THE GROWING GLOBAL MARKET OF LNG

ISSUES & CHALLENGES

Dr Naji Abi-Aad

April 2013
The Growing Global Market of LNG

Outline

- Characteristics of Liquefied Natural Gas (LNG) & its Trade
- Increasing Volumes of LNG in the Global Gas Market
- Major Uncertainties Affecting the Future of LNG Trading
- Impacts on the Oil & Gas Industry
Characteristics of LNG & its Trade

- Liquefied natural gas or LNG is natural gas (predominantly methane, CH$_4$) that has been converted to liquid form for ease of storage and transport.

- LNG takes up about 1/600th the volume of natural gas in the gaseous state. It is odorless, colorless, non-toxic and non-corrosive.
The liquefaction process involves removal of certain components, such as dust, acid gases, helium, water, and heavy hydrocarbons, which could cause difficulty downstream.

Natural gas is then condensed into a liquid at close to atmospheric pressure (maximum transport pressure set at around 25 kPa/3.6 psi) by cooling it to approximately −162 °C (−260 °F).

LNG is subsequently shipped around the world in specially constructed seagoing vessels to receiving terminals where it is regasified and distributed as pipeline natural gas.
Trade of LNG is completed by signing a sale and purchase agreement (SPA) between a supplier and receiving terminal, and by signing a gas sale agreement (GSA) between a receiving terminal and end-users.

LNG purchasing agreements used to be for a long term with relatively little flexibility both in price (oil-linked) and volume where there is an obligation of “take-or-pay”.

Short-term contracts steadily emerged due to market liberalization and the appearance of “liquid” spot market.
The global LNG market is informally separated into regional ones:

- The competitive North American market where prices are transparently and openly traded, linked to supply/demand forces;
- the Atlantic Basin (mostly Europe), which is a hybrid market of a competitive UK market that was liberalized in the mid-1990s and a Continental European market that is partially dependent on oil-linked, take-or-pay contracts; and
- the Pacific Basin (including Japan, South Korea, Taiwan, China, and India) which is a more rigid market that depends heavily on oil-indexed contracts
LNG has recently benefited from the shortcomings of pipelines to supply gas to all markets due to:

- Growing distance between reserves and consumers
- New importers located far from pipeline network
- Need to diversify supply sources for security reasons
- Problems with transit countries and transit fees
- Development of gas-fired power plants on coastal sites
- Liberalization of the main gas consuming markets
LNG in the Global Gas Market

LNG global trade reached around 237 million tons in 2012, representing around 31% of the world gas exchanges.

LNG market is dominated by big players: eight countries (Qatar, Malaysia, Australia, Nigeria, Indonesia, Trinidad & Tobago, Algeria & Russia) out of a total of 18 exporters made up 83% of global LNG exports…

… while Seven importing countries (Japan, South Korea, China, India, Taiwan, Spain, UK) out of a total of 26 attracted 81% of all LNG volumes.
On the import side, Asia accounted for 71% of global LNG demand in 2012 compared to 64% in the previous year.

Japan and South Korea together represented three quarters of Asia’s LNG imports.

In the absence of nuclear restarts, Japan recorded indeed an 11.4% growth year-on-year. South Korean LNG imports increased by 3.4%, above the country’s GDP growth rate of 2%.
European LNG imports declined by 27%, mainly because of sluggish gas demand, bringing the 2012 net LNG imports below the 2009 level.

Spain is Europe’s number one LNG importer followed by the UK and France.

Contrasting trends between Asia and Europe have been even more apparent in 2012. LNG deliveries to Asia steeply increased (with every single country showing a growth) whereas for Europe deliveries fell sharply.
LNG imports into the US continued to decline mainly due to the sustained high level production of unconventional domestic gas.

In South America (Argentina, Brazil, Chile), LNG trade recorded a 40% growth over 2011, reaching twice the size of that of North America.

In newcomers Kuwait and Dubai, LNG imports almost doubled from the 2010 level.

The world LNG trade in 2012 involved 156 “flows” (i.e. country-to-country trades) over 369 sea transportation routes (port-to-port routes).
With 59 million tons, the share of spot and short-term trades (trades under contracts with a duration of four years or less) amounted to around 25% of total LNG trade.

In terms of sourcing, spot and short-term volumes mainly came from the Middle East (43%), followed by the Atlantic Basin (40%) and the Pacific Basin (17%).
Qatar remains the number one supplier of spot and short-term LNG, with more than 35% of total spot and short-term volumes, followed by Nigeria (15%) and Trinidad (9%).

Asia received 70% of total spot and short-term quantities, while Europe and South America made up each 12% of those imports.
Major Uncertainties Affecting the Future of LNG Trading

- The single largest unknown remains in the global demand growth for natural gas and the resulting trade of LNG.

- As of now, the Asian markets are the largest source of long-term demand uncertainty (non-nuclear Japan? Strength of the economic growth in India and China...)

- In Europe, uncertainties result from the enduring economic recession, with main players deciding to shift away from nuclear energy (Germany).
More uncertainties on the supply front

US shale gas production growth, and the potential scale of North American LNG exports

Degree of success of shale gas outside the US (Canada, China and Europe (Germany, Poland...))

Production and pricing policy of established (Russia) and new (Central Asia) piped gas exporters

A new dimension: the security of supply (impacts of a possible closure of Hormuz)
Competition from other sources of energy (particularly coal)

Fuel switching in favour of coal, and more pressure coming from renewable energy sources, could mean a growing decrease in gas demand for power generation, especially in Europe
Impacts on the Oil & Gas Industry

- With the development of the a global LNG spot market
- Together to an expected continuous oversupply of LNG around the world
- There is a downward pressure on LNG prices, and therefore a push to increase its demand
Meanwhile, the US unconventional gas revolution is timidly but steadily spreading all over the world

Substituting the import of natural gas and other energy sources in many large consuming markets

Allowing oversupply of unconventional gas to be exported to other markets

All that is resulting in plenty of gas on the global market in the years and decades to come
Then, low prices and ample supply are helping gas to acquire increasing share of the world primary energy balance, in the medium and long term.

Gas would be eating from the shares of the other energy sources, especially oil, and more particularly when gas would increasingly be used in the form of compressed natural gas (CNG) or LNG as fuel in the transport sector, where oil has had until now its main and undisputed strength...
Thank You!