

LNG market trends

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Abstract

Natural gas, being the cleanest burning fossil fuel, will play a key role in the future. Liquefying natural gas lets moving it to regions where pipeline transport is not possible, allowing end-use markets access to natural gas. LNG is more energy dense than gaseous natural gas, so there using fields are still increasing in end-use applications, e.g. different types of transportation (heavy duty vehicles, marine or rail applications). Global LNG demand is expected to grow, mostly because of new economic markets from Asia and Middle East.

Introduction

Natural gas is mainly composed of methane, but it can also contain traces of ethane, propane and other heavier hydrocarbons and small quantities other components. The liquefaction process to obtain LNG requires separation of some of its components, and then the gas is cooled to -163°C .

The LNG value chain consists of the processes and stages of liquefied natural gas from the reservoir to end consumers and is represented by four stages [1]:

- exploration and production (15–20% of costs);
- liquefaction (30–45% of costs);
- maritime transport (10–30% of costs);
- storage-regasification (15–25% of costs).

The LNG carriers transport the LNG from the liquefaction plant to the regasification terminal, which is located in the destination country near to end consumers. These carriers are designed to transport the LNG under cryogenic conditions, thus reducing the volume of the gas by a factor of around 600 and providing the consequent cost savings.

The LNG trade

Based on a geographical classification of the LNG markets, the following regions could be highlighted due to their importance: Asia-Pacific,

Europe and North America (Fig. 1). But another possible classification could be the differentiation between the Atlantic Basin and the Pacific Basin. However, it is important to distinguish separately (due to its characteristics) the North American market: East and West Coast.

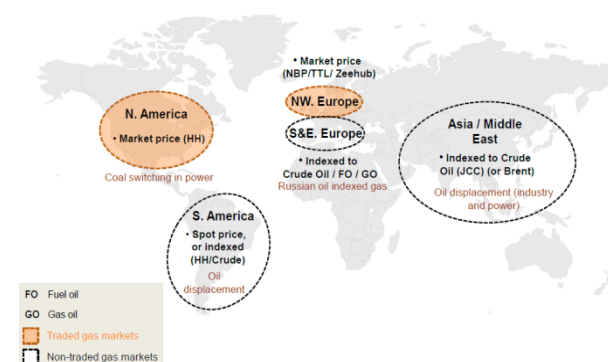


Fig. 1. Gas pricing mechanisms by region [2]

The main gas hubs of both LNG and pipeline gas are:

- United States (Henry Hub);
- The United Kingdom (NBP);
- Europe (Zeebrugge in Belgium).

Because historical and geographical separation it should be understanding that LNG markets are sensible independent and LNG prices are different in each hub (Fig. 2).

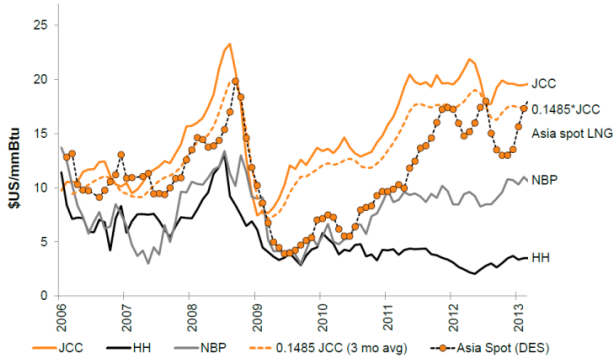
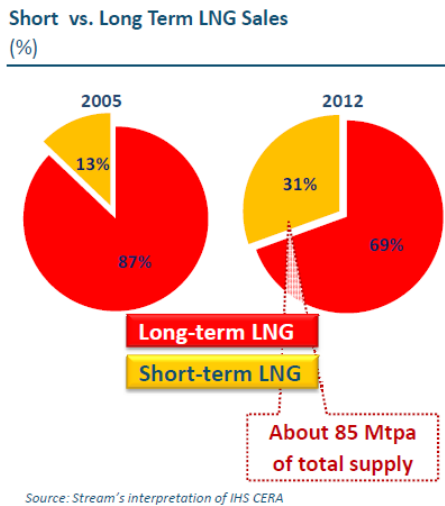


Fig. 2. Global LNG price divergence [2]



Source: Stream's interpretation of IHS CERA

Fig. 3. Global LNG price divergence [2]

Another important change in LNG market are contracts. At the beginning almost all contracts were long terms agreements but in the last years

short terms start be more popular (Fig. 3) and represent almost 1/3 LNG demand.

But it should be taken into consideration that long term contract are still the main way of LNG contracting and hasn't changed in essence. Short term contracts are the second market which make LNG market more flexible. This part of LNG market could balance expected supply gap within next years. According to Stream Repsol-Natural Gas LNG forecast in 2015 non contracted LNG gap (due to demand increase and contract expiration) will be about 180 Mtpa (Fig. 4).

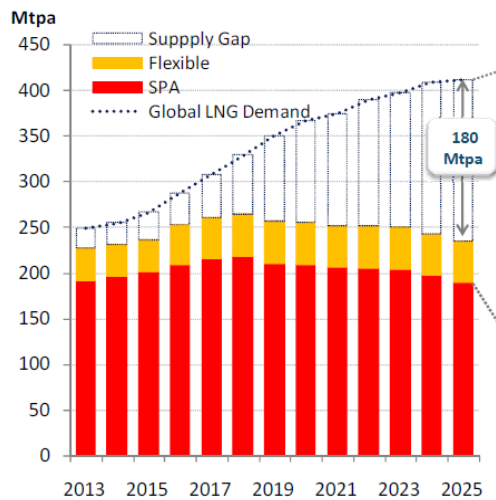


Fig. 4. Non contracted LNG Supply gap [3]

An increase in future flexibility (in terms of volumes and pricing) will depend strictly on the evolution of new and present LNG exporter projects.

LNG importing markets



Source: BG Group (January 2013)

Fig. 5. Current and planned LNG importing countries [1]

The LNG market trends

The LNG market has doubled every 10 years in the last two decades from some 50 mt in 1990 to over 240 by 2011. In 2001, the world had 40 LNG regasification terminals in 11 countries. By the end of 2011 there were 89 regasification terminals in 25 countries, more than doubling in the space of a decade [4].

All LNG market analysis lead to conclusion that global gas demand is projected to grow up to 2–2.6% per year [4, 5]. Main reasons of this trend are:

- predicted strong economic growth;
- energy regions or countries policies;
- other energy sources influence.

Of course there are some unexpected influencing factors (shorter or longer time of influence) as Fukushima case or seasonal weather anomalies but

for long-range prospects they are not so important.

At the same time LNG demand is expected to grow at 5% per year so total gas demand by 2030 will represent 16–17% of total demand [2, 5] but of course there are some regions where LNG demands will increase more rapidly in comparison with another.

Natural gas is the only fossil fuel for which global demand grows in all scenarios, showing that it fares well under different policy conditions; but the outlook varies by region. Two thirds of the growth in LNG demand is expected to come from Asia (China, India) and the Middle East but gas market in Europe will see relatively minor growth (Fig. 6).

Demand growth in China, India and the Middle East is strong. Active policy support and regulatory reforms push China’s consumption up from around

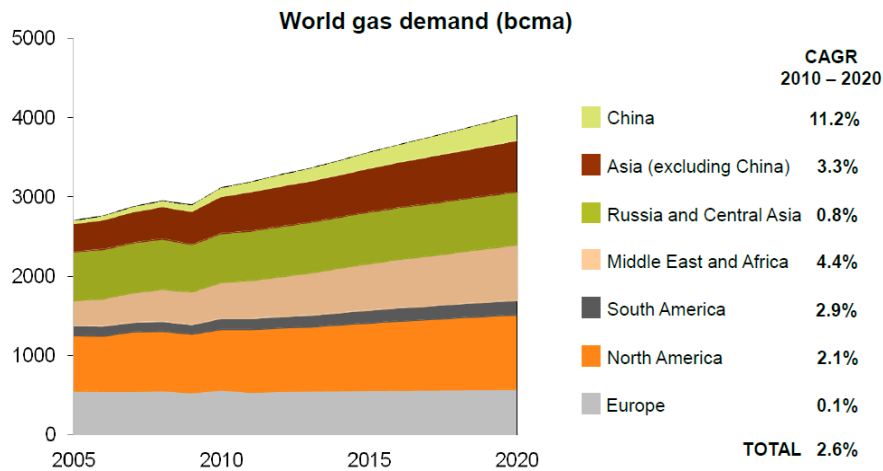


Fig. 6. An example of the prognosis of natural gas demand growth [2]

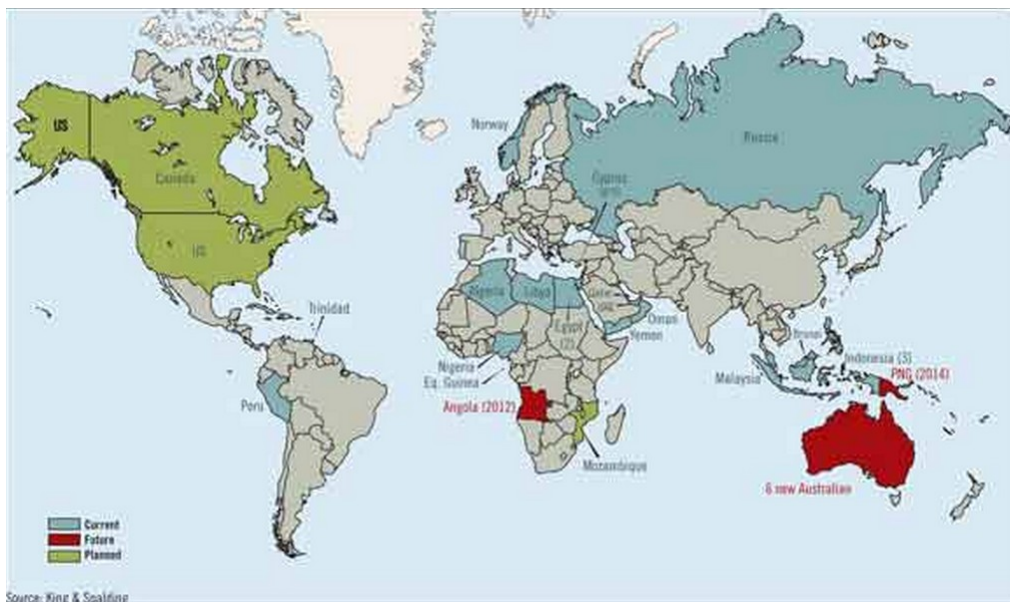


Fig. 7. Current and planned LNG exporting countries [6]

130 billion cubic metres (bcm) in 2011 to 545 bcm in 2035. In the United States, low prices and abundant supply see gas overtake oil around 2030 to become the largest fuel in the energy mix. Europe takes almost a decade to get back to 2010 levels of gas demand: the growth in Japan is similarly limited by higher gas prices and a policy emphasis on renewables and energy efficiency [7].

Parallel to LNG importers market changes the global LNG market is changing. New LNG industry projects are planned both by actual and new LNG exporters. Further changes could be seen as unconventional LNG export projects. The rapid developments in unconventional natural gas (especially North American shale gas and Australian coal seam gas – CSG) have changed the LNG market. New discoveries off East Africa should introduce Mozambique and perhaps Tanzania into the top ranks of the world's LNG exporters. Australia is currently forecast to become the world's largest LNG exporter, surpassing Qatar by 2020 [6] (Fig. 7).

Conclusions

Gas and especially LNG (because of its transportation flexibility) will still play a very important role in the global energetic politics. The growth in gas demand will require investments, innovation, and interdependency between the supply and demand countries.

It is very important that gas and LNG demand could have good influence to the environmental emissions reduction and promote renewable energy sources. The development of floating liquefaction and regasification technologies, which include small and medium scale projects may promote the development of new reserves and markets.

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