NEXT FRONTIERS OF LNG: FLOATING LNG AND OTHER BREAKTHROUGHS

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ABSTRACT

The face of global LNG is changing. Oil majors are shifting from 'Traditional LNG' to 'Frontier LNG' by employing cutting-edge technology to realise value in an increasingly tighter gas market. Floating LNG is a ground-breaking innovation based on the integration of two existing technologies: Traditional LNG Processing and Yard/Shipping construction. A series of key players are already positioned to develop mid-scale 'stationary' facilities (Shell, Petrobras, GDF) or working on smaller scale 'nomad' facilities, more appropriate for smaller LNG players (Delek, Flex). Due to the relatively unproven technology of FLNG our paper will focus on assessing the main risks of the FLNG (during completion and operation) and delivering the appropriate structures to mitigate risks to make them bankable on the Project Finance Market. Our paper will also focus on strategy to tap the debt markets and assess appetites of banks and ECAs. We will demonstrate that despite the financial crisis and LNG progressively becoming a commoditised debt product, many financial institutions are looking for new LNG investment opportunities. Last but not least our paper will focus on the frontier nature of the FLNG story and the very large size of the export component. In particular, and due to the very heavy reliance on Japan LNG expertise and Korean shipping construction yards, getting support from respective export credit agencies will be key to the financing of FLNG. As pathfinder in LNG financing, SCB team has probably the unique combination of market and technical expertise to make a first FLNG financing happen. Has such, our team has been actively advising leading players in the sector on FLNG strategy and bankability.

INTRODUCTION

Taking a step back and having a look at what has been achieved on the LNG project finance in 2012 is actually an interesting exercise due to the size and importance of LNG projects closed this year. During the year LNG project financings have been quite unique due to the size of the projects and the contractual structures that have been used. We use three projects from the approximately USD 38bn\(^1\) of LNG debt financed over the last 10 months to highlight some notable developments.

NEW TRENDS IN PROJECT FINANCING

First, the INPEX-TOTAL led Ichthys LNG project in Australia. This is a unique Offshore upstream development, tied with a 885 km\(^2\) sub-sea pipeline and an onshore development that gives rise to significant interface challenges and huge cost estimates that makes it a unique project. From a project finance lenders standpoint, this project illustrates that even ultra-large integrated projects, despite the execution risk associated with them, can still beat the financing record and achieve non-recourse financing on the back of important economic support features such as attractive condensate production volumes.

Second, the Origin Energy-ConocoPhillips-Sinopec led Australia Pacific LNG project demonstrates a unique structure as a commercially integrated project with a segregated financing. From a project finance angle, it illustrates the rather new capability to debt finance a downstream segment and relies on sponsor’s equity for the upstream.

Third, the Cheniere led Sabine Pass retrofit is a brownfield development illustrating the new potential of financing stand-alone LNG liquefaction free from reserve risk and based on access to a deep and liquid gas

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\(^1\) Source: Dealogic
\(^2\) Source: Ichthys LNG overview from INPEX (website)
network. Whereas the need for strong creditworthy offtakers in a LNG development has been known to the sponsor and the finance community, this project expansion (Phase II) is unique in that it sought to expand the offtaker community beyond the traditional players.

These projects lead us to focus on a few key elements, (i) the new developments and new features, such as more diverse players, technological step-up and new source of gas against the backdrop of some historical features of project financing that facilitated these developments (ii) key features that led to the robustness of the financing chain and resilience during the present tough climate.

MAJOR BREAK-THROUGH ACHIEVED OVER THE LAST DECADE

Diversity of players

For a long time, oil majors have dominated the LNG supply chain but the market has over time evolved and today, we witness a diversity of participants in the market. The newer players typically have limited access to capital and less appetite to play in the global market. This directly impacts contractual practices - the integrated value chain is no longer the sole model for LNG project financing. Further while the link between liquefaction and regasification did follow a natural move, the link between the upstream development and liquefaction did not appear to be breakable. This integrated model has finally been challenged over the last few years by players such as BG in Equatorial Guinea and GDF-Suez in Cameroon. More recently, Cheniere broke new ground in LNG project financing by demonstrating that LNG liquefaction can be financed without a reserve report.

Technology advances

New technologies are also leading to a step change in the LNG supply chain and by extension, the project finance market. The breakthroughs in the floating LNG space with the Petronas and Shell Floating LNG projects are being keenly debated within the finance community. While these two projects are still equity financed, they are likely to act as benchmarks for future projects. On the other hand, the floating regasification technology has progressed since the early days of Adriatic LNG and retrofit LNG carriers into storage and regasification units, and is now a proven technology. The floating storage regasification unit (FSRU) concept is being adapted more aggressively, especially by companies in Asia as it can be deployed in quick time (15-24 months) and is cheaper (as low as 40-50% of all-in costs) when compared to traditional onshore regas terminals.

The availability of downstream regasification is clearly not a bottleneck any more. Mid-sized importers and independent consumers such as utility companies can now access the LNG market, increasing the number of marketing options for producers. This development in the FSRU market has represented an interesting growth story with a progression from almost no debt a few years ago to a current portfolio of at least US$ 600 million in potential projects. This trend is likely to continue with over thirty FSRU projects currently in different stages of planning.

New sources of gas

The other surprise of the last decade has been the continuous path of gas discovery. Again, technology has been critical in mastering both horizontal drilling and hydro-fracking, and has enabled the available vast sources of new gas to be monetised. Shale gas now represents an important part of the reserve replacement strategy of oil majors and has contributed to the US turning from net importer to net exporter. For instance, between 2001 and 2010, gas reserves in the US increased from 183 tcf to 304 tcf\(^3\), which compares with 895 tcf\(^4\) of gas reserves in Qatar. Over the same period, LNG production from the Australian basin grew

\(^3\) Source: US EIA, August 2012
\(^4\) Source: US EIA, 2011
from 7.5mmtpa to 19.8mmtpa\textsuperscript{5} with production forecast to be head to head with Qatar by 2017/2018 at about 77mmtpa\textsuperscript{6}.

Though cost inflation and uncertain return structures may slow the development of Australia LNG, final investment decisions taken this year on projects such as APLNG Train 2, Ichthys LNG, and Prelude indicate the importance oil majors attach to this prolific basin.

Lastly, gas discoveries offshore East Africa are getting larger and larger and moving towards monetisation (Front End Engineering Design, reserve audits, agreements on commercial structures). Tanzania and Mozambique, favourably located across from India and Asia will have important influences on the global LNG supply situation.

A diversity of new players, technological breakthroughs and new gas discoveries appear to have strongly impacted the LNG supply-procurement dynamics over the last decade, and led to an important number of new project financings. Nevertheless, these new features of the LNG market haven’t completely overruled some of the key patterns of a still traditional market. So why is the LNG market, and particularly LNG project financing, still perceived as an “old school” club?

**THE OLD ORDER STILL MATTERS**

**Resilience of the financial market despite financial crisis**

Increasing numbers of players and technological advances have been made possible through the availability of constant and regular funding for the full spectrum of LNG supply-consumption chain despite strong market disruptions in recent years. During the peak of the global financial crisis in 2008-2009, liquidity and particularly US Dollar liquidity, was scarce and some traditional LNG lenders, such as the European banks, were particularly affected by the sovereign related crisis. Beyond the crisis, the impact of regulation continues to affect the market. This includes Basell III requirements on long tenor debt facilities on which LNG projects are heavily reliant. These factors could have resulted in a big reduction of liquidity and thus shrink the size and number of projects actually financed. However, far from this, LNG project financing actually increased over 30% to about US$ 32 billion in 2009 from US$ 24 billion in 2008, even as overall project financing dwindled to US$ 410 billion in 2009 from US$ 680 billion in 2008.\textsuperscript{7}

**Sophistication of credit committees**

The reduction of liquidity during the crisis failed to meaningfully impact project financing. Neither did it cause significant delays of investments into the LNG market, an industry which traditionally depends on project financing as a source of funding and where the size of the capital requirement is generally large compared to other sectors. On the contrary, the LNG financing market has proven to be extremely resilient during this period and has in fact attracted record levels of financing.

\textsuperscript{5} Source: Woodmackenzie data
\textsuperscript{6} Source: SCB Analysis, Woodmackenzie data
\textsuperscript{7} Source: Deallogic
Liquidity and Capital structures for some major LNG projects

The robustness of the LNG value chain has been critical to the availability of liquidity. Today, credit committees of banks, which have the final control over financing decisions of projects, are able to benefit from 20 years of history and performance statistics. They have an appreciation of the performance of existing projects, together with the strength of the structural risk mitigants such as turn-key engineering, procurement and construction contracts, capacity booking and the auditing process of hydrocarbon reserves, in their decision making.

Strategic buyers

Resilience of the LNG market has equally benefited from the support of traditional, strategic LNG basins. Korea, Japan, and to a lesser extent China, have clearly helped to deliver some of the latest project financing. Australia Pacific LNG has demonstrated the strength of China’s support to LNG, where Ichthys LNG reaffirmed the essential role of Japan in the LNG market.

On the lending side, the absorption of volume risk through long term sales and purchase agreement with highly rated offtake is still a critical feature of the risk matrix. Availability of funds and pricing during adverse time are a direct function of the credit grade of the offtakers. On top of the volume risk, traditional Asian markets have proved to offer constant premium pricing, thanks to a fairly direct link to oil price. In our view, the combination of crude oil linkage and volume risk absorption have turned LNG projects into premium assets in the debt portfolio despite the penalising effect of Basel III on long tenor.

Are Oil majors the new “risk free asset”?

The slowing growth in many OECD countries has also highlighted a key feature of the LNG market - the importance of long-term strategy driven and financially sound participants both on the supply and the demand side. The capacity of such participants to absorb sudden market changes has been critical in maintaining the debt service. A good example that illustrates this point is the Qatargas LNG project - the ability of the Qatar State and Qatargas to re-route, at short notice, cargo to Asia instead of the depressed US market is a clear illustration of the long-lasting relationship between Qatar and the Japanese offtakers. This has been driven by mutual commitment by the Japanese as well as the other debt holders. Another illustration is provided further away in the Gulf of Mexico where large LNG players had significant incentives to maintain regassification facilities on the basis of ‘capacity booking’. Where the absence of LNG import and depressed domestic gas prices in the US should have led to overnight defaults by any merchant terminal, ‘take or pay’ contract structures for the booked capacities have actually kept many of the import terminals serving their debt.

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8 Source: Standard Chartered Bank Analysis
In both cases one or two strong players have been able to absorb sudden market changes and maintained lender debt service and associated financing ratios. In our view, this provided further data points to LNG financiers on resilience of debt and also highlighted the dependency of LNG lending on large, well rated oil and gas companies and LNG offtakers.

CONCLUSION: IS THE OLD ORDER ABOUT TO CRUMBLE?

The LNG industrial and market chain is arguably in the middle of a very critical phase in its evolution. A confluence of factors such the availability of new gas sources, new technology, and emerging gas markets have introduced different elements of uncertainty, with no firm existing view on the evolution of major trends. Newer and much smaller companies are entering the value cycle, and we expect this trend to continue. At the same time the resilience of the market to sudden changes is primarily owed to the presence of large and financially sound companies with vast experience in the sector. LNG financiers also clearly continue to favour such established players with liquidity appetite and favourable pricing and this factor alone will continue to provide the incumbents with advantages over new entrants. However, with the changing dynamics in the oil and gas market, the business of producing and consuming LNG will only become more fragmented. It is a matter of time.