

Grain LNG

Investor Relations | National Grid

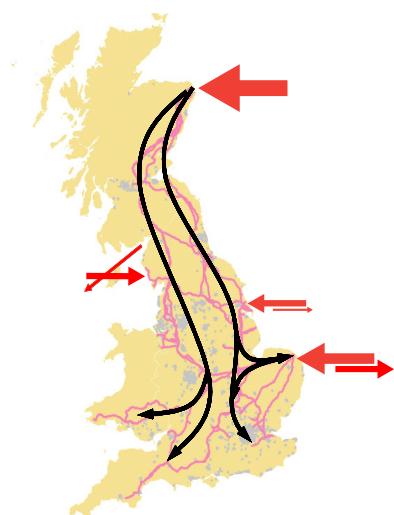
- ◆ Grain LNG is the largest importation terminal outside of the Far East playing a key role in UK energy security of supply
- ◆ National Grid has invested ~£1bn over 3 phases of development
- ◆ It is capable of meeting up to 20% of UK gas demand
- ◆ Low risk – long term ‘take or pay’ contracts
- ◆ Grain Phase 4 under consideration
- ◆ Grain LNG has commenced construction of a LNG road tanker loading facility, targeted to be online mid-2015

Liquefied natural gas (LNG)

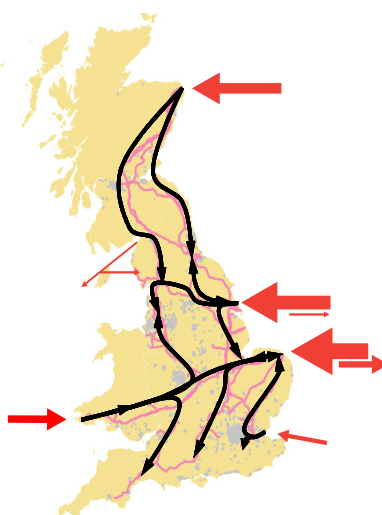
LNG is identical to the gas used at home however it is stored as liquid at minus 161°C in heavily insulated tanks at low pressures (0.2 barg), reducing its volume by 600 times. This enables large volumes of gas to be transported long distances safely and efficiently.

Changing capacity requirements on the National Transmission System

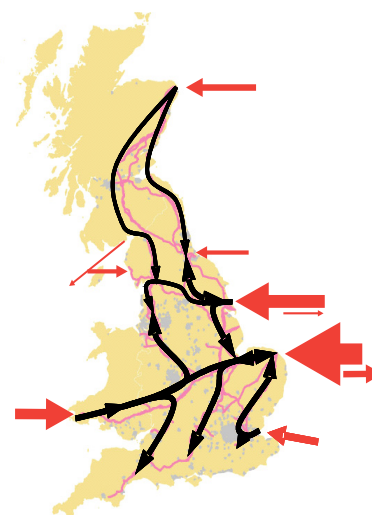
Mid 1990s to 2005



2010



2020



The gas transmission network was historically used for a North to South gas flow. However, with long term change in the supply demand mix, the flows are no longer predictable, requiring greater flexibility. Furthermore, our dependence on imported gas is increasing as North Sea/Continental Shelf production declines, as shown above.

Given the UK's position at the extremity of the Northwest European gas network, our increasing dependence on imported gas will mean greater emphasis on LNG importation capacity in the future.

By 2030 over 60% of UK Gas is expected to be imported.

Grain LNG

National Grid Grain LNG is the first new LNG importation terminal constructed in the UK in 30 years.

Phase 1: Operational since July 2005: Annual capacity of 3.3m tonnes of LNG (4.4bcm/yr of gas, ~4% of UK gas demand)

Phase 2: Operational since December 2008: Additional annual capacity of 6.5m tonnes of LNG (8.7bcm/yr of gas, ~8% of UK gas demand)

Phase 3: Delivered on time and budget, began commercial operations on 1 December 2010, helping maintain stable UK gas supplies during the abnormally cold spell experienced during December 2010. Consisting of a new tank, process plant and a second jetty capable of taking the largest LNG tankers in the World (Qmax of 265,000 cubic metres) the expansion added 5m tonnes of LNG import capacity, taking aggregate terminal capacity to ~20 bcm/yr, ~20% of UK gas demand. Total site storage capacity increased to 1,000,000 cubic metres.

Permanent employees increased from 24 as a storage site to over 145 at present, with more created externally in support roles.

Key financials	£m	2011/12	2012/13	2013/14
Total Revenues		208	209	198
Depreciation		51	54	55
Other Operating Costs		71	69	69
Total Operating Costs		122	123	124
Operating Profit		86	86	74
Capital Expenditure		37	53	44
Net Book Value of PPE		877	876	865



Contracts

- ◆ Grain is an independently owned multi-user terminal in which no one customer has priority rights
- ◆ All importation capacity is sold under long term take or pay contracts which fully under-write the investment
- ◆ This includes the right to berth and unload up to 236 vessels per annum
- ◆ Current customers are BP, Iberdrola, Sonatrach, Centrica, E.ON and GDF Suez
- ◆ Customers decide the level and timing of LNG imports and the amount sent out into the NTS (currently ~5% utilisation)
- ◆ Through contracts with third party providers, Grain LNG has the capability to blend LNG from a wide variety of different sources to meet the UK gas specification
- ◆ Each phase of development holds an exemption from Regulated Third Party Access requirements

Future potential – Grain Phase 4

The ideal location and favourable site provide significant opportunities for further expansion of Grain LNG (Phase 4). An open season capacity sale process is ongoing and discussions with both existing and potential customers about further capacity at the Grain LNG terminal are continuing. All major consents are in place including an exemption from regulated Third Party Access requirements which was granted by Ofgem in March 2013.

A final investment decision is subject to market requirements but could be in excess of £300m and provide an additional 6m tonnes.

Future opportunities

Grain LNG is also exploring new market and growth opportunities such as small scale LNG reloading and bunkering services.

Environmental benefits

As well as being a major access point into the UK for natural gas, the least polluting of fossil fuels, Grain LNG has developed an innovative 'Heat Pipe' project in conjunction with E.ON to create one of the largest CHP schemes in the World. Twin 4.5km pipes capable of transporting up to 340MW of waste heat from E.ON's power station to Grain LNG where it is used instead of fuel to vaporize the LNG. The scheme commenced operations in August 2012 and has the potential to reduce CO₂ emissions by up to 300,000 tonnes p.a.



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