# TIGHT AND SHALE GAS

We are safely tapping into resources of natural gas, known as tight and shale gas, which are held deep inside rock. These huge resources of natural gas, the cleanest-burning hydrocarbon, have the potential to create an energy supply revolution around the world helping to meet growing energy demand.

Traditionally most natural gas has come from rock formations that, once drilled, allow the gas to flow freely. But supplies of this easy-to-access gas are declining. Many of the remaining vast gas resources lie trapped tightly in dense rock, inside pores up to 20,000 times narrower than a human hair.

Called tight and shale gas, these resources were previously considered too costly or difficult to access, yet the overall volume of available gas can be much higher than in conventional gas reservoirs. We use advanced technology to help gain access, contributing to global growth in natural gas production.

Shell has decades of production experience with tight gas – in the USA and Canada, the North Sea, and mainland Europe. Over time we have found ways to safely develop the fields and produce the gas with greater efficiency, lowering costs and limiting our environmental impact.

# Producing tight and shale gas

At all our tight gas operations, we use a technique known as hydraulic fracturing to break open rock and release natural gas. This involves pumping fluids into the well bore at high pressure. The fluids comprise around 99% sand and water, with 1% chemicals added to help the gas flow more freely.

Fracturing typically takes place a kilometre or more (thousands of feet) below drinking water supplies. We insert concrete and steel barriers into the wells to prevent any drilling or fracturing fluids from entering into local water supplies.

**Read about advanced technology we use to safely produce tight and shale gas**

# Around the world

Shell started producing tight gas in the early 1950s in south Texas. Today we produce enough natural gas in North America to meet the energy needs of millions of homes. We are also exploring for tight oil and gas in locations in the USA, Canada, and Argentina.

**Read more about tight and shale gas in the Americas – opens on our US website**

Building on our experience in North America, we are developing tight and shale gas operations in other locations.

In China, we are partnering with PetroChina to produce enough tight gas a year at the Changbei field to meet around 20% of Beijing's annual gas needs, and we are exploring for more resources in other parts of the country.

In Australia, we acquired Arrow Energy in 2010 in a joint deal with PetroChina, to produce another form of tight gas called coalbed methane – natural gas found in coal seams.

Communities and environment

**Go**

Listening to residents near to our operations helps us form strong relationships and find ways to address local concerns about our operations. As we expand our activities we have implemented a number of environmental measures with the aim of protecting local biodiversity, keeping air and water clean, and reclaiming the land once drilling ends.

Read about how we **work with communities** and our **commitment to the environment**.

# MORE IN ENERGY AND INNOVATION

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