



Competition is driving significant change in natural gas LNG and pipeline export markets



The recent issue of 2015 natural gas industry statistics (BP, 2016; GIIGNL, 2016) has revealed more clearly the impacts of the market turbulence experienced in 2015, and continuing in 2016, on some longer term trends. In particular, the ongoing competition between LNG and pipeline supplies for internationally traded gas in an over-supplied market suggests that both sectors of the industry are gearing up for a period of more intense competition in several markets. The statistical trends of the past twenty years help to place in perspective how this competition has already led to significant changes in the way the natural gas markets are supplied.

Fig. 1 (a to c) provide three snapshots (1996, 2007 and 2015) of the relative contributions of LNG and pipeline to international gas exports.

Although more than 70% of gas produced is consumed in the country in which it is produced, such as in the United States, China and Russia, almost 20% of gas produced was exported by pipeline and almost 10% by LNG in 2015. LNG has progressively increased its share of natural gas exports from less than one quarter in the mid-1990s to almost one-third in 2015 (Fig. 1). The actual numbers on which Fig. 1 is based are shown in Table 1, together with data for years 2010 and 2014, highlighting the scale of growth in all sectors of the industry over the past twenty years. Table 1 data also reveals that whereas gas exported by pipeline contracted between years 2010 and 2014, due mainly to decline in gas demand in Europe and competition there from lower-priced LNG, gas supplied by pipeline grew by 5.7% from 2014 to 2015. In the face of imminent competition from LNG exports from the United States, the traditional major pipeline suppliers have become more competitive on price, partly due to lower oil and oil-product prices and their influence through price indexation in 2015, and partly due to the pipeline suppliers recognising the need to relax the contribution of oil indexation on pricing in order to retain their export market share.

1. LNG has diversified globally into a combination of high-volume and niche markets

Fig. 2 and Table 2 illustrate, with three snapshots (1996, 2007 and 2015), how the LNG sector has developed and diversified over the course of the past two decades. It is clear that the main East Asian markets (Japan, South Korea) have grown, but the rapid emergence of China and India as significant LNG markets has changed the market dynamics of that region. In addition the

emergence of niche LNG Asian markets of Malaysia, Singapore, Thailand has made import, export and re-export trading models a reality for the region. Indonesia is also likely to become a dual exporter and importer of LNG in the coming years.

The emergence over the past decade of the small LNG markets of individual nations in the Middle East and South and Central America is also apparent from Fig. 2 and Table 2. It seems likely that these niche markets are likely to continue to develop into more substantial regional markets over coming years. The fall significant in LNG demand of France and Spain between 2007 and 2015 highlights the more regional decline in energy demand in Europe since the global economic recession of 2008/2009. The significant decline in LNG demand in the United States from its peak level in 2007 highlights the emergence there of supply from shale gas on a commercial scale. In the United Kingdom the 2015 imports of LNG were less than half of their peak level of 2011, when European gas prices were high enough, due to a greater component of oil indexation in their pricing, to compete with Asian demand for more LNG supply. However, Spain and the United Kingdom were the largest LNG importers in Europe in 2015 with similar levels of demand.

Fig. 3 and Table 3 a to c assemble the data from Table 2 into regional LNG markets. These data reveals why the classification widely used into Atlantic and Pacific LNG basins in the 1990s and early 2000s no longer makes sense in 2016. It is now more meaningful to consider LNG in terms of at least six regional markets that are interconnected to a degree, a situation that is quite distinct from the isolated Atlantic and Pacific basins of the 1990s.

Fig. 3 (a to c) illustrate how the East Asia regional LNG import market has consistently dominated global LNG demand. However, it is also clear that by the mid-2000s significant growth in LNG demand in Europe, United States and South Asia had reduced East Asia share of the global LNG market to some 61%. Subsequent decline in LNG demand in the United States and across most of Europe has seen East Asia's market share increase over the past decade to 64% of the global market. However, the collective impact on global demand for LNG of developing regional markets (Middle East, South Asia, South and Central America and Africa) is combating Asian dominance of the sector to an extent.

2. LNG exporters under pressure in oversupplied regional markets

Although LNG suppliers continue to diversify, adding new trains

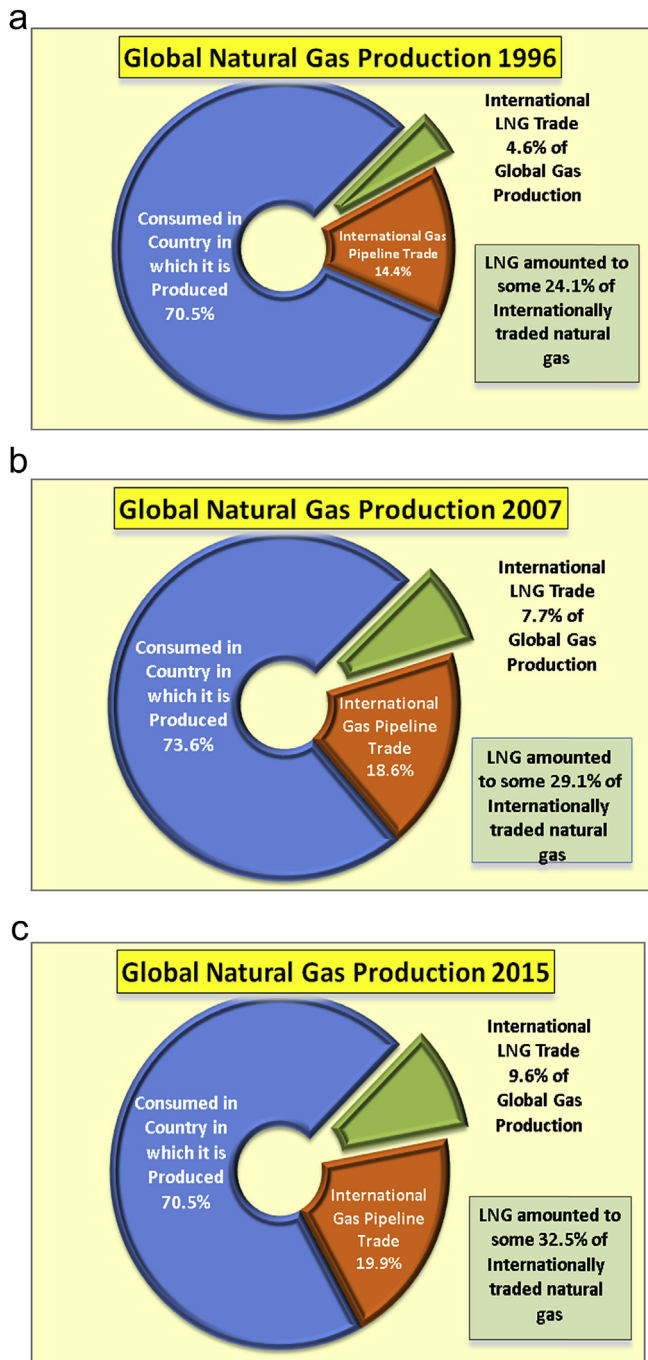


Fig. 1. a. Global natural gas production, LNG and pipeline International gas exports in 1996. Data source BP Statistical Review, 1997. 1b. Global natural gas production, LNG and pipeline International gas exports in 2007. Data source BP Statistical Review, 2008. 1c. Global natural gas production, LNG and pipeline International gas exports in 2015. Data source BP Statistical Review, 2016.

Table 1

Contributions of LNG and pipeline exports to global natural gas production in selected years. Data source: BP Statistical Reviews of World Energy (1997–2016).

International exports as a component of global natural gas production					
Billions of cubic metres (bcm)					
Year	1996	2007	2010	2014	2015
Gas Exported as LNG	102	226	298	333	338
Gas Exported by Pipeline	322	550	678	666	704
Gas Consumed in Country	1807	2164	2194	2394	2496
Total Natural Gas Production	2231	2940	3169	3393	3539

with some new country entrants in the past few years (e.g. Angola, Papua New Guinea), diversification and connectivity between the regional LNG import markets, coupled with excess supply, provided most importers with greater competition and bargaining power in 2015.

Fig. 4 illustrates the distribution of LNG exports among those nations supply LNG through baseload liquefaction plants within their territory. The top five LNG exporters in 2015 were responsible for 68% of the global exports. Listed in descending order those top exporters in 2015 were: Qatar, Australia, Malaysia, Nigeria and Indonesia. There has been significant repositioning of the top five LNG exporters over the course of the past decade. Indonesia moved from first place to fifth place in the top five from 2006 to 2015. The top five exporters in 2003 were Indonesia, Algeria, Malaysia, Qatar and Trinidad in that order.

Australia, with the start-up and production ramp up of three coal-seam-gas-to-LNG projects from 2014 to 2016, plus the start-up of the large Gorgon Northwest Shelf liquefaction project in 2016, to followed by other liquefaction projects under construction, has played a significant part in the oversupply of LNG prevailing in the Asian markets. Many of these new projects are associated with high costs of supply due to significant construction budget overruns, meaning that at low prevailing gas prices they will take longer to make returns on their investments. However, growth in demand for LNG across Asia is likely to absorb this incremental supply eventually, particularly if gas prices remain at 2015/2016 levels for some time. By 2020 Australia's share of the LNG market is expected to rise significantly from 2015 levels shown in Fig. 4, as the Ichthyus, Prelude and Wheatstone projects become operational.

3. Where are gas exports heading?

The upheavals to the natural gas and oil markets since 2014 make it difficult to forecast how gas exports might evolve over the next fifteen years. There are many uncertainties to consider and many factors influencing supply and demand. Fig. 5 illustrates historical trends of LNG consumption by the regional LNG markets plus a tentative forecast to 2030. Perhaps no surprise that the Asian markets are expected to dominate growth in LNG demand, with Europe, Middle East and South and Central America all forecast to grow their demand.

However, the uncertainties that are likely to influence what

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