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Global

Careers



Pursuing efficient operations

We work to manage our GHG emissions by improving energy efficiency, as well as by reducing flaring and methane

Around 5% of all manmade greenhouse gas (GHG) emissions come from global oil and gas industry operations. That includes everything from 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 and methane, come from the combustion of fossil fuels for energy and the flaring and venting of gas.

Improving energy efficiency

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

Upstream

Our sites look for opportunities to increase energy efficiency. For instance, we lowered the furnace temperatures by 5°C at the Sangachal terminal in Azerbaijan, and replaced some gas turbines with electrical compressors at our Prudhoe Bay facility in Alaska. Efforts like these reduce both fuel consumption and GHG emissions, and we are actively sharing these practices across our operations.

To track the energy performance of our upstream operations we calculate the energy used by, or lost from, our operations as a percentage of the energy produced by our operations. The increase in 2016 is primarily due to the divestments of some of our North Sea assets.

Downstream

We measure the energy performance of our refineries using the Solomon Energy Intensity Index® (EII®), an industry measure that benchmarks energy efficiencies. Each of BP's refineries sets and tracks progress against a target. In 2016 our overall refining EII® improved by 0.7%, which is ahead of the industry standard. Our Toledo refinery in the US achieved the greatest reduction in energy intensity and we are sharing lessons learned with our other refineries.

We focus on ways to reduce energy intensity that deliver long-term benefits. For example, at our Whiting refinery in the US, we are using the steam generated by operations to help power the refinery. This has led to a reduction in Whiting's indirect GHG emissions, with more electricity generated on site.

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

- See [Helping customers reduce emissions](#).

Shipping

We are introducing six liquefied natural gas carriers with energy efficiency enhancements to our shipping fleet. They are designed to use 25% less fuel and emit less nitrogen oxides than our older ships.

Reducing flaring

Flaring is the controlled burning of gas during oil and gas production, refining and manufacturing operations. This can happen in the initial commissioning of a well, during the start-up of operations, as a safety release or during maintenance. That means that the amount of gas we have to flare fluctuates depending on the types of activity during the year.

We saw a 2% increase in flaring in our upstream operations in 2016, primarily due to operational and export limitations in Angola and increased drilling activity in Oman. These were largely offset by the increased availability of compressors in the North Sea and the drilling of a dedicated reinjection well in Angola.

In Indonesia, we have been working on a long-term flare reduction programme. Since 2012 our Tangguh operations have reduced flaring by 67% by recycling gas for use as a fuel.

BP is a founding member of the World Bank's Global Gas Flaring Reduction partnership, which brings together governments, companies and international institutions to help use gas that would otherwise be vented or flared. We have worked with the state oil company of Azerbaijan, SOCAR, to increase gas recovery from offshore operations in the Caspian Sea - an effort commended by the World Bank.

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 constitutes less than 5% of total flaring in our upstream operations. Our major new projects are designed to eliminate routine flaring.

We continue to evaluate our existing operations to identify viable opportunities to reduce all forms of flaring.

See [Supplying natural gas and managing methane](#)

Our performance^{ab}

Greenhouse gas emissions (MteCO₂ equivalent)

GHG intensity (TeCO₂ equivalent/unit)

GHG emissions by source (MteCO₂ equivalent)

GHG emissions by activity (MteCO₂ equivalent)

Energy efficiency (indexed to 2010)

^a 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.

^b See Our performance tables for minor adjustments made.

Flaring in our upstream operations (thousand tonnes (kte) of hydrocarbons)

GHG emissions

Our direct GHG emissions are impacted year-on-year by changes in our portfolio and operations. For example, emissions can increase when we start up new projects or when we bring operations back online after planned maintenance. Both of these activities are essential for the safe performance and growth of BP's portfolio.

Reductions

BP's CDP submission
(PDF 694.4 KB)



We estimate what we call 'real sustainable reductions' of our GHG emissions. This measure reflects actions taken by our businesses to permanently reduce their GHG emissions in areas such as flaring and venting as well as through energy efficiency. We began tracking this in 2002, and the running total by the end of 2016 exceeded 9.1Mte.

Intensity

We track GHG intensity, which is the quantity of GHG emitted in tonnes per a defined unit of measurement. The GHG intensity of our upstream portfolio has risen in 2016 primarily because of an increased contribution from more GHG-intensive operations, such as our unconventional gas operations in the US..

We expect the GHG intensity of our refining portfolio to remain relatively stable or to decrease at certain refineries due to efficiency projects in progress and improved refinery utilization.

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

Climate change adaptation

We seek to address the potential impacts of a changing and unpredictable climate - such as sea-level rise, higher temperatures, extreme weather events and greater or less precipitation - on our new projects from the design phase.

We consider these risks for new projects with an operational life greater than 10 years. For example, we expect our Clair Ridge project in the North Sea to be in use for around four decades - so we have designed the platforms to withstand possible sea level rise, among other factors.

We have guidance to help our existing operations and projects identify potential impacts and adapt to a changing climate.

In Iraq, to redevelop an existing oilfield, we are selecting new equipment to better withstand extended periods of high temperatures. And, at our South Caucasus pipeline, we decided to place some of the pipeline deeper underground to avoid potential washouts due to flooding.

We have used global climate models, supported by scientists from Princeton University and Imperial College London, to help us assess possible climate impacts relevant to selected operations.

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