National Grid overview

- National Grid is an international electricity and gas company and one of the largest investor-owned energy companies in the world.

- We play a vital role in delivering gas and electricity to many millions of people across Great Britain and north eastern US in an efficient, reliable and safe manner.

- We own and manage the grids to which many different energy sources are connected.

- Connecting you to your energy today, trusted to help you meet your energy needs tomorrow.
What is LNG?

- LNG is Liquefied Natural Gas
- Identical to the gas at home
- Stored as a liquid at –161°C in heavily insulated tanks
- Stored at low pressures, (0.1 barg)
- When natural gas is a liquid it reduces its volume by 600 times
- It enables large volumes of gas to be transported long distances safely and efficiently
Grain LNG overview

- Largest terminal in Europe and 8th largest in the World
- Can supply 20% of UK gas demand
- Two purpose built jetties can take world’s largest LNG carriers
- Independent terminal operator, giving equitable customer service
- Key geographical location – close to London and at the gateway to/from continental Europe
- Over 30 years experience in the LNG industry – 10 years of importation
- Regular community support through volunteering, education and fund-raising programme
Our history

From small peak shave facility to world’s 8th largest regasification terminal

Phase 1 completed
- Originally a peak shave facility built in 1981
- Converted into an import facility in 2005 with a purpose built jetty and 13 mcm/day regas capacity - capable of supplying 4% of UK gas demand
- Customers - BP/Sonatrach
- £150million low conversion cost

Phase 2 completed
- Added three new tanks, each 190,000m³
- Tripled capacity - capable of supplying 12% of UK demand
- Customers - Centrica, Engie and Sonatrach
- £390million investment

Phase 3 completed
- Increased total storage to 1,000,000m³ and total capacity to 15 mtpa of LNG (~20 bcm/yr of gas)
- Capable of supplying ~ 20% of UK demand
- Built a 2nd jetty - Qmax compatible
- Customers - Uniper, Iberdrola & Centrica
- £310 million investment

Truck loading facility launches
- Successfully commissioned in November 2015
- Two bays operating 24/7, capable of loading 36 slots per day
- Planning permission for additional two bays
- Nine road tanker operators signed up to date
## Ideal location and largest LNG Terminal in Europe

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Number of tanks</th>
<th>Tank capacity m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>1</td>
<td>2,960,000</td>
</tr>
<tr>
<td>South Korea</td>
<td>2</td>
<td>2,880,000</td>
</tr>
<tr>
<td>Japan</td>
<td>3</td>
<td>2,660,000</td>
</tr>
<tr>
<td>South Korea</td>
<td>4</td>
<td>2,480,000</td>
</tr>
<tr>
<td>Japan</td>
<td>5</td>
<td>1,585,000</td>
</tr>
<tr>
<td>Japan</td>
<td>6</td>
<td>1,180,000</td>
</tr>
<tr>
<td>Japan</td>
<td>7</td>
<td>1,110,000</td>
</tr>
<tr>
<td>UK</td>
<td>8</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Spain</td>
<td>9</td>
<td>840,000</td>
</tr>
<tr>
<td>USA</td>
<td>10</td>
<td>800,000</td>
</tr>
</tbody>
</table>
Commercial: Business Model and Market

- ~ £1bn Shareholder investment
- Long term take or pay contracts
- Construction & operational risk
- Independent terminal operator
- Sole equity holder
- Multi-user terminal with capacity sold via Open Season
- All capacity exempt from regulated 3rd party access
- Anti-hoarding mechanisms in place
- Highly flexible service for customers
  - Use of storage
  - Ship movements
  - Send out

UK Market

- Grain largest import terminal outside of Far East
- UK: World’s 3rd largest LNG importer (2011)
- ~100bcm/y gas market
- ~ 55% imported
- Access to world gas supplies
Market evolution

How things have changed…

2005
NBP was trading ~ $1.5 higher than Japan

2009
shale gas boom in the US starts to bite

2011
Fukushima Nuclear disaster

2015
flexible LNG supply diverted to high priced Asia

2016
price differential being eroded by oversupply

Source: Wood Mackenzie
Market outlook

Where we are heading...

- **25% increase** in energy demand by 2040 (ExxonMobil)
- **45% increase** in gas demand by 2030 (Shell)
- **25%** of global LNG production uncontracted (Woodmackenzie)
- **30% increase** in LNG export capacity by 2030 (IEA)
- **170% increase** in LNG exports by 2040 (ExxonMobil)
- **10% of marine fuel = LNG by 2040** (ExxonMobil)

Where we are heading:

- **25% increase** in gas demand by 2030 (Shell)
- **25% increase** in energy demand by 2040 (ExxonMobil)
- **170% increase** in LNG exports by 2040 (ExxonMobil)
- **30% increase** in LNG export capacity by 2030 (IEA)
- **45% increase** in gas demand by 2030 (Shell)

**Supply MID**

**Supply low**

**Supply high**

**Potential over supply**

**Potential under supply**

- Period of oversupply likely to last until ~ 2025
  - Driving down LNG prices (supported by low HH price)
  - FID ‘slowdown’ as projects struggle economically
  - Market will move away from long term contracted demand – flexibility will be key
- Low price will lead to increased demand - new LNG buyers emerging as LNG competes with alternative fuels
- Potential supply gap post 2025

Source: Wood Mackenzie
Our services

Flexibility and shared opportunities

REGASIFICATION
- Primary service & main revenue generator
- Capacity is sold ‘bundled’ & consists of berthing slots, storage & regasification capacity
- Highly flexible service – customers control storage and send out (within operational parameters)

LARGE SCALE RELOADS
- New service introduced in 2015
- Allows capacity customers to reload their LNG & move to higher priced market
- Provides enhanced flexibility and optimisation opportunities

TRUCK LOADING
- Launched late 2015
- Allows capacity holders to sell their LNG to new markets – primarily servicing off-grid markets and LNG vehicle market
- Grain charges a slot fee for each loading operation
- Has introduced new customers to Grain – Road Tanker Operators
Key Business Development Projects

**LNG Break bulk Marine**

*Description*
Ability to reload smaller vessels that will in turn supply off-grid/satellite sites or marine

*Purpose*
- Drive financial growth by selling services to new customers
- Enable further expansion projects at GLNG

**On-site power Generation**

*Description*
Develop a CHP plant at GLNG

*Purpose*
- Improve GLNGs competitive position by reducing BOG & power costs
- Achieve financial growth via leasing arrangement

**Floating Storage**

*Description*
Offer additional capacities on a flexible basis

*Purpose*
- Sweat existing assets
- Increase financial revenue streams
Additional Importation Capacity: Phase 4

Opportunity
- Direct Access to largest EU market (NBP)
- Close to new LNG supply routes
- Not competing with Russian pipeline gas
- Huge flexibility, customer controlled space & jetties
  - Additional import/swing
  - Re-load, Re-export, Break bulk,
  - Road tanker loading
  - Tran-shipment

Current status
- Planning consents in place
- FID - ready to build when market is
- Revised construction costs received

Metrics
- Incremental investment leveraging existing assets
- Capacity increase up to 6mtpa
- Additional 190,000m$^3$ tank
- Second cryogenic unloading line
Isle of Grain – The Energy Island