

National Grid Grain LNG

National Grid is increasing capacity at its liquefied natural gas (LNG) terminal to meet around 20% of forecast UK gas demand by winter 2010.

The decline of indigenous North Sea gas supplies is driving the UK's demand for new sources of gas and we are becoming more reliant on supplies imported from elsewhere. With this situation in mind, National Grid began construction work in 2002 to convert an existing LNG storage plant on the Isle of Grain in Kent into an importation terminal. This was subsequently expanded under Grain Phase 2, and the company is currently working on a second major expansion project (Grain Phase 3), due to be completed by winter 2010.

National Grid has already invested nearly £1 billion in the Grain LNG terminal and has also announced it is exploring options for a further fourth phase of expansion.



The terminal

National Grid Grain LNG Limited, a wholly owned subsidiary of National Grid, owns and operates the terminal, which was the country's first modern day LNG importation terminal when it opened in 2005.

The original terminal consisted of a purpose built LNG unloading jetty on the River Medway and a 4.5km cryogenic pipeline connecting the jetty to four storage tanks, each capable of holding 50,000 cubic metres of LNG. The annual capacity was 3.3 million tonnes of LNG – equivalent to 4% of UK gas demand. The commissioning cargo berthed in July 2005 and Grain LNG's customers for this first phase are BP and Sonatrach, acting jointly.



The first expansion of the terminal (Grain Phase 2) tripled the capacity to 9.8 million tonnes per annum (12% of UK gas demand). This involved the construction of three new state of the art LNG storage tanks, each holding as much as the existing plant and equal in size to the Albert Hall! The capacity was sold to three customers, Sonatrach, Centrica and Gaz de France, and was commercially available from the end of December 2008.

Expansion

The current expansion at Grain LNG (Grain Phase 3) will provide an additional five million tonnes of capacity in time for winter 2010/11. Construction includes a second jetty and an additional total containment LNG storage tank of 190,000 cubic metres. Long-term capacity contracts have been signed with E.ON, Iberdrola and Centrica.

As part of assessing the feasibility of a possible fourth phase of expansion, National Grid is seeking to identify the level of market interest through an open season process where LNG market participants will be able to bid for the right to berth LNG carriers



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and unload LNG into the facility.

What is Liquefied Natural Gas (LNG)?

LNG is essentially the gas that you use at home, which has been chilled to below -161°C and turned into liquid form. LNG takes up 600 times less space than in its gaseous form which makes it an ideal way of storing and transporting large volumes of gas. Stored at these low temperatures, LNG will not burn as a liquid and the global LNG industry has a good safety record.

How the terminal works

LNG vessels berth at the jetty in the River Medway and unload LNG into the cryogenic pipeline which leads to the specialist LNG storage tanks. On the instruction of Grain LNG's customers, the LNG is warmed and gas pumped into the gas pipeline networks.

Use of the terminal

Grain LNG has an exemption from certain regulatory arrangements which allows for long-term contracts to be put in place with its customers. It also means that tariffs are not published and that capacity holders have primary use of the terminal. If however, customers choose not to use a particular berthing slot for commercial reasons, this is offered to the wider market.

Reducing emissions

National Grid uses waste heat from the nearby gas-fired power station at Grain to warm the LNG, instead of using fuel gas. Using water heated by the power station, Grain LNG can burn less fuel and reduce carbon emissions by up to 350,000 tonnes per annum.



For further information on National Grid Grain LNG visit:

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