for reducing GHG emissions. We recognize different national prices are a necessary and practical first step but would like to see convergence towards a single global carbon price over time.

In the meantime, any national carbon pricing mechanism should address the impacts of unequal international competition. Otherwise there is a risk of carbon leakage, meaning that energy-intensive industrial activity and investment could just move from one country to a less-regulated part of the world – potentially increasing their associated GHGs worldwide.

Redacted - First Amendment

BP and carbon trading

- Size of carbon markets is growing.
- BP's participation is significant - China [provide abatement equivalent].
- Significant part of that is carbon offsets [planting forests, etc.]
- Providing insight into key, growing carbon markets.

[Graphic: Carbon pricing]

We believe a global carbon price would help to provide the right incentives for everyone – energy producers and consumers alike – to play their part.

Where it starts

Governments: Across the world, more than [40] countries are developing mechanisms to put a price on carbon. These government initiatives aim to provide financial incentives to producers and consumers to reduce GHG emissions. This can be implemented either through a carbon tax or a cap-and-trade scheme.

How it works

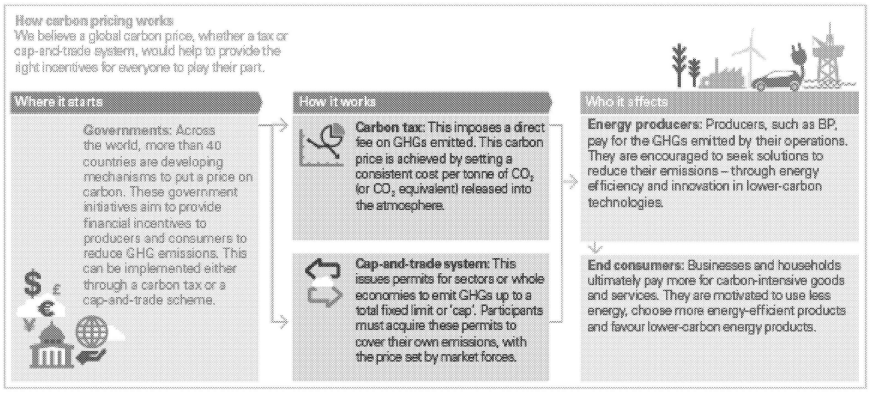
Carbon tax: This imposes a direct fee on GHGs emitted. This carbon price is achieved by setting a consistent cost per tonne of CO_2 (or CO_2 equivalent) released into the atmosphere.

Cap-and-trade system: This issues permits for sectors or whole economies to emit GHGs up to a total fixed limit or 'cap'. Participants must acquire these permits to cover their own emissions, with the price set by market forces.

Who it affects

Energy producers: Producers, such as BP, pay for the GHGs emitted by their operations. They are encouraged to seek solutions to reduce their emissions – through energy efficiency and innovation in lower-carbon technologies.

End consumers: Businesses and households ultimately pay more for carbon-intensive goods and services. They are motivated to use less energy, choose more energy-efficient products and favour lower-carbon energy products.



3.5. Supplying natural gas and managing methane

To maximize the role of gas in a lower carbon world we are taking action to reduce methane emissions.

Natural gas produces about half as much carbon dioxide (CO_2) as coal when burned to generate power. It is a vital lower-carbon energy source for power generation, as it can replace coal and serve as a back-up for intermittent renewable energy sources.[36] In the US, the growth of shale gas has meant that CO_2 emissions have fallen back to 1990s levels[37].

We believe methane emissions from gas developments can be economically and technically controlled to increase the climate advantage of gas over coal further.

A growing natural gas portfolio

Around half of BP's upstream portfolio is currently natural gas and we expect that to increase to about 60%[38] by the early 2020s. By then, several new big gas projects should be on stream, including Khazzan in Oman, West Nile Delta in Egypt and the Southern Gas Corridor bringing gas from the Caspian Sea to European markets. We are also evaluating opportunities in new markets, and signed an agreement in 2016 with China's state petroleum company to explore for shale gas in the Sichuan basin.

In the US, we are one of the top ten shale gas producers and have operations in six states. We are also supplying gas to China and India, two countries that are likely to account for more than [half[39]] of the growth in global energy demand up to 2035.

[Possible graphic to replace text above – map showing where our operations and upcoming projects are]

Methane – the issue

Some argue that gas is not much better than coal for the climate, when taking into account its full life cycle greenhouse gas (GHG) emissions. This is because methane emissions can occur through flaring, venting and leaks from equipment in oil and gas production.[40]

While only a small amount of methane is emitted, it is a powerful GHG that traps substantially more heat than CO_2. The global warming potential of methane is at least [72] times greater than CO_2 over a 20-year period[41]. That potential decreases to around 25 times greater over a 100-year period.

Most government, industry and academic studies that have compared gas to coal for power have found that, over the long term, gas has significantly lower life cycle GHG emissions than coal. We are working with Imperial College through the Oil and Gas Climate Initiative (OGCI) to further our understanding of methane emissions across the gas supply chain.

[36] OGCI 2016 report pg. 5
[37] Energy Outlook 2016
[38] Bob Dudley speech 18 October 2016
[39] To check still accurate with latest Energy Outlook in January 2017
[40] OGCI report
[41] https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html.

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Improving data reliability

The challenge of accurately quantifying methane emissions means that much of the data available today is based on estimates.

We are working with OGCI, the Environmental Defense Fund (EDF) and the Climate and Clean Air Coalition (CCAC) to get a more reliable and complete picture of methane – one that provides a set of global data categorized by different types of gas fields and operations. Companies and policy-makers can then use this data to determine the best areas for action.

Through CCAC, we collaborate with others to deepen our industry's understanding of the core sources that account for the bulk of methane emissions in upstream operations, which will help to identify actions we can take to reduce emissions.

All this activity builds on the work we have been doing for the past 15 years to estimate methane emissions from our own operations.[42] In 2016 we conducted detailed assessments to identify and quantify methane sources for our upstream assets.

Reducing emissions

Around [XX]% of our methane emissions is from flaring. We use a process called green completions at our gas operations in the US. This process captures natural gas that would otherwise be flared or vented during completion and commissioning of wells.

And, we reduce methane emissions in other ways, depending on local circumstances. For example, at our Khazzan site in Oman we have built a central processing facility that takes away the need for processing equipment at each individual well site, which can be a source of additional methane emissions in gas production.

We have complex operational sites and pipelines that can stretch through hundreds of miles of difficult terrain. In this challenging environment, we use infrared cameras to detect gas leaks, which allow us to promptly fix any issues. We deploy these cameras at our sites in Alaska, Angola, Azerbaijan, the North Sea, Trinidad and the US – and plan to expand their use in [2017].

[To be confirmed by David van Hoogstraten: We participate in EDF's Methane Detectors Challenge and are supporting field trials of advanced technology to better detect and reduce emissions.]

[Gap: Quote from Bernard Looney re upstream's efforts?]

[42] Evidence needed that this is outside of US and duration – Matt Chester

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3.6. Providing renewable energy

Our ambition is to grow BP's low carbon businesses broadly in line with the share of renewables in the energy mix.

Renewables will play an increasingly important role in a lower carbon future. Today, they account for around [X]%[43] of global energy, excluding large-scale hydroelectricity, but they remain the world's fastest-growing energy source.[44]
[Gap: information to come on renewables and our strategy for Draft 2]

BP invests in renewable energy where we can build commercially viable businesses at scale, which is why we currently focus on biofuels and wind. We have the largest operated renewables business among our oil and gas peers.[45] This means that we are hands on in managing these businesses – from sugar cane planting, cultivation and harvesting to the operation of the ethanol plants, and from site selection and project development to maintenance and operation in our wind business.

[Short quote to come from Dev Sanyal on how renewables fits with our strategy[46]]

Biofuels

Biofuels can help reduce emissions from transportation, the fourth largest source of greenhouse gas (GHG) emissions today. They can be used in existing cars and infrastructure without major changes. [47]

Decarbonizing the transport system will be challenging: demand for fuel continues to grow and fleet turnover is slow. While the use of electric vehicles is growing, they still represent less than 1% of cars on the road today.[48] So, we expect most vehicles to continue using liquid fuels for several decades.[49]

Our biofuels business in Brazil makes ethanol and sugar from sugar cane. Sugar cane ethanol has lifecycle GHG emissions that are 70% lower than conventional transport fuels.[50] And, when combined with hybrid vehicles, it can deliver similar GHG lifecycle emissions reductions to electric vehicles.[51]

We have doubled our production of ethanol over the past five years.[52] In 2016, our three sites produced [744 million] litres[53] of ethanol equivalent. We estimate that this avoided around [640,000][54] tonnes of CO_2, equal to [300,000][55] fewer European cars on the road for a year.

We also make electricity from bagasse[56] - the fibre that remains after sugar cane stalks are crushed. This low carbon power supplies energy for our mills and the local electricity grid. Our bagasse exports represent around [4%][57] of our mills' total revenues.
[Gap: update will be included in draft 2]

[43] Figure to be updated when Energy Outlook data available in January 2017
[44] Statement to be confirmed when Energy Outlook available in January 2017
[45] Statement still correct. Reconfirming evidence with **Ioannis Savvoulidis** in competitor intelligence
[46] **Kathryn Harmer** to facilitate during Draft 1
[47] Evidence to come from IMWG Biofuels Background Paper
[48] Evidence to come from IMWG Biofuels or EV Position Papers
[49] Line needs reconfirming with Energy Outlook 2017 data available in January
[50] JEC - Joint Research Centre-EUCAR-CONCAWE collaboration, JEC Well-To-Wheels Analysis, Version 4.a, 2014 (Report EUR 26236 EN)
[51] IMWG Biofuels Background Paper
[52] Evidence needed – **James Primrose** to supply?
[53] 09_11_BP Biofuels_Evidences for Sustainability Report 2016.xlsx
[54] Provisional numbers. Evidence needed – **James Primrose** to supply
[55] Provisional numbers Evidence needed – **James Primrose** to supply
[56] **https://en.wikipedia.org/wiki/Bagasse** [not sure exactly of the evidence point you are after, but this generic reference is as good as any other]
[57] Evidence to come – **James Primrose**

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We are investing in the development of biobutanol, in conjunction with our partner, DuPont. Compared with other biofuels, biobutanol can be blended with fuels in higher proportions and is easier to transport, store and manage.[58]

[Gap: update will be included in draft 2]

Sustainable biofuels

The sustainability of biofuels can vary greatly depending on the raw materials used and agricultural conditions. Brazilian sugar cane is one of the most land-efficient feedstocks for producing biofuels and other products,[59] and sugar cane cultivation accounts for less than 4%[60] of the land currently in use for crops and pasture.

Our Tropical mill is certified to Bonsucro, an independent standard for sustainable sugar cane production, and all three mills are registered under the California low carbon fuels standard.[61]

Water

Sugar cane cultivation has the potential to increase pressure on water resources. Brazil's Goiás region - where we operate two[62] of our mills – is especially well suited to sugar cane agriculture[63]. The water intensity of our sugar cane cultivation averages around [XX] kilograms[64] of water per kilogram of sugar and ethanol. This is higher than 2015 and is due to drought early in the season, which led to more irrigation. This number still compares favourably to that of many agricultural food crops within the region.[65]

[Factoid: BP was the first international energy company to operate sugar cane ethanol mills in Brazil.[66]]

Wind energy

BP is among the top wind energy producers in the US, with interests in 15[67] onshore wind farms located across nine US states[68].

Our net generating capacity from this portfolio, based on our financial stake, is 1,452[69] megawatts of electricity. That's enough electricity to power all the homes in a city the size of Philadelphia[70]. And, we calculate that our wind activities helped avoid around [2.55] million tonnes[71] of CO_2 in 2016.

In our US operations, BP follows US Fish and Wildlife Service guidelines, designed to help minimize impacts of wind farms on wildlife and their habitats. We seek to reduce hazards to wildlife near our wind turbines. For example, we have slowed the movement of the turbine blades at night during peak bat-migration season. This reduces bat mortality by as much as 78%.[72]

[58] SR 2015
[59] SR 2015
[60] SR 2015
[61] 09_11_BP Biofuels_Evidences for Sustainability Report 2016.xlsx
[62] **Brazil team –** please confirm I have correct number in Goiás
[63] SR 2015
[64] Evidence needed – **James Primrose** to supply
[65] Evidence needed – depends on 2016 number following drought
[66] http://www.bp.com/en/global/corporate/press/press-releases/bp-announces-expansion-biofuels-business-brazil.html - as viewed on 31/10/16
[67] http://www.leewardenergy.com/arclight-capitals-leeward-renewable-energy-closes-on-acquisition-of-membership-interest-in-cedar-creek-i-wind-farm/
[68] http://www.bp.com/en_us/bp-us/what-we-do/wind/wind-energy-sites.html
[69] **Teri Poulton** has **Jack Roach** email
[70] BPWE Houston Dallas Household Coverage.xlsx + Philadelphia calculations.msg – **Kathryn Harmer/Jack Roach**
[71] Evidence needed – **James Primrose** to supply
[72] https://www.fws.gov/Midwest/endangered/permits/hcp/FowlerRidge/index.html (see 2015 and 2014 monitoring studies)

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3.7. Pursuing efficient operations

To manage our greenhouse gas emissions, we focus on improving energy efficiency and reducing flaring, and we factor climate change impacts into the design of new projects.

Around 6%[73] of all manmade greenhouse gas (GHG) emissions come from oil and gas operations. That includes everything from the finding, extracting and processing of hydrocarbon resources to transforming and delivering these resources to customers.

During these processes, the most significant GHG emissions, including carbon dioxide (CO_2) and methane, come from the combustion of fossil fuels for energy, the flaring and venting of gas, and leakages from equipment.

Improving the energy efficiency of our operations

The International Energy Agency estimates that energy efficiency will contribute approximately half of the emission reductions required by 2030 to stay below the 2°C threshold.[74]

Our operations typically consider energy use in their business plans and assess, prioritize and implement technologies and systems that could improve energy usage. The amount of energy used by our operations has [increased/decreased] in 2016 due to [Gap: explanation]

Upstream

We measure the energy performance of our upstream operations by calculating the energy used by, or lost from, our operations as a percentage of the energy produced by our operations. [Gap: explanation of trend]

We undertake energy studies at our sites to identify opportunities to increase our energy efficiency. For example, in Azerbaijan, we are doing [Gap: Information to come from Doog Wright on outcomes and actions].

Downstream

We measure the energy performance of our refineries using the Solomon Energy Intensity Index® (EII®), an industry measure that benchmarks energy efficiencies. In 2016 overall refining EII® [improved] by [X.X]%.

We look for opportunities to reduce the energy intensity at our refineries, with a focus on those that deliver long-term benefits. For example, at our Lingen refinery in Germany we are [Gap: information on what we are doing as a result] and at our Castellon refinery in Spain we are [Gap: information on what we are doing as a result].

At our petrochemicals plant in Geel, Belgium, we have made technology improvements that achieve greater energy efficiency in producing purified terepthalic acid, used to make clothes, paint, plastic bottles and other items. These upgrades allow us to use 30% less power, resulting in an overall GHG reduction of 14%.[75]

[73] OGCI 2016
[74] SR 2015
[75] Need evidence

Reducing flaring

Flaring is the controlled burning of natural gas during oil and gas production. It is necessary in the initial commissioning of a well, during the start-up of operations, as a safety release or during maintenance.

We saw a a [XX]% increase in flaring in our upstream operations in 2016, primarily due to start-up activity at our Khazzan gas project in Oman and [xx] in Angola.
[Gap: PSVM RSR example]
[Gap: Refining flare reduction examples]

In Indonesia, we have been working on a long-term flare reduction programme. Since 2010 our Tangguh operations have reduced flaring by [XX]% by recycling gas for use as a fuel.

BP is a founding member of the World Bank's Global Gas Flaring Reduction partnership, a public-private partnership that supports the development of infrastructure and regulatory mechanisms to help use gas that would otherwise be vented or flared during oil and gas operations.

We are also a member of the World Bank Zero Routine Flaring by 2030 initiative, which aims to eliminate routine flaring from oil assets by 2030. Routine flaring, which does not include flaring for safety reasons, constitutes less than 10% of BP's total flaring. We are evaluating our existing operations to identify possible reduction opportunities, and our major new projects include design requirements that already meet the initiative objectives. [Gap: are we doing anything else]

Climate change adaptation

We seek to address potential climate change impacts – such as sea-level rise, higher temperatures, extreme weather events and greater precipitation – on our new projects from the start, in the design phase. For example, we decided to place some of the new South Caucasus pipeline deeper underground to avoid potential washouts due to flooding. [Gap: Ralf Toumi re new examples]

And, our existing operations and projects have guidance on how to assess potential climate change risks and impacts – to enable mitigation steps to be incorporated into project planning, design and operations. [Gap – any example here?]

We use specialized climate models developed with Imperial College and Princeton to help us predict possible climate impacts relevant to our operations, as well as to better understand how extreme weather events might impact our business in the future. Our current thinking is that we don't expect material impact at a group level.

Setting targets

Each of BP's refineries set and track progress against a Solomon Energy Intensity Index® target specific to its circumstances. And, we have a long-term, internal GHG reduction target in our upstream business, based on reductions due to efficiency projects.
[Gap: Update to come on why no group target]

Panel: Our performance
Data/graphics – with related commentary – could potentially include:

- GHG emissions by activity
- GHG bridge
- Methane intensity
- Flaring in our upstream operations
- Energy intensity by activity

GHG emissions

The [increase/decrease] in our direct GHG emissions is due to [Gap: explanation]. We report GHG emissions from all BP's consolidated entities as well as our share of equity-accounted entities other than BP's share of Rosneft.

We also estimate what we call 'real sustainable reductions' of our GHG emissions. This measure highlights where we have acted specifically to reduce emissions and where the change is expected to be enduring. This includes reductions in flaring and venting as well as energy efficiency projects. We began tracking this in 2012, and the running total by the end of 2016 exceeded [X.X]Mte.

GHG intensity

The [increased/decreased] GHG intensity in our upstream operations over the past few years reflects [update: our divestment of lower-intensity assets, increasing intensity in new areas that are more technically challenging, and late-life operations]. Although there may be annual fluctuations, it is likely that the carbon intensity of our upstream operations will continue to increase for these reasons.

[We expect the GHG intensity of our refining portfolio to remain relatively flat or to decrease at certain refineries due to efficiency projects in progress.]

[The decrease in GHG intensity of our petrochemicals portfolio reflects ongoing efficiency gains in our aromatics and acetyls businesses.]

GHG intensity (Te CO_2 equivalent/unit)

	2014	**2015**	**2016**
Upstream (per thousand barrels of oil equivalent)	31.9	32.4	[XX.X]
Refining (per utilized equivalent distillation capacity)	978	944	[XXX]
Petrochemicals (per thousand tonnes)	291	290	[XXX]

Energy use

In 2016 our total reported primary energy consumption, which includes the energy used for the extraction, processing and transportation of oil and gas in our operations, was approximately [XXX] million gigajoules (GJ) (2015 756 million GJ, 2014 800 million GJ). This excludes the energy content of hydrocarbons that are flared and vented.

Find out more

Supplying natural gas and managing methane See page [X]

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3.8. Helping our customers reduce emissions

BP is working to reduce the carbon footprint of many of our fuels, lubricants and petrochemicals products.

Around 80-90%[76] of carbon dioxide (CO_2) emissions from oil and gas products occur during their use. BP provides an increasing number of lower-carbon, energy-efficient and high-performance products to help our customers reduce their carbon footprint.

Road transport

BP develops Castrol lubricants with lower viscosity, which helps manufacturers and drivers improve the efficiency of their vehicles. We estimate that – when compared with our 2004 *Castrol* formulation – our more recent lubricants have helped avoid more than five million tonnes of CO_2 over the past 10 years[77]. That's the CO_2 equivalent of removing almost a quarter million European cars from the road each year.[78]

We are also developing lubricants made with lower carbon footprint base oils. In India, we provide customers with a diesel lubricant that recycles re-refined used engine oil as its base. This reduces CO_2 emissions during the manufacturing process by 10%[79] when compared with our standard diesel engine oil. We have also developed lubricants formulated with 25% renewable[80] plant-based oil.

[Factoid: Over the past five years the quantity of engine oil that we sell which is more energy efficient has grown by 27%.[81]]

Our premium *Ultimate* fuels can also contribute to better fuel efficiency by restoring the cleanliness of the engine and improving combustion performance. We launched a new formulation in several countries in 2016 that actively removes dirt, protects against its build up and could give drivers more miles per tank. And, we provide customers with information on how to maximize the fuel efficiency of their vehicles, by taking steps such as accelerating and braking moderately and using the correct tyre pressure[82].

We work in partnership with vehicle and equipment manufacturers to achieve more efficient use of our fuels and engine oils. In Europe for example, Ford's EcoBoost engines – used in the Fiesta, Focus, Mondeo and other models – are engineered with specially formulated advanced *Castrol* oils, which help to improve fuel efficiency and reduce emissions[83].

Air transport

BP is one of the world's largest suppliers of aviation fuel. To help our customers reduce their emissions, we are introducing new products and services. For instance, we are the world's first supplier of commercial jet biofuel using existing airport fuelling infrastructure, supplying Lufthansa, SAS and KLM at Norway's Oslo airport.[84]

> "The airline industry has set itself rigorous targets to reduce emissions over the next 30 years. The growth in our biojet business is part of our commitment to helping our customers meet those goals." Tufan Erginbilic, Chief executive, Downstream, BP [Needs approval]

[76] SR2015
[77] SR2015 – number hasn't changed
[78] SR 2015 – number hasn't changed
[79] Castrol GTX ECO 080716
[80] BIO press release 211016 V7 - For approval
[81] Evidence needed – **Adrian Pickett** to supply
[82] http://www.bp.com/en_gb/on-the-road/united-kingdom/products-and-services/efficient-driving.html - as viewed on 21/11/16
[83] SR2015
[84] SR2015

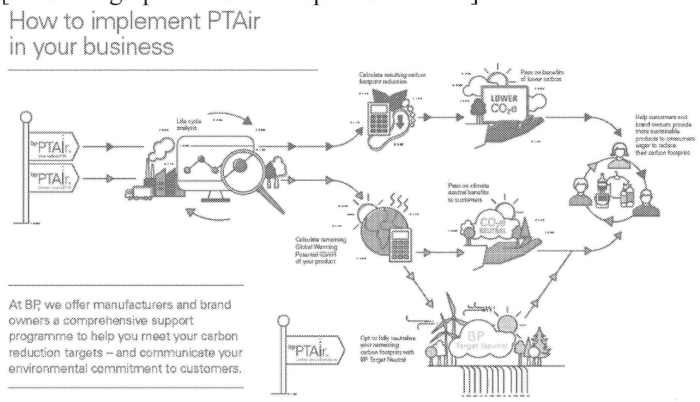
In addition, BP is partnering with Fulcrum BioEnergy – a company that produces sustainable jet fuel made from household waste. BP is investing $30 million in Fulcrum and will distribute and supply the fuel to some of our aviation customers in North America.

Plastics for everyday items

BP is one of the world's largest producers[85] of purified terephthalic acid (PTA) and its feedstock paraxylene (PX). These raw materials are used to make everyday items, such as clothes, soft drinks bottles and other forms of food and non-food packaging.

Using proprietary technology retrofitted at our site in Belgium,[86] BP has developed PTAir: PTA with a 29% lower carbon footprint than average European PTA production[87]. Customers also have the option to upgrade to carbon neutral PTA and offset their product's entire carbon footprint, using BP Target Neutral.

[Potential graphic: How to implement PTAir]



Target Neutral

Over the past 10 years, our not-for-profit carbon offsetting business BP Target Neutral has helped our customers offset 2.5 million tonnes of carbon – half of which was achieved in the past three years. This is the equivalent of taking around 1.2 million[1] European cars off the road for one year.

The programme invests in seven[2] offsetting projects around the world. We choose the projects based on their social and economic benefits to local communities as well as their low carbon attributes. For example, we support a deforestation reduction project in Zambia that offsets more than 200,000 tonnes[3] of CO_2 emissions every year.

An independent group of non-governmental organizations makes the final selection of projects and BP visits each one to make sure that it can deliver its promised benefits and that it is developed in accordance with local laws and the UN Declaration of Human Rights. All projects comply with industry standards approved under the International Carbon Reduction and Offset Alliance code of best practice[4].

[85] http://www.bp.com/en/global/corporate/press/press-releases/bp-unveils-ptair-a-world-first-low-carbon-and-carbon-neutral-pta-solution.html - as viewed on 31/10/16
[86] http://www.bp.com/en/global/corporate/press/press-releases/bp-unveils-ptair-a-world-first-low-carbon-and-carbon-neutral-pta-solution.html - as viewed on 31/10/16
[87] http://www.bp.com/en/global/corporate/press/press-releases/bp-unveils-ptair-a-world-first-low-carbon-and-carbon-neutral-pta-solution.html - as viewed on 31/10/16
[1] http://www.bp.com/en/global/corporate/press/press-releases/bp-target-neutral-is-celebrating-10-years-of-working-with-customers-to-reduce-carbon-emissions.html - as viewed on 31/10/16
[2] https://www.bptargetneutral.com/uk/our-projects/a-global-portfolio/ - as viewed on 31/10/16
[3] https://www.bptargetneutral.com/uk/our-projects/a-global-portfolio/deforestation-mitigation-zambia/ - as viewed on 08/11/16
[4] http://www.icroa.org/The-ICROA-Code-of-Best-Practice - as viewed on 08/11/16

BP uses the carbon credits created by the projects to provide low carbon and carbon neutral opportunities for our customers. For instance, Castrol's range of professional lubricants – supplied to vehicle manufacturers for use when servicing cars in dealerships – are certified as CO_2 neutral via the programme's offsetting assistance. And, in 2016, Air BP became the first carbon neutral aviation fuel supplier across our operated sites with support from Target Neutral.

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3.9. Investing in technology and venture companies

Technological innovation underpins our efforts to make our operations and products more efficient and sustainable.

We take a long-term view of the technology landscape to inform the choices that we make today. We deepen our understanding of future energy, technology and climate change trends through in-house research and in partnership with leading academic institutions. And, we invest in start-up companies to better understand evolving alternative and advanced technologies.

Technology can make a low carbon impact across our entire business model. [Gap: examples]

Venturing

Over the past decade, BP has invested in a number of emerging technology companies and clean-technology funds to help accelerate development and commercial viability of certain technologies.

To date, we have invested around $260 million[88], which had led to a further $2 billion[89] in external equity investments and grants from other sources. We have co-invested with more than 200[90] different entities and this year deployed seven[91] technologies within our own assets.

Around [half][92] of our investments focus on low carbon solutions. For instance, Tricoya Technologies uses a process that alters the inherent chemical structure of wood chips. This creates a more durable building material with increased thermal insulation and the ability to repel water. It also avoids CO_2 emissions when used as a substitute for non-wood based building products.

Meanwhile, Solidia's technology has the potential to reduce the carbon footprint of concrete production between 30-70%[93]. And, Lightning Hybrids has developed a hydraulic hybrid system for delivery trucks that, combined with Castrol's hydraulic fluids, saves around 20% in fuel and significantly reduces nitrogen oxide (NOx) emissions.[94]

Emerging technologies

New technologies will surely help pave the way to a lower carbon future. We monitor selected technologies – particularly those aligned with BP's expertise and with high potential to be technologically and commercially successful.

Carbon capture and storage

Implementation of carbon capture, use and storage (CCUS) technology could enable continued large-scale use of fossil fuels in a tightly carbon-limited world, although commercial complexity and policy uncertainty remain.

We are working with the Oil and Gas Climate Initiative (OGCI) to help speed up wide-scale use of CCUS. Together with nine other oil and gas companies we will invest a collective $1 billion in the development of low emissions technology, with initial focus on CCUS and the reduction of methane emissions.

BP has already built capability in CCS technology through its In Salah CO_2 storage project in Algeria. CO_2 injection is now complete and the project has entered a new phase to test technology that could mitigate

[88] Evidence needed – **Akira Kirton** to supply
[89] Evidence needed – **Akira Kirton** to supply
[90] Evidence needed – **Akira Kirton** to supply
[91] Number/evidence needed – **Akira Kirton** to supply
[92] Number/evidence needed – **Akira Kirton** to supply
[93] SR2015
[94] Evidence needed – **Akira Kirton/Jon Salkeld** to supply

potential problems such as a leak. We are also conducting [XX] monitoring to understand how to hand the [XX] back to the regulator.

[Needs checking with Gardiner for correct language in the above statement.]

Additionally the CO_2 Capture Project, a BP-operated joint partnership formed in 2000 to advance the development of CCS in the oil and gas industry, is developing and piloting technology and demonstrating safe and secure geological containment.

Research

BP supports climate science research in leading universities around the world to complement the practical steps that we are taking to help the transition towards a lower carbon future.

We also support academic work to better understand the impact of potential carbon policy on energy demand, social preferences and technological choices. [Gap: Sentence to outline the benefits of this]

And, some of this work becomes businesses in their own right. For example, the BP-backed Foreseer visualization tool – developed through collaborative research with the University of Cambridge – has led to a spin-out business[95]. Foreseer can help industry and policymakers model the potential impact of their decisions on the supply of natural resources, such as water.

Collaborating on carbon

For the past 16 years, we have been working closely with Princeton University in the US on a research programme with the aim of identifying the most credible methods of capturing and storing a significant proportion of the world's carbon emissions from fossil fuels.

The Carbon Mitigation Initiative (CMI) brings together fundamental science, technological development, policy frameworks and business principles to accelerate the pace of discovery and the application of solutions at scale. Projects include exploring the potential for increasing the volumes of the world's carbon outputs currently stored in existing natural sinks such as land and forests and identifying the means to capture and store carbon at scale in new sinks in underground geological formations.

We have a long history of collaboration with academia in different parts of the world – built on common objectives and sustained by well-developed relationships. These relationships bring rigour and critical challenge to the evolution of our business strategy.

The Princeton initiative allows us to better assess the future resilience of our business and investments not just in terms of understanding climate change but also the potential physical impacts our sites may face from factors such as weather and sea levels.

The long-term nature of this collaboration means we become better informed about the scientific uncertainties associated with carbon mitigation and fossil fuels as they change and become clearer over time. For example, the CMI's work has led to a change in the view that the earth's natural carbon sinks would begin to reduce over time. The continued growth of these sinks has important implications for how we manage carbon from fossils in the future.

We also play our part by contributing to the work and knowledge of the CMI research teams. We bring experience from our pioneering onshore CO_2 capture and storage project in Algeria and we provide data from integrity experiments on oil and gas wells in North America that are no longer in use. This measurement has made an important contribution to modelling by the CMI which indicates that less than 0.1% of CO_2 injected into a suitable geological formation will leak over a 50-year period.

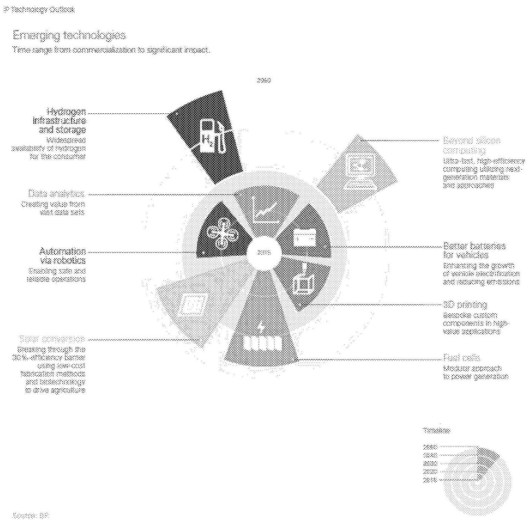
Sidebar: **Other institutions we work with on the climate challenge:**

- BP Institute, University of Cambridge

[95] http://www.foreseerltd.com/ - as viewed on 31/10/16

- Center for International Environment and Resource Policy, Tufts University
- Energy Bioscience Institute, University of California
- Energy Technologies Institute, UK
- Tsinghua-BP Clean Energy Center

[Possible graphic option] emerging technologies timeline (from Technology Outlook 2015)



4. Focusing on safe operations

We work with flammable products every day, often in harsh or remote environments. That's why safety is our number one priority – we strive to proactively manage our operating risks to keep our people and the communities around us safe from harm.

What we are doing

→ Preventing accidents and spills: we seek to identify, understand and eliminate the risks that could lead to an accident. And, we put in place measures to reduce and mitigate any potential consequences should they occur.

→ Transportation safety: we use fit-for-purpose vehicles and encourage the right behaviours when we transport our people and equipment to sites, and fuel to our customers.

→ Emergency preparedness and response: we must be vigilant at all times so that we can respond to any incident that might threaten the safety of our people, operations and the surrounding environment.

[Gap: possible quote from Bob Fryar reflecting on how BP is maintaining and improving safety in a low oil price environment]

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4.1. Preventing accidents and oil spills

We guard against risks to the safety of our people and our operations.

Process safety

Major accidents or spills can result in serious harm to people and the environment, which is why our approach to process safety is so important. Process safety means designing our facilities to the highest standards and using robust engineering principles. It also means making sure that we have capable people and rigorous operating and maintenance practices.

This starts with taking a systematic approach to identifying and managing the hazards involved throughout our operations' life cycle – from initial project planning through to closure. If we can't eliminate a risk, we put measures, or 'barriers', in place to reduce or manage the risk to stop incidents from happening, and ultimately mitigate the consequences should these fail.

For example, pipeline corrosion, operator error and equipment malfunctions are just a few of the possible causes for a spill or loss of primary containment. We take time to understand how people, plant or processes could contribute to such an event – so that we can apply the most appropriate risk mitigation measures.

Then we carry out checks to make sure the risk reduction measures are working properly. This helps us detect and fix problems before an incident occurs.

> "One process that helps us better prepare for what could go wrong is called 'self-verification'. This is checking things are safe, double checking, and then checking again."
> Andy Frazelle, Operations director, Global wells organization, BP

From learning to action

We analyse performance data and apply lessons learned from incidents, near misses and self-verification and audit findings. Each of these helps us build a picture of our risk profile, map early trends and inform where to focus our safety initiatives.

Reducing the likelihood of human error

How our people interact with equipment, processes and each other is fundamental to operating safely. We are working to identify and adopt good practices for managing human performance drawn from inside and outside the industry. Through this, we aim to improve our equipment and processes to better support our people and reduce the likelihood of human error in safety critical tasks.

Using advanced technology

New technologies are helping us to increase the amount and quality of data that we gather from our operations, and speed up our analysis allowing us to act more quickly. For example, we are piloting software, which gathers data from offshore platforms to help predict equipment breakdowns so that we can look to prevent incidents from happening.[96]

We are trialling magnetic 'crawler' robots to inspect the pipelines that connect our deepwater wells with our platforms in the Gulf of Mexico.[97] The robots use lasers to identify any corrosion or damage. This can provide us with early warnings of potential safety issues and reduce the need for people working in precarious situations.

We also employ technology that gives us extra eyes on our offshore wells to help inform decision-making. We have a monitoring centre in Houston in the US where our teams can monitor data in real-time from our operated rigs in the Gulf of Mexico, as well as offshore exploration and high impact wells around the world.

[96] Evidence needed
[97] Evidence needed

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Walking the line to zero in Toledo

During 2016 we completed a major maintenance and upgrade exercise at our Toledo refinery in the US. This involved a full shutdown of the plant to carry out the work.

Bringing a refinery back online is a complex process. During previous start-ups, we had experienced leaks or losses of primary containment (LOPCs). Although relatively small, they needed urgent resolution.

To try to avoid these issues in 2016, our refinery team revisited an industry methodology known as 'Walk the Line' to strengthen their pre start-up checks. This focuses on the human factors that can contribute to LOPCs, such as how checks are documented, and the quality of handovers between teams. It also provides training and tools to reinforce a more systematic approach to pre-start-up procedures.

In readiness for the start-up, our maintenance teams checked hundreds of valves positioned along pipes to identify and fix potential integrity problems. Site managers used checklists and detailed drawings of the process units to make it easier to sign off each completed inspection. And, most importantly, managers set clear expectations with their teams for the start-up, including the ultimate goal of zero LOPCs.[98]

We saw the benefits of walking the line in Toledo – the refinery restarted without a single LOPC for the first time ever.

Our performance

We use industry standard metrics to track the number of process safety events that occur across our upstream and downstream facilities. This includes unplanned or uncontrolled releases of materials causing harm to people or the environment, damage to equipment or exceeding threshold quantities.

We also track LOPCs, which includes unplanned or uncontrolled releases of our products from pipes, containers or vehicles within our operational boundary, excluding releases of non-hazardous substances such as water. We seek to record all LOPCs regardless of their volume of the release, and to report externally on losses over a certain severity threshold. [Gap: signal plans to discontinue reporting LOPCs from 2017].

[Gap: performance commentary]
[Graphic: Process safety events and loss of primary containment]

[98] Materials supplied by Andy Church.

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Contractor safety

With [more than half of the hours][99] worked by BP carried out by contractors, our ability to be a safe operator depends on the capability and performance of those who help us carry out our work. We identify contracts involving work that could result in the most serious safety risks and give these our highest scrutiny. We conduct pre-contract quality, technical and health, safety, security and environmental audits for these contractors.

We work collaboratively with our major contracting companies, helping them understand and contribute to meeting our safety goals. For example, we held a global safety forum in 2016 with 30 of our major contracting firms. Self-verification was a key theme with participants sharing experiences of how this is helping to reduce injury rates.[100]

Shared problem solving

We work together with our contractors to solve problems. For example, we have been working with drilling contractors and equipment manufacturers to analyse causes of failure in blowout preventers – the equipment that controls the flow of gas and liquids from wells during drilling and production operations.[101]

As a result, equipment manufacturers have redesigned valve and seal components in the blowout preventers. This has led to greater reliability, with a significant reduction since 2012 in the number of times that we need to bring this subsea equipment up to the surface for unplanned testing and maintenance.[102]

Building on this, we have been working with other operators, rig contractors and equipment manufacturers to develop an industry-wide database that enables us to share information on blowout preventer defects or failures.[103]

Training together

We work with Maersk Training to provide our drilling teams with state-of-the-art simulation facilities in the US and Denmark. BP staff and contractors practice working together under the specific conditions found in a drilling operation. This provides invaluable, hands-on training to prepare our teams to tackle critical jobs on the rig.[104] In addition to technical skill development, the training also assesses how participants work with each other, lead, make decisions and manage challenges.

Personal safety

We are committed to keeping people safe, whether they work on our sites or live in communities near our operations. [In 2016 we failed in this, with three workforce fatalities. One contractor died in hospital following a leg injury sustained at our biofuels business in Brazil and two contractors were killed in a pipeline incident in Oman.] We deeply regret the loss of these lives and continue to work tirelessly to eliminate risk of injuries or fatalities in our work.

Creating and maintaining the right safety culture is an important part of this. It takes strong leadership and personal responsibility from all members of our workforce, who each have an obligation and the authority to stop unsafe work.

Our ‘golden rules of safety’ guide our workers on staying safe in situations with the potential to cause most harm. The rules are aligned with our operating management system and focus on areas such as working at heights, lifting operations and driving safety.

[99] Numbers to be confirmed at year end
[100] OTC Suppliers Forum from Jess Burton
[101] Evidence needed.
[102] Evidence needed.
[103] Evidence needed.
[104] http://www.bp.com/en/global/corporate/press/press-releases/bp-signs-global-agreement-maersk.html

Workforce behaviours also play an important role. [In 2016 we reissued our guide to behavior-based safety to draw a closer link between the types of incident showing up in a site's safety record and the behaviours they should monitor and target for improvement].[105]

GPS in the red zone

[Gap: Possible example from GWO about red zone GPS in Oman]

Our performance

[Gap: performance commentary]
[Note: Option to include two paragraphs below alongside the graphs depending on space on page]

We monitor and report on key workforce personal safety metrics and include both employees and contractors in our data.

We measure our workforce recordable injury frequency, which is the number of reported work-related incidents that result in a fatality or injury (not including minor first aid cases) per 200,000 hours worked. We also measure our day away from work case frequency, which is the number of incidents per 200,000 hours worked that resulted in an injury where a person is unable to work for a day (or shift) or more.

Health and wellbeing

We aim to manage health hazards that could cause harm to our workforce or nearby communities. [For some of our more significant hazards – such as exposure to benzene, or noise – we monitor exposure levels and use that information to put appropriate measures in place.][106]

Our health programmes consider global concerns, such as the possibility of an influenza pandemic or a disease like the zika virus. We also encourage our employees to assess their lifestyles and provide online training modules in the areas where we see most need, such as fatigue, stress, office ergonomics and travel health.

Product safety

We assess our products to identify any potential health, safety or environmental aspects and to verify compliance with chemical control, product safety and hazard communication regulations, monitoring developments in regulation globally.

[105] Evidence needed. Ken Daigle/Craig Miller
[106] Evidence needed

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4.2. Transportation safety

We work to safely transport our people and equipment to our sites, and our fuel to customers.

Driving safety

[Graphics: SVAR[a] and TVAR with explanation of metric change alongside the charts]

Vehicle accidents remain one of our industry's key risks and we take driving safety very seriously. In 2016 alone, BP employees and contractors drove almost [600 million kilometres][107], which is the equivalent of [15,000 journeys around the world]. Transporting fuel from refineries to service stations, along with other downstream activities, account for most of these kilometres.

In 2016 there were [xxx] reported vehicle accidents, and no workforce fatalities. This is the second consecutive year in which we have recorded no driving-related workforce fatalities. We believe this reflects the positive impacts of a sustained effort to improve driving safety, working with employees, contractors and communities.

[To be updated: Sadly, we did record one driving-related third-party fatality.]

We provide drivers with guidance on road safety, including advice on what constitutes a fit-for-purpose vehicle and the need to wear a seatbelt. We tailor our driving safety programmes to take account of local risks and conditions, such as driving culture, road quality or extreme weather. We have also looked for opportunities to extend the reach of our programmes to local communities.[108]

Driving change in Brazil

The World Health Organization estimates that fatalities from road traffic accidents in Brazil are double the rate experienced in the US.[109]

In 2011, BP began its Brazil biofuels operations, producing ethanol and sugar from locally grown sugar cane. Heavy vehicles carry the cane from the fields to the mills and deliver the products to markets across Brazil. In addition, we contract buses to bring many of our [6,000]-strong workforce to work from neighbouring cities.[110]

Unfortunately, there have been several vehicle-related fatalities among our Brazilian workforce or related third parties over the years. Assessing the situation, we found that off-road driving, unpaved roads, dust in dry conditions, stopping distances in wet conditions and local driving behaviours were some of the contributing issues.[111]

To improve the safety of transporting our workforce we obtained new buses, enhanced the screening of bus contractors and provided three-point seat belts.[112] Through in-vehicle cameras, we can record potentially risky driving behaviour and use this as a coaching aid to improve driving technique. [Question: Is this for transporting materials or for the buses?]

We experienced no fatalities in our transport activities and no accidents involving our workforce buses in 2016 – but we remain vigilant to the need for safe driving and safe operations more generally in what remains a challenging operating environment.

[107] Hazel O'Leary, Michele Buchanan, 2016
[108] 'easy driver'- driving road safety success in Automotive Southern Cluster.
[109] http://www.who.int/violence_injury_prevention/road_safety_status/2015/Statistical_annex_GSRRS2015.pdf?ua=1
[110] Evidence needed. Albert Ploeg.
[111] Evidence needed. Albert Ploeg.
[112] Evidence needed. Albert Ploeg.

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Rail safety

Our sites receive oil and gas products delivered by rail using both BP-owned or leased, and third-party, rail cars. Much of this is in the US. For example, at Cherry Point we receive on average [xx] thousand barrels of crude oil by rail per day. [Gap: is that a lot, a little – how to convey how much?]

[Our railcars have insulation to protect cargo in the event of a fire and a protective shell to defend against puncturing and resulting spills or releases.]

Aviation safety

We use a variety of aircraft in our operations, often in challenging conditions, such as offshore or in remote areas. Our safety requirements cover the approval of aviation operators, contracting for aviation services, and the management of any aircraft operated on behalf of BP.

There have been a number of incidents involving helicopters in the North Sea over the past few years. Oil and gas companies, helicopter suppliers and regulators have collectively analysed these events. As a result, our industry is using enhanced emergency breathing systems for offshore helicopter passengers in the UK and is evaluating plans for a wider roll out.

There was a serious incident involving a helicopter in the North Sea in April 2016. Although the incident did not involve any BP workers, we have suspended our use of that particular model.[113]

We participate in aircraft sharing agreements in Alaska, the Gulf of Mexico and Trinidad & Tobago to reduce the number of aircraft and flights needed, thus lowering the risk of an accident.[114]

Shipping safety

We move significant volumes of oil, gas, lubricants and chemicals around the world by sea and through local waterways. We use a combination of BP-operated and chartered vessels. [All are subject to our health, safety, security and environmental requirements]. To help avoid major spills, all ships in our managed international fleet are double-hulled.

Instances of piracy or armed robbery at sea present an increasing threat to world shipping. BP seeks to avoid areas known for this activity. Where this is not possible, we adopt heightened security measures.

[113] Evidence needed. Steve Hawkes.
[114] SR2015

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4.3. Emergency preparedness and response

The scale and geographical spread of our operations means that we must be prepared to respond to a range of possible disruptions and emergency events.

Potential threats to our business are not always predictable and come in many forms, such as major accidents, hostile acts, political instability, health alerts or extreme weather. We put security measures in place to seek to safeguard our people and assets, and maintain emergency response capabilities in case of an event.

Security

BP monitors for hostile actions that could cause harm to our people or disrupt our operations. We assess risk on an ongoing basis in those operating areas that are affected by political and social unrest, terrorism, armed conflict or criminal activity. Our central security team provides guidance and support to our businesses through a network of regional security advisers.[115]

We try to help our employees and contractors stay safe when they are travelling on business. We have a 'round the clock' response information centre that keeps watch over global events and related developments.[116] For example, we quickly identified, alerted and safely accounted for every member of the workforce who was travelling through Brussels during the tragic terrorist attacks in March 2016.[117]

In Salah attack

In March 2016 the Krechba site of In Salah Gas, a joint venture between Sonatrach, BP and Statoil in Algeria, came under attack by rocket fire from outside the perimeter fence. No one was hurt in the attack. Following the attack we mobilized BP's full emergency response system to assist the joint venture and local authorities and in the aftermath we relocated BP expatriate staff from both the In Salah Gas and In Amenas joint ventures in Algeria as a precautionary measure. After a detailed assessment of the situation and in close collaboration with our partners, a limited number of staff have now returned to Algeria to support joint venture operations, joining those who remained in country throughout. We continue to work with our partners to support the joint venture's continuous evaluation of security measures.

Cyber threats

Cybersecurity is one of BP's highest priority risks, with breaches presenting a risk to the security of our information, IT systems and operations. We work closely with governments, law enforcement agencies and industry peers to understand and respond to new and emerging cyber threats. We also monitor our IT systems for suspicious activity and work with our employees to promote responsible online behaviours.

Crisis management

We work with government and other response agencies in crisis and continuity management planning as part of our work to keep our people and the public safe and to minimize impacts to the environment. Our businesses carry out crisis response exercises at both a local and regional level to test their readiness.

[115] AR/20-F 2015.
[116] Evidence needed. Jonathan Richards/Andrew O'Connor.
[117] Evidence needed. Jonathan Richards/Andrew O'Connor.

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Redacted - First Amendment

[118] Evidence needed. Richard Santner.
[119] Evidence needed. Peter Collinson.
[120] Evidence needed. Richard Santner.

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5. Managing local impacts to the environment

We operate in diverse environments around the world – from the desert to the deep sea. We consider local environmental sensitivities in determining which issues require the greatest focus. For instance, reliable access to water is a concern for communities where fresh water is stressed or scarce. At a site close to communities, air quality may be the immediate concern. So we tailor our approach to environmental management to local conditions.

What we are doing [represented graphically – overlay with avoid/reduce/manage process]
→ Water: we are mindful of how our operations can impact the water resources of the communities where we operate and seek to manage our water use accordingly.

→ Air quality: we manage operational emissions, such as sulphur oxides and nitrogen oxides from our operations that can contribute to air pollution.

→ Biodiversity and sensitive environments: we support efforts to conserve areas that house our planet's rich natural and cultural heritage.

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5.1. Water

We are committed to effective management of water and factor local conditions into our plans and actions to help reduce the potential impact on communities.

Fresh water is used in our drilling, hydraulic fracturing, upstream production, refining, petrochemicals and biofuels operations. We also use non-fresh water, such as seawater and treated municipal wastewater at some of our refineries and upstream operations.

The exploration, production and refining of oil and gas accounts for about 1% of global freshwater withdrawals. While much of the water returns to the local water basin, it's important to look at potential impacts – such as water scarcity, wastewater disposal and the long-term competition for water resources – at a local level.

How we evaluate water risk

We assess water risks in our portfolio each year and consider:

- Local water conditions and constraints.
- The project's life cycle water demand.
- Potential quantity, quality and regulatory risks.

We have applied the Global Environment Management Initiative Local Water Tool at six of our existing operations and as part of our impact assessments in five new projects. This helps us to develop management plans that are appropriate to local conditions. For example, freshwater use was identified as [Gap: what risk was identified?] at our Sangachal terminal in Azerbaijan, so we [Gap: actions taken as a result]. We also apply the IPIECA Global Water Tool and World Resources Institute Aqueduct Global Water Atlas across all our operated assets.

[We have not identified any significant risks from our withdrawal and consumption of fresh water.][121] Based on the IPIECA Global Water Tool, we estimate that [around half[122]] of our major operations withdraw fresh water in areas where its availability is considered stressed or scarce. However, these operations are located in areas where water allocation and monitoring is well governed and account for only [XX]% of our total freshwater withdrawals.

There is increasing regulation governing freshwater withdrawals and water discharge quality in the places where we operate. We monitor these developments and take appropriate action, such as investing in wastewater treatment plants at our refineries in Germany, [Trinidad] and the US.

[121] SR 2015
[122] SR 2015

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Water sources

BP withdraws fresh water from rivers, lakes, reservoirs and underground aquifers for our operations. We purchase water from municipal drinking water suppliers, and we also use treated saline water in many areas, including in our gas operations in Oman.

[Table – Freshwater performance]

	2012	2013	2014	2015	2016
Freshwater withdrawal (million m^3)	346	289	280	291	[XX]
Freshwater consumption (million m^3)	[XX]	106	93	98	[XX]
Percentage of withdrawal	[XX]	[XX]	[XX]	[XX]	[XX]
Consumption intensity (tonnes water/tonnes production)	[XX]	[XX]	0.37	0.41	[XX]

*Footnote: Water withdrawn accounts for water removed from a water source and often returned to the source, available to be used again. Consumption figures represent water that is not returned to its source.

Our downstream operations account for the majority of our freshwater withdrawal. The [increase/decrease] in our freshwater withdrawal in 2016 is primarily due to [Gap: Sentence referencing group number]

In 2016 the volume of water consumed per unit of production – the consumption intensity – [increased/decreased]. [Gap: Explanation of upstream, refining and petchems performance]

Shale gas and water use

A typical shale well requires several million gallons of water for drilling and hydraulic fracturing. We are trialling a number of water-saving innovations, using new technologies that could make it possible for us to treat water used in fracturing for re-use in our operations. We also looking at ways to reduce fresh water use. One option we are pursuing is treating seawater so that it can be used in fracturing activities.

Managing discharges to water

Our operations manage significant volumes of wastewater, created, for example, as a result of using water to test vessels or pipelines, or cooling water. We also manage what is known as produced water, which comes to the surface during the production of oil and gas. These waters can be treated and then released back into the environment, re-injected back into the oil or gas reservoir or disposed of through other permitted means.

At our Khazzan operation in the remote Omani desert, we treat the wastewater from our sewage treatment plant and reuse it for irrigation, landscaping, road construction and dust suppression.
And by implementing new manufacturing processes at our petrochemical facilities, we are reducing freshwater demands and wastewater volumes. For example, at our petrochemical plant in Geel, Belgium, the technology upgrades for PTA production reduced wastewater volumes by 28% and lowered the level of treatment required to meet the local regulatory requirements.[123]

[123] The number 28% will need to be verified with the operational data for 2016.

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[Table TBC if there is space on the page – Discharges to water]

	2011	2012	2013	2014	2015	2016
Upstream						
Produced water (million tonnes)	122	109	95	103	91	XX
Mass produced water per unit of production				0.7	0.6	XX
Downstream						
Wastewater treated (million m^3)	114	115	86	83	87	XX
Chemical oxygen demand (tonnes)	5,284	4,635	3,363	3.612	2,887	XX

[Gap: Paragraph explaining any significant changes]

Find out more
View segment breakdowns of water data, and discharges to water at bp.com/hsechartingtool.

BPA_HCOR_00286128

5.2. Air quality

We manage air emissions from our activities in order to protect the health and environment of local communities.

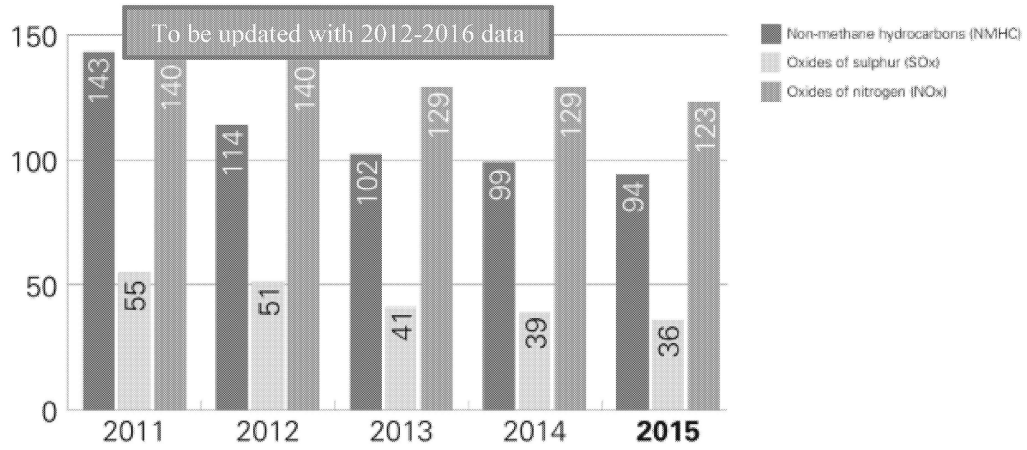
Tackling local air quality is increasingly of interest to communities, governments, regulators and other stakeholders, driven mainly by public health concerns. Local factors – urbanization, industrial development, weather and geography – influence air quality. That means we need to address the issue at the local level.

Some of our operational activities, such as burning fossil fuels for power generation and operating our shipping fleet, emit sulphur oxides and nitrogen oxides, which can contribute to air pollution. That's why we require our major projects and operations to identify and assess the potential impacts that their activities have on air quality and put measures in place to manage them in line with accepted standards and regulations designed to protect local environments.

As vehicle emissions significantly impact air quality, we work with manufacturers to support improvements in engine design and to make high-quality fuels and lubricants that improve fuel efficiency and reduce emissions.

We are working with an air monitoring manufacturer and academia to pilot air quality monitoring pods. The pods are portable and contain real-time air monitoring technology that is designed to measure nitrogen oxides and sulphur oxides in different climates and physical environments. The pods provide us with a more comprehensive understanding of the impact of our emissions and will allow for more effective management.

[Graphic: Emissions to air by component (kte)]



Our downstream operations account for the majority of our sulphur oxide emissions. [Gap: sentence with explanation on trend].
Our upstream operations account for the majority of our nitrogen oxide and non-methane hydrocarbon emissions. [Gap: Sentence on trend?]

Find out more
Helping our customers reduce emissions Page [XX]

5.3. Biodiversity and sensitive areas

We assess the potential impacts of our activities on protected areas and take actions to avoid and minimize our footprint.

Protected areas

Some of our activities occur in places that have cultural significance or are home to protected species, or contain an ecosystem with outstanding biological, geographical or social value, and we work to understand and manage any risks and impacts that our work could cause. We recognize that some areas may be considered too sensitive for oil and gas activities, so decisions to operate in sensitive areas are made on a case-by-case basis.

Biodiversity is under threat on a global level with over half of global wildlife declining in the last 40 years and more than 20% of mammals and plants threatened with extinction.[124] With concern for the loss of biodiversity in a number of protected areas growing, we have changed the way we report to focus on our activities that are situated or close to the most sensitive protected areas, known as international protected areas.

We review the location of our major projects and operations in and around international protected areas each year. Four of our major operations have activities in or around these areas, while none of our major projects do[125]. This number can fluctuate from year to year, as protected area designations are reviewed by governments. Our shipping fleet also enters protected areas as part of normal operations.

[Table: Major operating sites in and around international protected area in 2016[a]]

Type of protected area	Inside the boundary	Adjacent (within 1km)	Near (1 – 5km)	Close (5 – 20km)
World Heritage site	2	0	2	1
Ramsar site	1	2	2	4
International Union for Conservation of Nature (IUCN) category I- II	3	5	10	15
Natura 2000 site	3	4	6	7

[a]A major operation may exist within or near more than one type of protected area. BP has no major operations in or near HELCOM marine protected areas; SPAMI marine protected areas; SPAW protected areas or IUCN V protected areas which are ICCA designated.

See *bp.com/protectedareas* for more information on international protected areas where BP operates.

International protected areas

We evaluate all new projects to determine whether planned activities could affect international projected areas. If our screening process shows that a proposed project's planned activities could affect or enter an international protected area, we require executive approval before any physical activities can take place. We then proceed with a detailed impact assessment and identify ways to first avoid, and if required, minimize and mitigate any potential impact. No new BP project has sought permission for entry into an international protected area since 2006.[126]

[124] IMWG paper – will confirm
[125] Mark Johnston, EOY
[126] IMWG Sensitive and protected areas position

BPA_HCOR_00286130

Marine environments

BP has an extensive deepwater portfolio and we work to understand how our operations may disturb marine habitats or sensitive areas. We collect baseline data and conduct ongoing monitoring activities – this helps us when planning drilling activities, laying pipelines and building offshore platforms, as well as in responding to oil spills.

For example, in Angola, our monitoring stations gather ocean data, including sound. [Gap: How long have these monitoring stations been in place?]. This helps us to understand long-term patterns in the deepwater environment, including any effect that sound from our activities might have.[127]

We use technology to collect data on the impact of sound on marine mammals. For example, we are using a marine autonomous surface vehicle at our Clair Ridge field in the UK to gather baseline environmental marine mammal sound information.[128] [Gap: Findings?]

Great Australian Bight

We decided not to progress our exploration drilling programme in the Great Australian Bight in 2016. This is in line with our approach to only pursue exploration opportunities that are competitive and aligned to our strategy.[129]

We will continue to support the Great Australian Bight research programme until it concludes in 2017. This research examines the biological and socio-economic importance of the Bight and aims to ensure that any future developments can co-exist with the area's environment, industries and community.

Assessing the impact on turtles from seismic surveys in Trinidad & Tobago

[Note: This is version for online. In print report it will be shorter]

We have worked in Trinidad & Tobago for more than 50 years, exploring and producing oil and gas in the waters of the Caribbean Sea. Our activities require great sensitivity, not least because the country is host to one of the largest nesting populations of leatherback turtles in the world.

In 2016, we needed to perform seismic surveys to map and, subsequently, evaluate the potential for new underwater oil and gas reserves. The surveys involve vessels that emit a low frequency sound pulse by releasing compressed air into the water. The subsequent sound wave is reflected off the geological formations that lie below the seabed and captured by recording devices.

We discussed the potential impact that these sound waves might have on turtles and mammals with local marine authorities and the marine scientific community. We also studied guidelines from other countries on how to conduct seismic surveys near mammals. Measures included pre-survey 'turtle watch' periods, adopting low-level sound pulses at the start of a survey and implementing mitigating measures, should turtles be encountered.

Most importantly, we shared our plans with local organizations, such as Nature Seekers and marine mammal observers, who work closely with the country's turtle population and the local fishing community whose activities provide valuable information on turtle movements. In Trinidad & Tobago, marine mammal observers must be present on seismic ships or platforms during offshore operations, and we work with them so that operations proceed in a manner that limits potential harm or disturbance to marine mammals.

As a result of this preparatory research and collaboration, we adapted our plans so that our seismic surveys avoid sensitive areas for the local turtle population that lies between five and 30 kilometres from the coastline. We will avoid important time periods in the turtle reproduction cycle. Most importantly, this work will help to

[127] SR 2015
[128] AUTONAUT-overview.ppt
[129] http://www.misa.net.au/GAB accessed 28 October, 2016

inform any future approach that others take – both inside and outside our industry – when working with turtles in Trinidad & Tobago and elsewhere.

Find out more at *bp.com/casestudies*

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6. Respecting human rights

We are committed to conducting our business in a manner that respects the rights and dignity of all people and upholds internationally recognized human rights. These commitments inform how we engage with communities, governments and our supply chain, and help us to maintain our license to operate.

[Potential graphic to depict how human rights encompasses many aspects of our work]

→ Workers' rights: we believe that our workforce should enjoy safe, healthy, secure and fair working conditions.

→ Security and human rights: we engage with the security forces protecting our assets to make sure that our workforce and the local community are treated with dignity.

BPA_HCOR_00286133

6.1. Our approach to human rights

Respect – one of BP's core values – underpins how we interact with all those affected by our operations.

We have a long history of seeking to conduct our business in a manner that recognizes human rights. We uphold internationally recognized human rights as set out in the International Bill of Human Rights and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work. These include the rights of our employees, contractor and supplier workforces, indigenous peoples and communities affected by our activities.

Our focus

We are taking a risk-based approach to implementing the relevant sections of the UN Guiding Principles on Business and Human Rights (UNGPs). Our focus is on identifying and addressing human rights risks and impacts, improving community and workforce grievance mechanisms, and reviewing the recruitment, working and living conditions of contracted workforces.

See page [xx] for information on our review of grievance mechanisms using UNGP criteria.

Local communities

We aim to prevent and mitigate any adverse impacts of our operations on local communities. Where we identify that we have caused or directly contributed to adverse impacts, our human rights policy commits us to provide for or cooperate to remedy these impacts. Our operating management system includes requirements for our businesses to respond to community concerns. And we require all our projects to have a dedicated mechanism for local communities to raise complaints and grievances. [Those who use our community complaints systems or OpenTalk, our confidential hotline, are free to also use other channels, such as judicial processes, if they wish.]

See page [xx] for more information on our how we engage with communities.

BP and human rights – our journey

2000	BP is a founding member of the UN Global Compact and the Voluntary Principles on Security and Human Rights.
2002	We set up the Tangguh Independent Advisory Panel to monitor the project, assessing impacts on indigenous peoples as well as security and human rights.
2003	We establish the Caspian Development Advisory Panel to independently observe construction of the Baku-Tbilisi-Ceyhan pipeline, including on human rights-related issues.
2006	BP publishes company-wide guidance on human rights.
2010	We integrate major project requirements for the management of workforce welfare and consultation with indigenous peoples into our operating management system (OMS).
2011	Independent human rights experts review alignment of our policies and practices with the UN Guiding Principles. They highlight that OMS is a good foundation and provide recommendations for further improvement.
2012	BP creates a formal governance structure for human rights issues.
2013	BP launches its human rights policy, and begins training on the policy, the relevance of human rights to business and the importance of prevention, anticipation and remedy.
2014	We include a specific reference to our human rights policy in our code of conduct, requiring employees to report any human rights abuse in our operations or those of our business partners.
2014-2015	We incorporate human rights clauses into our standard model contracts for new supplier agreements for many of our businesses.
2016	We pilot our supplier human rights due diligence process.

BPA_HCOR_00286134

Find out more

Governance Page [xx]
Managing our environmental and social impacts Page [xx]
Focusing on safe operations Page [xx]

BPA_HCOR_00286135

6.2. Workers' rights

We believe that BP's employees, as well as our contractor and supplier workforces, should enjoy safe, healthy, secure and fair working conditions, and should be ethically recruited.

Our code of conduct and human rights policy reinforce our commitment to freedom of association, equal opportunity and non-discrimination, as well as the elimination of all forms of forced labour, including human trafficking and modern slavery. Our code requires our employees to report any human rights abuse in either our operations, or those of our business partners.

And our operating management system includes guidance and requirements on human rights-related topics, such as workforce welfare, for our projects.

Employee awareness and training

We know how important it is that our people understand the significance of human rights and alert us to any potential risks. As such, we continue to build employee awareness of both our human rights policy and the potential human rights impacts relevant to our industry. For example, we produce a quarterly human rights bulletin for our procurement teams around the world that covers [XX, XX and XX].

Our human rights training includes workshops for senior leadership teams in the parts of business where human rights need more scrutiny. We also provide training on specific human rights topics, such as integrating human rights into impact assessments. We held [XX] [130] human rights training events for more than [XXX] employees in 2016.

Raising concerns

We encourage employees, contractors, communities and other third parties to ask questions about our code of conduct and to speak up if they see something they feel to be unsafe, unethical or potentially harmful. They can raise a concern by using our confidential helpline, OpenTalk (see page x).

In addition to providing workers' complaints mechanisms, at some of our large projects we take extra measures to strengthen our ability to identify and manage potentially adverse impacts on workers' rights. For example, at our Khazzan project in Oman and our South Caucasus Pipeline expansion project in Azerbaijan and Georgia, we conduct regular reviews of working conditions and labour rights. And our contractors hold forums where worker representatives meet with management to discuss any concerns.[131]

See page [XX] for more information on how we promote an open and ethical work environment.

Working with contractors and suppliers

We encourage our contractors and suppliers to adhere to the principles set out in our human rights policy. Where we find an issue, we prefer to work with companies to resolve the problem and to prevent it from happening again. Otherwise, the situations for the people at risk may not improve, or could even get worse. If a serious breach is found and no corrective action is taken following our intervention, then we may terminate contracts.

[130] Evidence needed
[131] SCPX documents from Rachel Kennedy with Kate Niblock

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Contractors

In 2016 [XX%] of the [XXX] million hours worked by BP were carried out by contractors. [XX%] of these hours were in our upstream business. We expect and encourage our contractors and their employees to act consistently with our code.

We have developed a guide on contracted workforce rights for our upstream projects.[132] This outlines how BP's existing processes are used to support the fair treatment of contracted workers. It includes examples of performance indicators that projects should consider such as the number and type of worker grievances and the number and reasons for dismissals.

And, in our biofuels business in Brazil, we use a tool to access the employee documentation of our contractors, in addition to our regular audits. With the tool, we can confirm that the contractors are complying with applicable labour laws and respecting the rights of their employees.
[Gap: Nili to confirm with Thiago Souza in December]

Our supply chain

We have more than 68,000[133] direct suppliers, with thousands more supporting them. As a major purchaser of goods and services, we often have an ability to influence the treatment of the workforce within our supply chain, both on-site and elsewhere.

We believe that those who work for our suppliers are entitled to do so under conditions that recognize their rights and dignity. As such, we seek to make contractual commitments with suppliers that encourage them to adhere to the principles contained in our human rights policy. The standard model contracts that our upstream, downstream, shipping, wind and biofuels businesses use when agreeing new contracts include requirements for our suppliers to respect internationally recognized human rights in their work for BP. We also have similar human rights clauses for other parts of BP, such as information technology, human resources, facilities management and travel.

Drawing on our work with industry peers, we developed a standard set of human rights questions that can be used to help screen potential and current suppliers in a consistent way anywhere in the world. We piloted this with more than 100 potential suppliers in 2016 and plan to roll the programme out to other suppliers in 2017 on a risk-prioritized basis.

We take a risk-based approach to monitoring our suppliers. In a number of locations and business we conduct labour rights audits that look into forced labour and human trafficking, working hours, compensation, non-discrimination and other rights outlined in the ILO Declaration on Fundamental Principles and Rights at Work.

[132] GPO Guide for Contracted Workforce

BPA_HCOR_00286137

Redacted - First Amendment

Modern Slavery Act

We work in some of the world's highest risk countries from a modern slavery perspective, as measured by Verisk Maplecroft's Modern Slavery Index.

Given the breadth and complexity of our supply chain and activities across the globe, we are focusing on the parts of our business and supply chain where we believe there to be the greatest risk of modern slavery. For example, there is a greater risk of modern slavery in activities that rely predominantly on manual labour such as cleaning, catering, construction and manufacturing. We also take into account factors related to the vulnerability of the workforce, including poverty levels; ethnic, religious or gender minorities; and foreign contracted/migrant workers.

To date we have reviewed [XX] suppliers and [XX] contractors. As a result we have prioritized specific business activities, including large construction projects, lubricants production, retail stations, certain shipping activities and certain biofuels suppliers.

As we learn from what we find, we expect that our review will expand to cover other business areas and that we will develop more systematic ways to prevent and mitigate these risks in our operations and supplier base.

Find out more
Providing an ethical and open environment
Page [xx]

BPA_HCOR_00286139

6.3. Security

BP works to protect our people and facilities in a manner that upholds human rights.

Providing security for our assets around the world can be complex, especially in locations where there is a higher likelihood of conflict or violent crime. A company's security arrangements, if not managed carefully, may pose risks to the rights of local communities and may expose it to accusations of complicity in human rights abuses.

We seek to engage with the security forces that protect our assets to make sure they understand and respect the human rights of our workforce and communities living near our operations.

Voluntary Principles on Security and Human Rights

We are a signatory to the Voluntary Principles on Security and Human Rights, which provide a framework for companies to assess whether human rights issues are likely to occur as a result of security activities within local operations, and to allow appropriate precautionary steps to be taken.

We provide guidance to employees accountable for assessing and managing security risks to help understand BP's approach to implementing the Voluntary Principles. This includes the mechanisms that we use to identify and mitigate risk, our interaction with public security forces and private security providers, and progress evaluation. We periodically conduct internal assessments to identify areas where we can improve implementation.

[Gap: Have we done any internal assessments against the VPs in 2016 – can we talk about lessons learned? Information to come from Helen Simpson]

We provide details of our progress in relation to security and human rights issues in an annual report to the Voluntary Principles plenary, which is publicly available.

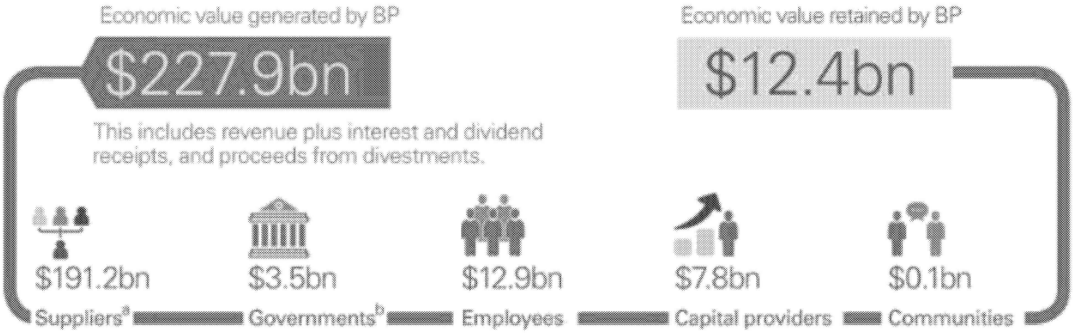
We also work with governments, other companies and non-governmental organizations (NGOs), whether or not they participate in the Voluntary Principles, to share and promote best practice. For example, we have been working with NGO International Alert to update their guidance for extractive businesses on operating in environments where security may be challenging.

BPA_HCOR_00286140

7. Maximizing value to society

Local communities and governments where we work can benefit greatly from our presence. We can build skills in the local workforce and support local suppliers, and this, in turn, can benefit our business, creating shared value. Our ability to operate depends not only on the necessary official permits from authorities, but also on communities' permission and support.

Generating value



[Graphic to be updated with 2016 data]

→ Suppliers: we promote the use of local suppliers where appropriate, contributing to the growth of the local skilled workforce.
→ Employees: we provide direct employment to around [xx,xxx][134] people across the world, and seek to recruit our workforce from the local community or country.
→ Governments: we contribute to economies around the world through the taxes that we pay, and we promote transparency in revenue flows from oil and gas activities in resource-rich countries.
→ Capital providers: we aim to achieve long-term growth and value for our shareholders by supplying energy to help meet global demand in a safe and responsible way.
→ Communities: we support efforts to increase local incomes and improve standards of living through our social investment programmes.

[134] Evidence needed

BPA_HCOR_00286141

7.1. Engaging with communities

We work with local communities in an open and constructive way.

Our activities have a direct impact on the people who live close to our facilities. For this reason, when we plan new projects we consider issues including community health and safety, security, water use, air quality, resettlement, worker rights and the livelihoods of local communities, including indigenous peoples.

This helps us to identify early on whether any activities could affect the rights of local employees and nearby communities – and to find ways to prevent or mitigate those impacts before any work begins. In addition, our major projects are required to consult with potentially impacted indigenous peoples, and undertake appropriate mitigation measures.

Community consultation

We think it's important that community consultation gives people the opportunity to express their views on our work. That's why we require our businesses to respond to community and stakeholder concerns, as well as record and act on any commitments. In 2016, concerns and requests raised by communities living near our major operations included noise, odour, dust, job opportunities for local residents, community investment programmes, flaring and access to roads.[135]

We consult with communities about potential impacts from our operations so that we can address any concerns directly. For example, the construction of a new marine pipeline to our Shah Deniz 2 project in Azerbaijan had the potential to disrupt the local fishing industry. We talked to local community members and conducted surveys prior and during construction to monitor any change in the livelihoods of the fishermen. The results showed that there were impacts, so we are taking action to restore livelihoods to pre-project levels. This included [XX], [XX] and [XX]. We've also established a channel by which the fishermen can raise concerns. To date, all concerns raised have been resolved. [136]

Evaluating our grievance mechanisms

We evaluated the effectiveness of community grievance mechanisms at 24 of our businesses in 2016, using United Nations Guiding Principles (UNGP) on Business and Human Rights. We found that while some of our businesses have strong mechanisms in place, there is still work to do.

The quality of the procedures varies. Some sites, such as our Lingen refinery in Germany, are clear that their mechanisms are available to community members and procedures are well documented and publicized, whereas some of our sites in China are not as systematic in their approach. We are building on this work by developing guidance for our sites on implementing effective community complaints mechanisms. [137]

Find out more
Managing our environmental and social impacts See page [xx]
Human rights See page [xx]

[135] Evidence needed.
[136] SD2 SCPX fishermen grievances email
[137] CCMs Gap Assessment Results PowerPoint provided by Tural Valiyev

BPA_HCOR_00286142

7.2. Creating local value

We aim to have a positive and enduring impact on the communities in which we operate.

We contribute to economies through our core business activities, for example, through local workforce development and the use of local suppliers. Additionally, our social investments support communities' efforts to increase their incomes and improve standards of living.

A decade-long commitment to creating value in Tangguh

Located in the remote Papua Barat province, Tangguh is Indonesia's second largest liquefied natural gas supply facility. We have worked with local communities and multiple stakeholders for more than 10 years to make sure that the development of Tangguh acts as a catalyst for local sustainable development.

Our Tangguh workforce is 99% Indonesian and 55% Papuan as a direct result of recruitment and training. We are committed to reaching an 85% Papuan workforce by 2029. To do this, we created an internship programme that has recruited university graduates from Papua and Papua Barat and given them hands-on experience to prepare them for future careers at BP or one of our business partners. We have also opened the first internationally accredited Papuan apprentice programme to help train indigenous Papuans as operations and maintenance technicians.

We have worked with local community leaders to establish seven local co-operatives involved with sourcing and supplying food for the Tangguh facility. This has led to the creation of a mini-market and a local distribution network serving other markets. Tangguh's need for workplace clothing and uniforms, along with the growing availability of electricity supplies, led us to support the foundation of two sustainable local businesses in clothing manufacture and air conditioner maintenance.

Over the past decade, we have worked closely with local stakeholders to improve access to electricity, tackle health issues, increase literacy and strengthen civil capabilities. We have reduced the community's reliance on high cost, diesel-fuelled power plants by using gas at the plant to generate electricity for supply to local communities. The introduction of an early diagnosis and treatment programme for malaria, involving the training of villagers as malaria health workers, has virtually eliminated the disease in surrounding villages. Support for the local education office and the provision of teachers, school facilities and infrastructure has improved local literacy rates.

Find out more at *bp.com/casestudies*.

Local workforce development

We aim to recruit our workforce from the community or country in which we operate. We do this to meet host governments' requirements and because we believe it benefits the local community and BP.

A number of our operating sites are working to improve local and national representation in their workforce. At our Khazzan gas project in Oman, for example, half of our leadership team is Omani, and we have committed to a 90% Omani workforce by 2020[138].

In the UK we provide apprenticeships to help safeguard the jobs of trainee engineers and technicians in the North Sea. [Gap – additional example needed from Upstream PSCM]

Local suppliers

We promote the use of local suppliers, where appropriate, contributing to the growth of the local skilled workforce.
[Gap: South Africa example to follow in draft 2]

[138] https://intranet.bp.com/en_gb/group/one-bp/news-and-media/news/news-archive/Oman.html

In Azerbaijan we are supporting the efforts of local companies to build their skills so that they can improve their competitiveness when bidding for work with international companies. This supports the local economy and has the potential to lower our operating costs by around 10-20% over the long term.[139] This enterprise and development programme has helped local companies secure international contracts in excess of $[XX] million, [XX]% of which is with BP in Azerbaijan.[140]

Community investment

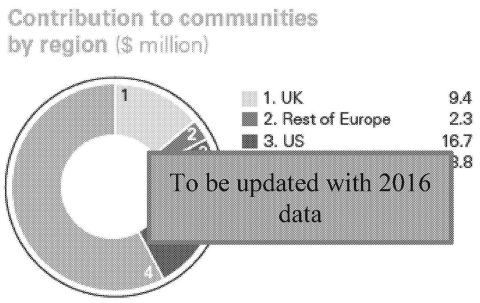
We seek to make meaningful community investments that meet local needs and align with our business activities, and information from community engagement and impact assessments helps shape our approach.

We look to strengthen local services such as in health or education. In Egypt we helped fund emergency response equipment, such as ventilators and cardiac monitors, for two hospitals close to our West Nile Delta gas processing facility.

In some of the locations where we operate, we help build opportunities for local businesses. In Angola, we worked with a local NGO and local bank to develop an initiative that offers micro-credit to residents in a rural community severely impacted by the civil conflict. The project helps subsistence rural farmers secure access to credit so that they can purchase tractors, build warehouses and send their children to schools. The project, in place since 2005, has reached more than 3,000[141] farmers. With some of the farmers extending the reach of their products from local markets to the Democratic Republic of the Congo and Congo Brazzaville.

We often contribute to education programmes in regions where we work.
[Gap: UK example to come from Samantha Bulkeley/Angola example to come from Jill Douglas]

Direct spending on community programmes
[Graphic: Community contributions by region[142]]



Our direct spending on community programmes in 2016, including disaster relief, was $[XX.X] million. This excludes spending on costs associated with the Deepwater Horizon accident and is in addition to $[XX.X] billion for employee benefits and wages and $[X.X] billion in taxes paid to governments[143].

The BP Foundation[144]

The BP Foundation is a charitable organization that works to benefit communities around the world. It does so by prioritizing donations to charities that support science, technology, engineering and maths education, and humanitarian issues. In 2016, the foundation contributed $[XXX,XXX] to organizations and schools around the world that concentrate on these areas and $[XXX,XXX] to locally-based relief organizations.
[Gap: Iris Cross to provide reference points around how we donate to communities impacted hurricanes, floods and earthquakes]

[139] Evidence needed
[140] Evidence needed
[141] Greater Plutonio Microcredit Project – Angola email
[142] Data to come at year end from Mustafa Dharamshi
[143] Data to come at year end from Mustafa Haramshi
[144] Data to come at year end from Iris Cross

The foundation also matches personal contributions from BP employees that are made to eligible charities of their choice. In 2016, employees gave around $[X.X] million, which was matched with grants of approximately $[X.X] million.

BPA_HCOR_00286145

7.3. Fostering transparency and anti-corruption

We support transparency in revenue flows from oil and gas activities to governments and have a responsibility to our host countries to be ethical in our dealings.

We contribute to economies around the world through the taxes that we pay. We paid $[X.X] billion in income and production taxes to governments in 2016 (2015 $3.5bn, 2014 $7.9bn). We engage in initiatives to simplify and improve tax regimes to encourage investment and economic growth, and we support efforts to increase public trust in tax systems.

Revenue transparency

We disclose information on payments to governments for our upstream activities. We report on a country-by-country and project basis as required by UK regulation. For BP, these payments could be made in the form of production entitlements, taxes, royalties, bonuses, fees and infrastructure improvements.

We also make payments to governments in connection with other parts of our business – such as the transporting, trading, manufacturing and marketing of oil and gas.

View our approach to tax and our payments to government report at *bp.com/tax*

Extractive Industries Transparency Initiative

As a founding member of the Extractive Industries Transparency Initiative (EITI) and a member of the initiative's board, BP works with governments, non-governmental organizations and international agencies to improve transparency and disclosure of payments to governments.

We support governments' efforts towards EITI implementation in countries where we operate and have worked with many countries to help them meet their EITI commitments, including Australia, Azerbaijan, Indonesia, Iraq, Norway, Trinidad & Tobago, the UK and the US.

We believe that the comprehensive, multi-stakeholder approach of EITI offers a constructive approach that is appropriate for the extractive industries. The EITI is an inclusive process that is tailored to fit the local fiscal and legal regimes. See *eiti.org* for more information on our EITI activities.

Anti-bribery and corruption

We operate in some of the world's highest-risk countries from an anti-bribery and corruption perspective, as measured by Transparency International's Corruption Perceptions Index.[145]

Our code of conduct explicitly prohibits engaging in bribery and corruption in any form. We have a responsibility to our employees, our shareholders and to the countries and communities in which we do business to be ethical and lawful in our work.

Our anti-bribery and corruption policy applies to all BP-operated businesses[146]. It sets out appropriate contractual commitments, risk assessments and training. We provide training to those employees for whom we believe it is most relevant. This depends on the nature or location of their role or in response to specific risks.

Before working with a supplier, we conduct an assessment to determine the degree of bribery and corruption risk posed. If needed, we'll then put in place a risk reduction plan.

[145] http://www.transparency.org/cpi2015/results
[146] SR2015

BPA_HCOR_00286146

We also check suppliers once contracts are in place. For example, in our upstream business we carry out anti-bribery and corruption audits to confirm whether suppliers are complying with related contractual terms. We issued a total of [XX][147] audit reports in 2016 (2015 35, 2014 36).

Bringing Castrol back to Myanmar

Since the relaxation of US sanctions in 2016, we have started to sell Castrol lubricants in Myanmar for the first time in almost 50 years. Conducting business in Myanmar currently carries a high exposure to bribery and corruption risk, according to Transparency International's Corruption Perception Index. Consequently, our re-entry to this market required careful planning to help us to comply with anti-bribery, corruption and international trade regulations - as well as to meet BP's expectations, as set out in our code of conduct.

We use a single distributor to supply Castrol lubricants across Myanmar. Before selecting the company, we identify the risks faced in carrying out the safe, efficient and ethical distribution of our products in country. For example, the movement of goods can sometimes involve the corrupt practice of 'facilitation payments' to avoid issues arising with goods handling, customs clearance or other delays to the supply chain. BP does not tolerate facilitation payments in any form.

We put in place several measures to assist the distributor in mitigating the risks they might face. We held training sessions for the distributor's managers and staff; and we helped them develop their own code of conduct. They instituted a 'hotline' to enable employees to raise concerns. And, we hold quarterly process reviews with the distributor's management and sales teams, which has helped identify areas for improvement during the first year of the contract.

Because of these efforts, our distributor can better anticipate and plan around these issues. For example, building in lead time to compensate for potential delays in obtaining customs clearance for goods.

"Our commitment to business ethics represents good business in practice. It builds trust within an important developing and growing market and it enhances the standing and credentials of companies like our distributor who are setting new standards for business."
Peter Weidner, Regional vice president, BP Lubricants, Asia & Pacific

[147] Information to come from Mei Cunningham or Fritz Ring

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