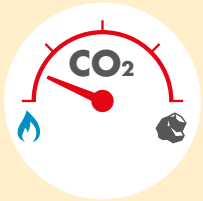
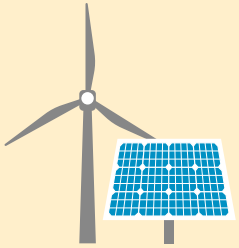
UPHOLDING THE ENVIRONMENTAL CREDIBILITY OF GAS

PROVIDING MORE AND CLEANER ENERGY

With world population expected to increase by a billion by 2030, gas is one of the few energy sources that can meet growing demand while reducing greenhouse gas emissions.

Using natural gas instead of coal or diesel is helping to **reduce carbon dioxide and improve air quality.**





Gas supports an increasing role for renewables, **providing support for wind, solar and hydroelectricity,** helping match the supply and demand of cleaner electricity.

Gas will continue to play a **critical role in difficult to electrify sectors** such as the production of steel, cement and chemicals, as well as long-distance transportation.

SECURING THE FUTURE OF GAS

To realise greater greenhouse gas emissions benefits, the gas industry must increase its focus on **reducing emissions of methane across the supply chain.**

EXAMPLES OF SHELL'S GAS AND LNG SUPPLY CHAINS*

The supply chains – which include Shell assets as well as operations run by third parties – cover the full process (including liquefaction for the LNG supply chain) that gas molecules undertake from production to point of delivery to the customer.

Across over 80% of Shell's total gas and LNG supply chains, Shell estimates that the **methane emissions intensity is less than 1%.**

Netherlands 0.1%-0.4%

UK ~0.5%

USA ~0.6%

Australia QGC ~0.3-0.7%

WHAT IS METHANE?

Methane is a potent greenhouse gas, which has a **higher impact on global warming than carbon dioxide**. It is emitted during the production, processing, transport and incomplete combustion of oil and natural gas.

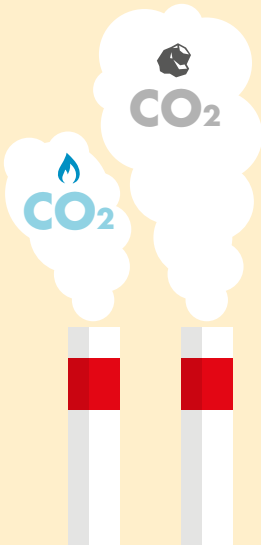
WHERE DOES METHANE COME FROM?

Globally, around **60% of total methane emissions come from human activities,** according to the IEA.

The remaining **40%** of global methane emissions are naturally occurring, from natural seeps, wetlands, animals such as termites, and vegetation decay.

About **13%** of total global methane emissions come from oil and gas related activities, split roughly equally.

IMPACT ON GLOBAL WARMING

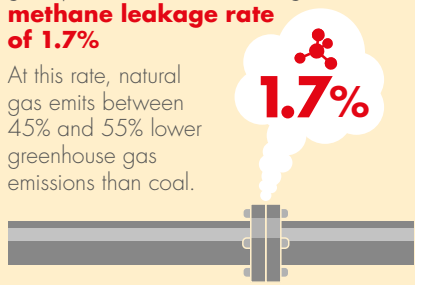


Greenhouse gas emissions from natural gas are lower than coal in electricity generation up to a methane leakage rate of 3.5% when measured over 20 years.

This jumps to 7.5% over 100 years.

Today, the IEA estimates that natural gas operations have an average **methane leakage rate of 1.7%**

At this rate, natural gas emits between 45% and 55% lower greenhouse gas emissions than coal.



SHELL TARGET

20.25

Shell has announced a target to maintain methane emissions intensity below 0.2% by 2025.

This target covers all oil and gas assets for which Shell is the operator.

DATA UNCERTAINTY

The total methane intensity number is an estimate only as there continue to be limitations to the comprehensive measurement of methane emissions.
Regulatory recording and reporting requirements for methane emission varies significantly between countries. We are working, both within Shell and in collaboration with other oil and gas producers, to improve the accuracy of the quantification of methane emissions data.

*We acknowledge these calculated percentages use data from third party sources, including countries' national greenhouse gas inventories. Calculations for the Shell operated parts of the supply chains are based on 2017 data.