

**Be the
source**

The LNG Terminal at Grain



What is LNG

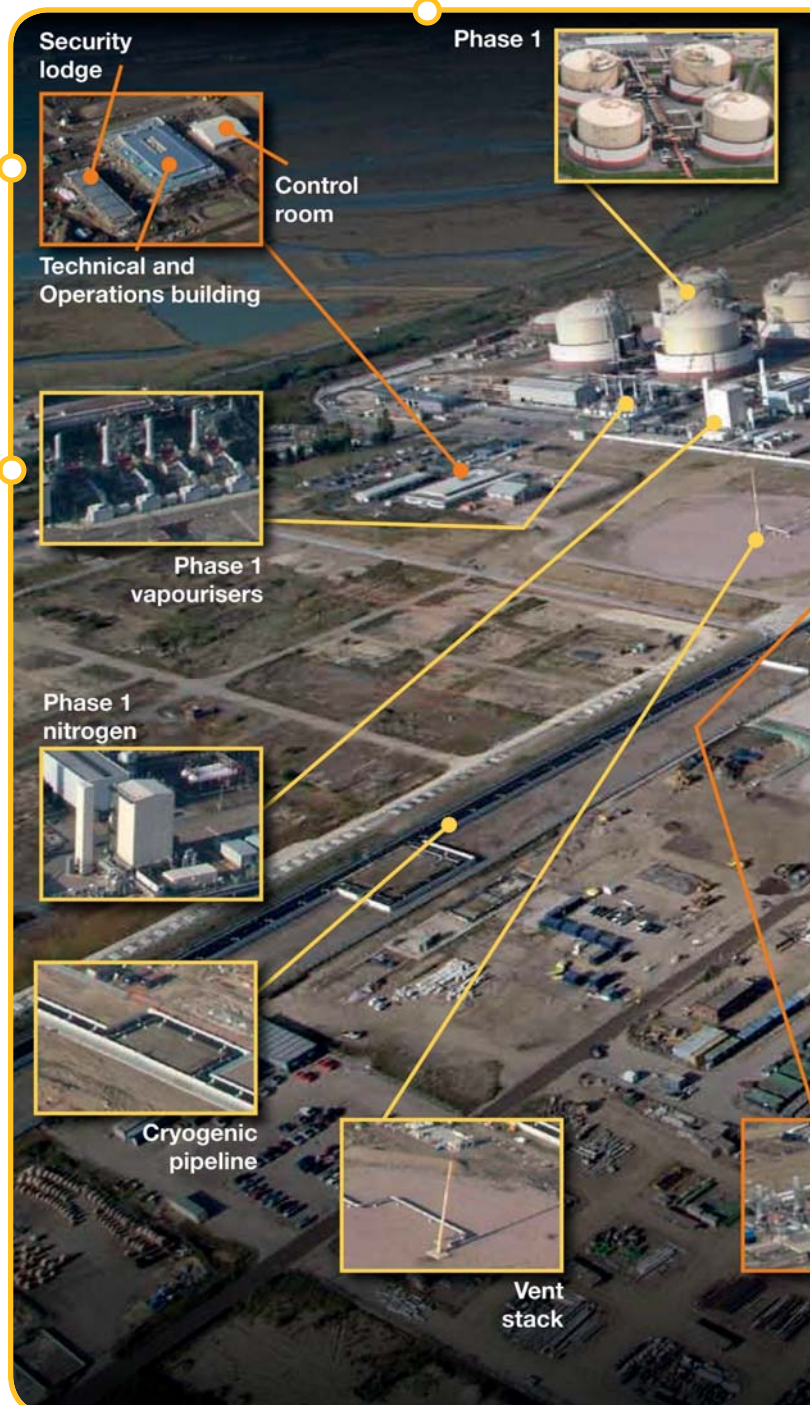
and why do we need it?

Liquefied natural gas (LNG) is, as its name suggests, natural gas in liquid form. LNG is formed by chilling gas to -161 degrees centigrade so that it occupies 600 times less space than in its gaseous form. This makes it an ideal way of storing and transporting large volumes of gas from places such as Algeria, Trinidad and the Middle East. LNG is vaporised to form Natural gas and is essentially the gas used to heat our homes and businesses, cook our food and provide us with a warm shower.

The UK faces a significant energy challenge over the coming years and the exciting developments taking place at the Isle of Grain, in Kent, will ensure National Grid plays a major role in meeting that challenge.

1

Grain LNG was originally built in the late 1970's to liquefy Natural Gas from the North Sea it was converted and commissioned in 2005 as an LNG importation facility. The terminal had the capacity to receive and process up to 3.3 million tonnes of LNG (4.4 billion cubic metres of gas) per annum, equivalent to 13 million cubic metres (140GWh/d) of gas per day.



2

Expansion of the terminal, to triple capacity to 9.8 million tonnes per annum (12 per cent of UK gas demand), is now complete with three of the biggest above ground full containment LNG storage tanks in the world. Each individual tank is big enough to encompass London's Royal Albert Hall.

3

On 1 December 2010, further expansion came on-line, giving the site an additional 5 million tonnes of capacity through an additional storage tank and second jetty, able to take the world's largest LNG carrier – the Q-Max.

Phase 2
Boil-off gas
compressors



Phase 2
Recondenser



Phase 2
LNG
storage tanks



Environmental
mitigation area



Phase 2
132kV to 11kV
substation

Phase 2
vapourisers



Phase 2 and 3
nitrogen



Phase 2
Ex-tank pumps



Phase 3 LNG
storage tank



Grain LNG

What goes on?

- **Jetty and Pipe Corridor.** From the two LNG unloading jetties the pipeline extends 4.5 kilometres to the storage tanks.
- **Storage Tanks.** The LNG storage tanks at Grain are the largest above ground storage tanks in the world.
- **Re-Condenser.** Boil-off gases(BOG) are taken and absorbed in the LNG from storage tanks and re-condensed.
- **Ex Tank Pumps.** There are 14 cryogenic ex tank pumps taking suction from the re-condenser and raising the pressure of the LNG.
- **SCV.** Used to convert LNG back to Natural gas via a hot water system contained within the Submerged Combustion Vaporiser.
- **BOG Compressor.** Boil-off Gas (BOG) is produced from the LNG in the storage tanks.
- **Control Room & Metering.** The control room is used to control plant operations. The gas flows through the metering systems on the plant and into the UK supply system.



Education & Skills
National Grid
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

www.nationalgrideducation.com

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