

**Be the  
source**

nationalgrid

**How gas  
is produced,  
transmitted  
and  
distributed**



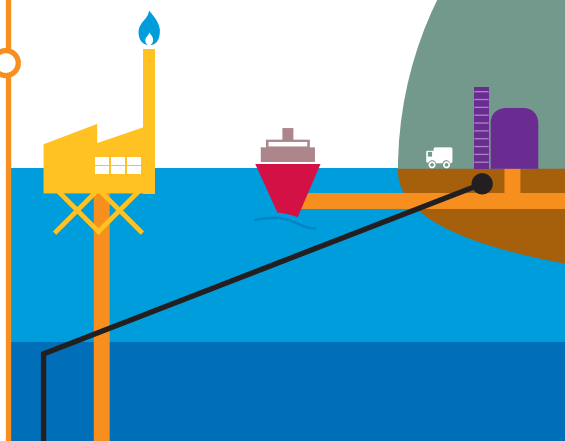
# Beach to meter

## The future of energy: Renewable gas

National Grid is developing several renewable gas projects designed to facilitate the injection of gas from sustainable sources into our existing gas distribution networks. This allows renewable gas to be delivered to customers to heat their homes and businesses.



## Gas



## Gas Terminal

When gas reaches your home it is the final part of a long journey which begins hundreds of meters below the sea.

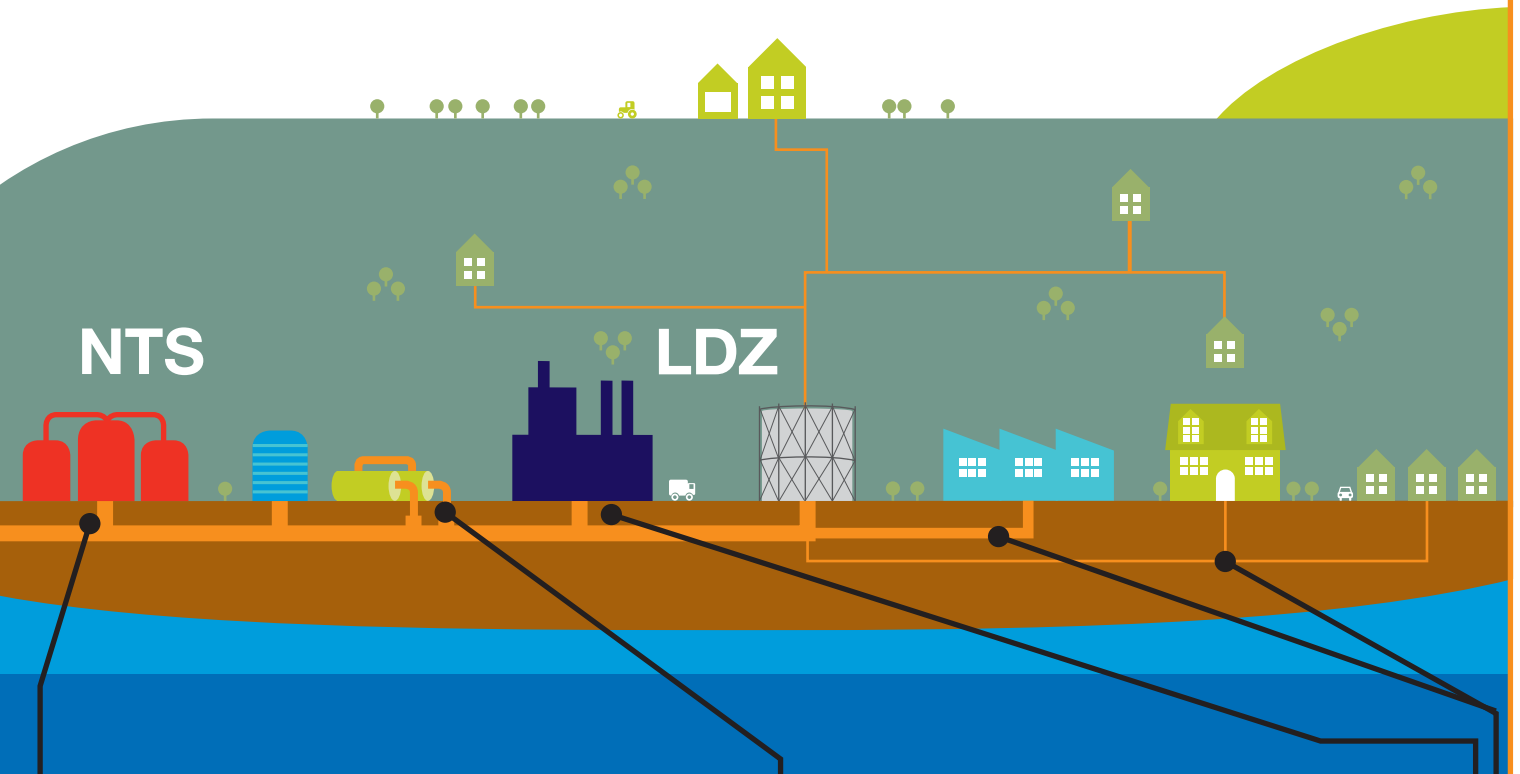
Natural gas is collected and sent by undersea pipelines or Liquid Natural Gas (LNG) tanker ships to gas terminals on the shore.

20% of UK gas is imported to LNG terminals. LNG is formed by chilling gas to  $-161^{\circ}\text{C}$  so that it occupies 600 times less space than in its gaseous form. This makes it easier to store and to transport large volumes from countries such as Algeria, Trinidad and Qatar via ships.

# How gas gets to you...

For over two hundred years, gas has been delivered to homes and businesses throughout Great Britain. It has become the country's most dependable form of energy. National Grid is responsible for ensuring that gas is delivered to over 20 million consumers through over 25000 km of pipeline around the country safely and efficiently. This means we work very hard to balance demand and supply,

maintain the gas system pressures and meet the correct gas quality standards. As a distributor of gas we maintain the pipeworks that bring gas to the doorstep. Nowadays, when pipes need to be replaced the old metal pipes do not always need to be taken away. Instead the company puts the new plastic pipes through the old pipe – it's more efficient and means less disturbance.



## National Transmission System

The gas enters the National Transmission System (NTS), which is the high-pressure part of National Grid's pipeline network, consisting of more than 7,600 kilometres of top quality welded steel pipeline operating at pressures of up to 85 bar (85 times normal atmospheric pressure, over 1250 psi). The gas is pushed through the system using 23 strategically placed compressor stations. The NTS can supply gas to other countries via interconnecting pipelines to Belgium and Ireland.

## Compressor Stations

Like the way the heart pumps the blood through the body, gas needs to be pumped through the pipelines under pressure. Compressor stations are used to move the gas around the network through high pressure transmission pipes.

The NTS supplies gas to UK end consumers from over 175 off-take points including large end users which are primarily large industrial consumers and power stations, who receive gas directly from the national transmission system rather than through a distribution network, and the twelve local distribution zones (LDZ) that contain pipes operating at lower pressure which eventually supply the smaller end consumers, including domestic customers.

## Storage

LNG is stored in huge storage tanks, some of which are larger than the Albert Hall!

## Pressure Reduction Stations

Gas needs to be cooled by up to 40°C to reduce the pressure so it can be transported via mains and service networks to be used by lower pressure sites. By the time it reaches our homes the pressure in the pipe is about the same as in a toy balloon.

## Local Distribution Zone

Offtakes from the National Transmission System form the mains that service the network. National Grid owns and operates almost half of the distribution network which is over 80,000 miles of pipework.

## Local Storage

Low pressure holders store natural gas which is used to supplement local demand.

## Mains and Service Pipe

Industry 600mm wide pipeline.

Business 300mm wide pipeline.

Local pipe sizes vary from 180mm down to 20mm which connects to the gas meter.

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**Securing our energy supply for future generations**