

# LNG project financing faces changes in 21st Century

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The LNG industry has evolved from being largely based in West European and Asian markets, with only a handful of projects in North Africa and Southeast Asia supplying them. Today, LNG producers are able to supply markets up to 10,000 nautical miles away at a price competitive to other fuels.

As this evolution continues in this century, sponsors must develop projects in regions new to the LNG industry and, as a consequence, must find additional sources of debt necessary to finance the industry's expansion.

Although changes are afoot throughout the entire LNG value chain, much of this evolutionary process is in reaction to the rapidly changing downstream markets.

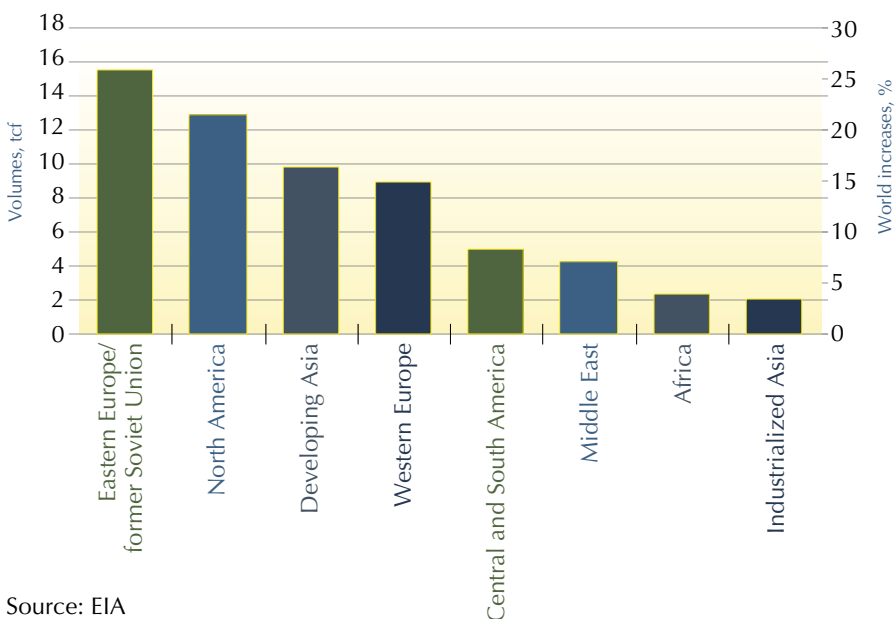
## Downstream dynamics

While the majority of LNG demand is projected to remain in Asia, primarily in such traditional offtaking countries as Japan and South Korea, the Atlantic Basin will play an increasingly important role in future global LNG trade. According to the US Department of Energy's Energy Information Administration (EIA), North America, Europe, and the former Soviet Union will see the largest growth in natural gas demand in the first quarter of the 21st Century, representing more than 60% of world demand growth for 2001-25.

While some of this increase will be supplied by pipelined gas, such as in

Increase in natural gas consumption: 2001-25

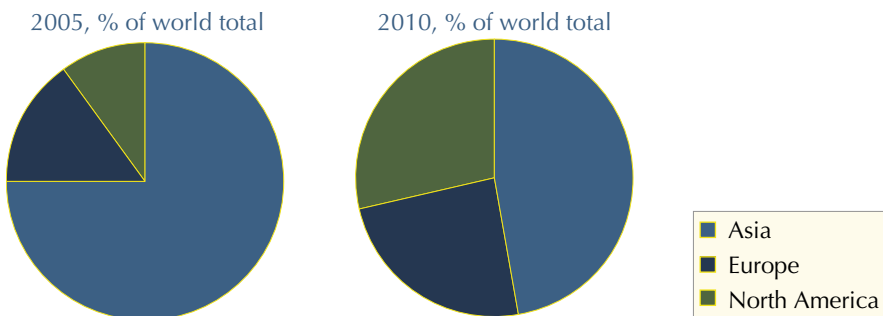
Fig. 1



Source: EIA

Regas capacity\*

Fig. 2



\*Estimated. Source: Taylor-DeJongh

Eastern Europe, stagnant regional production figures point to LNG as providing a large portion of future supply (Fig. 1).

Surging demand projections have prompted numerous terminal proposals throughout North America and Europe to

accommodate future offtake. At present, the Atlantic Basin regasification capacity represents only 25% of total world capacity. Based on projects currently in the planning or construction phase, however, 74% of total world regasification capacity growth over the next 5 years will occur in the Atlantic Basin. This will make the Atlantic and Pacific basins roughly equal in terms of regasification capacity (Fig. 2).

The growing importance of the Atlantic Basin in the LNG industry is significant not only in its effect on LNG global trade patterns, but also due to the dynamic characteristics of transatlantic downstream markets. In a sense, LNG producers are not only selling to different locations, but also to different types of customers.

European markets in particular are responding to growing pressure from the European Union to deregulate. The break up of powerful government-sponsored utilities means that upstream project sponsors may no longer be selling to government-backed or highly rated offtakers (Fig. 3).

Because of these stronger market forces, counterparties to gas sales and purchase agreements (GSPAs) in Europe are less willing to accept rigid price and volume guarantees. Lenders to upstream projects will have to become more comfortable with flexible pricing provisions.



Earlier this year, groundbreaking occurred alongside of Qatargas I (shown) for what will be two of the largest LNG trains in the world. Qatar Liquefied Gas Co. Ltd. (II) or Qatargas II will own and manage the \$12.8 billion project, which will deliver 15.6 million tpy to UK's Milford Haven terminal for 25 years, according to Qatar Petroleum, with the first deliveries by late 2007 or early 2008. Qatargas II is a joint venture of QP (70%) and ExxonMobil Corp. (30%). Project officials at the ceremony said \$7.6 billion in international financing was raised from 57 different institutions, including Islamic financial institutions, making it the world's single largest energy financing ever. In December 2004, Qatargas II secured \$6.5 billion in debt, while South Hook LNG Terminal Ltd. secured \$1.1 billion. Photograph from Qatar Petroleum.

Driven increasingly by gas-on-gas competition instead of fuel oil replacement, LNG GSPAs continue to move away from the traditional crude-linked indexing and toward gas market pricing.

### Lenders' concerns

This type of sea change in contracts will not occur without concerns from lenders. As Fig. 4 illustrates, natural gas prices in the US (Henry, La., Hub) and in the UK (National Balancing Point) have fluctuated widely over the past 5 years. Such fluctuations make forecasting future cash flows difficult. Current market dynamics, however, suggest that while price spikes will inevitably occur in the future, growing demand will moderate low points in future price swings.

Project lenders have recently shown their willingness to accept price risk.

The recently closed Qatargas II project marked the first occasion in which price risk was passed through to lenders; the GSPA signed for the first train was linked to the UK gas market price with no floor-price guarantee. Such a provision became acceptable to lenders after marketing studies showed strong future demand in the UK coupled with

### Global regasification: 2005-10\*

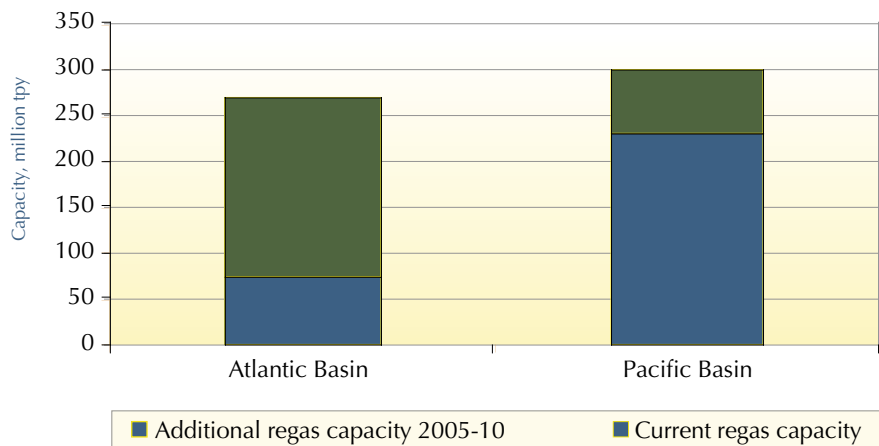
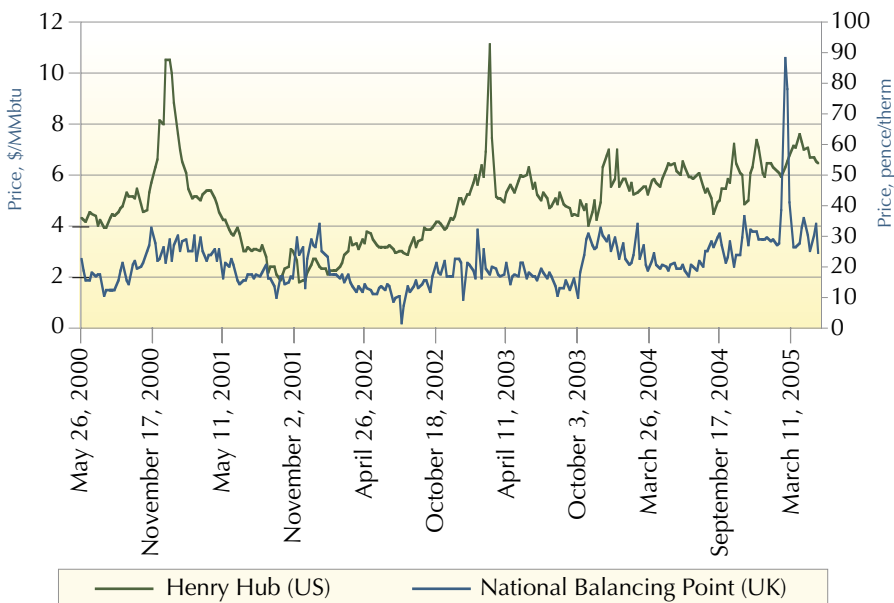


Fig. 3

\*Estimated. Source: Taylor-DeJongh

## Natgas pricing, May 2000 – May 2005



Source: Bloomberg

decreasing domestic supply, as well as sound project economics.

Inevitably, project-finance lenders will continue to require that certain volume guarantees remain in place, although offtakers are likely to negotiate for destination flexibility and seasonal volume variations.

Lenders to liquefaction and to regasification projects continue to require that there be a traceable integration in the flow of the project's gas into the market and to customers. It is not sufficient merely to have "access" to big markets; rather, there should be a defined route to the customers.

In addition to the established markets in North America and Europe, LNG demand is expected to grow dramatically in developing countries.

In Asia, for example, the EIA projects a 16% increase in natural gas demand in developing countries over the next quarter-century. In such countries as China and India, much of this demand growth will be met by LNG imports, as pipelines will be unable to serve certain regional markets, whether for political or economic reasons.

In China alone, two regasification projects are currently under construction, another six have been approved by China's National Development and Reform Commission, and a further 13 are proposed.

From a financing perspective, regasification terminals are often financed on the balance sheet, due in part to the relatively lower cost of such projects and the financial strength of the larger international oil and gas companies.

As in the case of Cheniere Energy Inc. in the US, however, smaller developers will look to non-recourse debt for necessary capital. The recent financial closure of Cheniere's Sabine Pass LNG receiving terminal, in which 47 banks joined in syndication, has proven that there is significant appetite in the market for such deals, which has even expanded to developing countries.

In the Dominican Republic, for example, project sponsor AES Anres BV successfully secured a \$145-million non-recourse facility for the development of a project that combined an LNG receiving terminal, a combined-cycle power plant, and an associated pipeline.

Fig. 4

In such projects, however, it is essential that the project sponsors secure long-term gas supply and downstream sales through a solid GSPA. In the case of Sabine Pass, Cheniere was able to secure agreements with Total LNG USA Inc. and Chevron USA Inc., both equity investors in West African developments, for between 60% and 77% of the terminal's capacity.

## Shipping

How the LNG shipping industry evolves will have a significant effect on LNG project financing, as shipping, one of costliest components of the LNG value chain, plays a large part in determining project economics.

For project-financed developments with a shipping component, two common strategies are either to acquire the vessels directly or to set up a sponsor-owned shipping company. Assessing the comparative feasibility of these two options is a complex process, given the tax implications of various shipping domiciles and the potential financing options available to either the project or the shipping company.

Recent reports suggest that in the near future, the market for LNG shipping may be oversupplied, as new ship construction has outpaced LNG projects coming online. In some cases, shipping companies have ordered new vessels without first obtaining a long-term time charter agreement (TCA), hoping to capitalize on short-term and spot markets that have been growing dramatically, particularly in the Atlantic Basin. Long-term supply arrangements, however, still make up more than 90% of LNG trade, leaving little room for non-contracted vessels to make a steady return on investment.

At present, downward pressure on charter rates, even in the market for long-term, long-haul contracts, as well as significant price strength in the steel and nickel markets (two main components in LNG shipbuilding) suggest that an option for current and future projects would be to secure TCAs with third-party shipping companies, so as to take advantage of the "buyers market."

In addition, the potential for shipping oversupply in the LNG industry may create a situation in which greenfield or expansion projects can acquire idle ships at a discount. In the late 1980s, Shell pursued such a strategy by purchasing idle ships for its Nigeria LNG project, for which it holds a 25.6% equity interest and acts as operator. By purchasing them before they were needed for the project, Shell was able to contract the ships to short-term charters, which covered the costs before they were employed in Nigeria, thus lowering project costs considerably.

Atlantic LNG, Point Fortin, Trinidad, has pursued a similar strategy through the acquisition of two idle vessels. While a potentially cost-saving approach, purchasing LNG vessels second-hand also presents significant risks associated with necessary upgrades and lay-up costs, which should be forecast appropriately in a project's feasibility analysis.

There is an interesting dynamic between LNG projects and the LNG buyers in the control of cargos. Traditionally, the Japanese or Korean utilities bought FOB and controlled the destinations of the LNG. Increasingly, sellers have tried to benefit from destination flexibility and to share in upside benefits if cargos are diverted or swapped into higher priced markets.

Lenders to liquefaction projects selling FOB will not only seek affirmations that the buyer and its contracted shippers are able to handle the baseload contract volumes, but will also seek to determine what effect, if any, destination flexibility will have on the project revenue generated.

Increasingly, however, the trend is toward integration of the value chain, whereby LNG producers are controlling the molecules and their value as much as possible, all the way into the gas market. This is particularly true in Atlantic Basin projects, such as Qatargas II (UK) and Qatargas III (US).

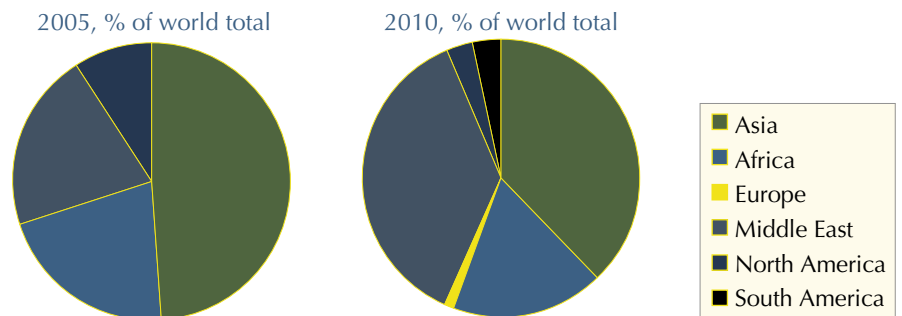
### Upstream, liquefaction

On the supply side of the equation, LNG development has moved beyond

its traditional centers in Southeast Asia and North Africa, expanding most notably in recent years to the Middle East and West Africa.

In the Middle East, in particular, liquefaction capacity is projected to expand from a present capacity of 31.8 million tonnes/year (tpy) to more than 139 million tpy by 2010. This surge in capacity will be led by Qatargas II, III, and IV as well as by four potential projects in Iran, which have a combined estimated capacity of 38 million tpy (Fig. 5).

### Liquefaction capacity\*



\*Estimated. Source: Taylor-DeJongh

West Africa will soon be competing with projects in the north, as Nigeria LNG Trains 4, 5, and 6 are to come online over the next 2 years, adding 11.5 million tpy of capacity to the project. In Equatorial Guinea, the 3.4-million-tpy Bioko Island Project will begin exporting in 2007, while the larger 5-million-tpy Soyo Project in Angola plans for a 2009 start-up.

Much of this growth beyond the traditional supply markets can be explained by sustained economic growth in both the developed and developing regions, translating into a stronger appetite for natural gas as a feedstock for electricity, particularly in an environment where other fuels have become less attractive.

The sustained strength in oil prices has sent off-takers searching for cheaper alternatives, while coal and nuclear power have been repeatedly attacked, on environmental and security concerns. Consequently, growing demand in natural gas has meant that regions,

once thought uneconomical for natural gas development, have emerged as likely sources of LNG in the coming years.

On a project-financed basis, LNG projects in the growing African and Middle Eastern supply markets will inevitably require the participation of at least one if not multiple export credit agencies (ECAs) to mitigate the perceived political risks in these parts of the world.

In addition, lenders' primary concern will continue to focus on whether the project's reserves are adequate and

economically recoverable to cover minimum debt service requirements, especially in countries such as Equatorial Guinea, where natural gas production is still a budding industry.

Consequently, lenders will require third-party confirmation, most likely from a firm with regional experience to verify the robustness of reserves.

### Capital crunch

Challenges in 21st Century LNG project financing will include the need to find sources of funds available to finance the massive investment required for future projects. Over the next 5 years, it has been estimated that \$50-90 billion will be needed for investment in LNG projects.

Although debt-equity ratios for liquefaction projects vary widely, a conservative average debt-to-equity ratio estimate of 50:50 translates into \$25-45 billion in required debt financing.

In recent years, it has been a challenge to secure adequate levels of financ-

Fig. 5

ing, as the debt markets have become more risk averse and critical of emerging markets. Due in part to the 1998 Asian financial collapse, the capital markets have been largely unable or unwilling to fund large LNG projects.

Because bonds are a less flexible financing mechanism when compared to bank financing and bond investors exercise comparatively less control over their investment, capital-market financing is usually procured for developments involving tried and tested project structures.

Consequently, added to the memories of 1998, bond investors may be apprehensive that the evolving LNG industry remains too risky. A re-emergence of capital market financing in LNG project financing, however, such as is currently involved in Qatar, may well pick up speed after investors become more comfortable with new trends such as destination flexibility and price risk.

The bank market, while enthusiastic in general about LNG projects, may suffer from inadequate capacity in certain markets. Since 2000, the number of banks acting as lead arrangers has fallen considerably, and many banks have run up against country limitations.

Recently, however, there has been a resurgence in LNG interest at the arranger and syndication level, as shown by the over-subscription of the Qatargas II offering with 36 banks acting as mandated lead arranger, which suggests that commercial banks may seek to increase their underwriting efforts in future LNG projects.

The expansion of the LNG industry, both upstream and downstream, beyond the traditional markets, may also generate greater loan volumes, as banks will be better able to diversify their LNG investments.

In the prevailing market environment, project sponsors are looking beyond traditional sources of financing to complement their debt portfolio. ECAs, a traditional resource for political risk insurance in developing markets, have lately been sought as a complementary source of capital capacity. Even in countries with high sovereign debt ratings, ECAs have

been brought in to provide guarantees or direct loans to the project.

Multilateral lending agencies (MLAs), such as regional and international development banks, are also possible sources of added capital capacity. To date, the World Bank and its affiliated agencies have not undertaken a significant role in LNG project lending, though many of the smaller regional development banks have shown interest. African Development Bank participated in Nigeria LNG Trains 4 and 5 financing.

Perhaps the capital market most poised for growth is Islamic banking. Traditionally, Islamic financial institutions, heavily dependent upon deposits, focused the majority of their lending operations on shorter-term arrangements.

In recent years, however, high oil prices have brought large amounts of cash to Middle Eastern countries, producing excess liquidity in the Islamic banking community. Flush with cash, Islamic banks have begun to shed their apprehensions towards lending alongside traditional financing, investing up to \$500 million on a single LNG project. Lenders also have grown more comfortable with Islamic banking finance structures, which must comply with Sha'ria law.

### Bank market vital

Strong interest from lender banks in recent LNG projects, both in liquefaction and receiving terminals, demonstrates that the bank market will play a vital role in future LNG projects. The bank market alone, however, will not provide adequate levels of capital required for LNG industry growth, and bond issues will only be feasible for a select number of projects.

Consequently, project sponsors will be challenged with seeking alternative sources of financing as they adapt to a constantly evolving global LNG market.

### The authors

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