

The FLNG Industry Overview 2016

By Richard Pain, Digital Content Editor, FPSO Network

An outsider to the industry could be forgiven for thinking that the FLNG market was in dire straights. Every month it feels as if there is news of another project put on hold due to the unfavourable economic climate. Most recently, Indonesia vetoed plans by Inpex to develop a FLNG for the Abadi gas field, instead opting for an onshore solution.

Despite this news, there are still some bright spots on the horizon as Petronas Satu approaches the date to commence operations and project developments continue for Ophir Energy, Delfin LNG and ENI's Coral FLNG. As a result, the FLNG market is predicted to reach a capex of \$7.17bn in 2016. This breaks down to the liquefaction part of the market worth \$5.06bn and the regasification part seeing capex of \$2.11bn.

To add context and analysis to this current market landscape, over the following pages you will hear from industry experts answering questions including:

- How should we view the current market?
- How can project financing be secured?
- What are the best practices for new-build interface management?
- What is the industry outlook?

Many of the contributors in the ebook are regular participants in the FLNG World Congress, an annual event held in Singapore and the largest gathering of FLNG professionals in the world. For the latest information about the topics covered in the ebook and more, don't miss our next event, the FLNG World Congress 2016, 28th - 29th June 2016 in Singapore.

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FLNG Project Updates:

- Petronas' PFLNG 1 is on track to commence operations in 2016.
- Petronas has delayed PFLNG 2, stating that the project will be commissioned at a later date.
- The Shell Prelude is on track to begin production in 2017.
- Ophir Energy's Fortuna FLNG is still set for mid-2016 FID.
- Woodside's Browse FLNG project has been shelved due to the current economic and market environment.
- Delfin FLNG, the first offshore floating natural gas liquefaction project in the United States, is pushing ahead.
- Exmar and Pacific Exploration & Production (PEP) terminated the Caribbean FLNG development.
- Indonesia has vetoed plans by Inpex to develop a FLNG for the Abadi gas field in the Arafura Sea, instead opting for an onshore solution.
- ENI's Coral FLNG development plan has been approved by Mozambique.

Taking a Long-term View of the FLNG Market

At the FLNG World Congress 2015, we asked the event chairman, Rene Van Vliet, Chief Project Officer at NextDecade, how the current low oil price affected FLNG development? In response, Rene explained that whilst there is currently a lot of talk about this topic, there are three key points to consider:



- 1 The effect of oil prices will always have some delay** before you see it reflected in LNG prices.
- 2 It's important to realise that the LNG business has always been a long term business.** LNG contracts and developments are typically 20 year developments, with fixed contracts for a significant percentage of the volume. Although the market might have some dips, people in the LNG sector are used to taking take a long term view. Whilst this will be reflected in FIDsin the form of fewer projects, but ultimately people will look for the long term.
- 3 If you look historically at Henry Hub prices** and where people are predicting where it will go, then there is a lot less volatility in the price of gas compared to oil prices. I expect that once people start realising that, they will get more comfort in buying LNG against Henry Hub prices compared to oil based prices.

The Advantages of FLNG

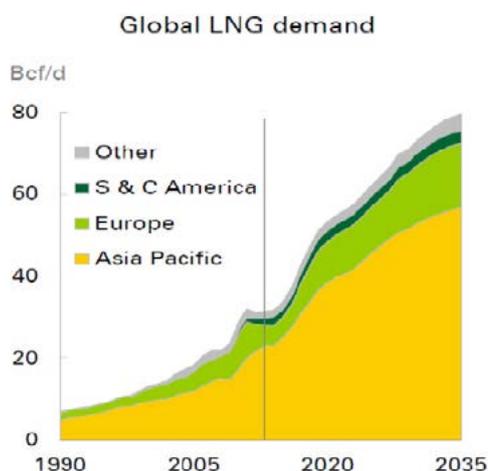
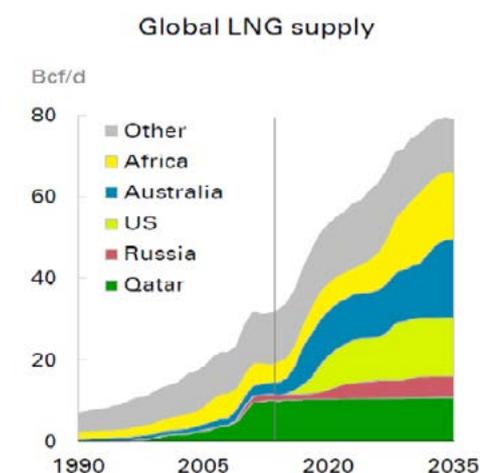
- Stranded gas fields are otherwise too costly or too difficult to develop compared to offshore or nearshore reserves.
- The era of easy gas is over. E&P activities are becoming increasingly remote, in deeper waters and harsher conditions.
- Despite the current low price of oil, there is a long-term predicted growth in LNG demand.
- New LNG projects are being developed faster than ever before, presenting new quick to access revenue streams.
- FLNG is capable of handling a range of feedgas with condensates, LPG and CO2. This is a significant advantage but with this comes added complexity.



How to Motivate Financiers to Support FLNG Projects

With the FLNG market predicted to move slowly over the coming years, one of the big barriers holding the market back, aside from low commodity prices, is financing and getting the banks onside. Whilst this is not an issue for the mega projects bankrolled by Shell and Petronas, small to mid-sized players crucially need to know how to speak the bank's language.

Yet despite the slow market, some banks are very positive about the future opportunities for LNG projects both on and offshore. One such bank is The Korean Development Bank (KDB), which declared its strong interest during a presentation at the FLNG World Congress 2015. Speaking at the event, KDB representative Adolfo Dindo Abueg, explained that future demand for LNG will be strong, particularly driven by the Asia Pacific region, where net imports will nearly triple and account for almost 50% of global gas imports by 2035.



Energy Outlook 2035

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Whilst IHS predicts that only 1 FLNG award will occur by 2019, KDB estimates that an enormous USD 60 billion will be spent on FLNG projects between 2014 to 2020. To put that in perspective, Shell's Prelude FLNG is estimated to cost around USD 10 to 15 billion.

So despite the slow market for new FLNG developments, there is still money to be made, providing the banks are willing to get involved. But before project developers reach out to secure project financing, it is first important to consider and rank the motivations a bank might have for doing business:

Top Ten List for Bank's Motivation to Finance FLNG

1. Make money (fees, interest etc.)
2. Mitigating and diversifying credit risks
3. Prestige, improve rankings in league tables, market share
4. Creates cross selling opportunities for the bank (Trade Finance, Hedging, accounts etc)
5. Liquidity in the bank and hard to find other good projects
6. Project has a component that supports the financial institution's mandate (i.e. ECAs, MLAs goals)
7. Opportunity to play an important role in the project (Financial Adviser, Coordinating Bank, etc)
8. To develop relationship with a new and important client (sponsor/contractor)
9. Opportunity to assist an existing and important client (sponsor/contractor)
10. Energy sector in particular LNG is an important sector for the bank, (especially KDB)

According to Adolfo Dindo Abueg, the big problem with FLNG is that the industry is still in the early stages of identifying the key success factors. Banks like KDB are particularly concerned with:

- New Technology
- Cost Overruns
- Delays

Once first LNG is achieved by one of the upcoming projects, regular production will be crucial to persuade conservative buyers and financiers. So until the industry sees the first project on-stream, Adolfo Dindo Abueg recommends the following steps to getting prospective financiers interested:

1. Develop your FLNG story
2. Address key FLNG risks
3. Start talking to banks
4. Identify each bank's motivation
5. Target banks who can help you in the early stages

These steps will ensure that you are best placed to choose the right bank for you and provide them with the necessary information to inform their decision. Fortunately the FLNG market is predicted to pick up in the mid-term as oil prices recover, demand for LNG increases and the first FLNG projects come on-stream. But even with these positive factors, industry players are still advised to follow these steps in order to increase their chances of securing project finance.

Integration Management for New Build FLNG Facilities



With such a small number of FLNG projects, there are only a handful of companies in a position to share their experience in FLNG construction and project management. This is one of the contributing factors to why many companies have adopted a wait-and-see strategy rather than pushing forward. Despite this, one company that has already accrued significant experience in FLNG is JGC Corporation, which has been involved in FLNG design and development since the 1990s and was, for a time, in charge of the EPCIC contract for PFLNG 2 until the project was suspended in February 2016.

Based on this experience, Rohn Shelton, Senior Interface Manager for FLNG at JGC Corporation, shared their best

practices for managing the complexities of new build FLNG construction at the FLNG World Congress 2015. One of this key point is that after having done the FEED for a new-build, whilst there may be some known unknowns, you have the ability to prepare contingencies to mitigate these risks. However with conversions there's a greater risk of finding issues or problems that have not been accounted for, which can lead to significant issues for intergration. So whilst new-builds are undoubtedly easier to manage they are by no means simple and there are several essential best practices that all FLNG project developers need to be mindful of.

If you missed this presentation or you would like to recap Rohn Shelton's best practice principles, simply click the image below to watch the presentation in full. You can also download the slides that accompany this presentation [here](#).



What is the Future of the FLNG Market?

Whilst many experts predict a period of stagnation in the short-term, it is also said that this will force market players to pause and adapt their strategies, drawing lessons from the technological and financial effectiveness of upcoming projects. To learn more, we asked the experts at the FLNG World Congress for their views on the future of the market. Here's what they said:



“I think, the current environment will create some heavy debates regarding problems and decision making. I think it will lead to more studies and maybe doing re-FEEDs, rather than immediately going to FIDs. I think we are going to see a period of a couple of years where people consider the following things, firstly whether the market gradually will turn again and secondly, see how supply and demand evolves because there are some uncertainties there as well. Then thirdly, people will see that there are specific opportunities for floating liquifaction. I expect this will lead to more focus in regards to where you can compete with floating liquefaction, compared to onshore liquefaction developments.”

RENE VAN VLIET, CHIEF PROJECT OFFICER, NEXTDECADE

“I believe that there's been some stagnation within the FLNG industry. We've certainly seen projects put on hold, we've seen projects cancelled. What we believe will happen is that in the very short term, those projects will still be on hold, but the larger developments and mid-size projects, we don't see those being terribly affected going forward.”

ROHN SHELTON, SENIOR INTERFACE MANAGER, FLNG PROJECTS, OFFSHORE AND MODULE GROUP, JGC CORPORATION





“The tipping point in the growth of the FPSO industry was the moment that lease-and-operate solutions reached the market. Although FLNGs are more complex and history does not repeat itself, I still believe that when the first FLNGs have been proven from a commercial basis, more independents and midcaps will look at it as a viable development option. At that time, lease-and-operate solutions will be preferred and I think that’s where FPSO operators like Bumi Armada will have a strong role to play.”

LUC PESCIO, VP FOR FLOATING GAS SOLUTIONS, BUMI ARMADA

“I think the market is going to be slow, companies are still finding the niche they want to be in. We’ve seen where a company will start off with a mid-scale approach and then begin focusing on the small-scale approach instead. Then there also is an issue regarding the demand for FLNG. As much as we see the demand, a lot of the FEED work is leading to difficulties in making investment decisions because of the total cost.”

ARUN DUGGAL, DIRECTOR OF RESEARCH AND DEVELOPMENT, SOFEC



“I think the FLNG market is splitting into large-scale projects on the one hand and small to mid-scale projects on the other. Regarding new build and conversions, we’ve heard to date a lot of talk about conversions being potentially a cost-effective way to go, but we have still to be convinced that they are going to be really effective in operations.”

STEPHEN THOMPSON, LNG AND NATURAL GAS MANAGER, POTEN & PARTNERS AUSTRALIA

There are plenty of opinions on where the FLNG market is heading in the current oil price environment. The question is, do you have enough critical market intelligence to make an informed decision?

FOR THE LATEST INFORMATION ABOUT FLNG PROJECT DEVELOPMENT, DON'T MISS:

FLNG WORLD CONGRESS

Main Conference: **28 - 29 June 2016**
Post-Conference Workshops: **30 June 2016**
Venue: **One Farrer Hotel & Spa, Singapore**

Why Attend the FLNG World Congress?

MEET ACTIVE FLNG PROJECT DEVELOPERS

Gain insights from FLNG project owners including Ophir Energy and Delfin LNG on the progress of their FLNG projects, the challenges faced and their strategies on successfully developing and commercializing FLNGs.

REVIEW FLNG ENGINEERING & TECHNOLOGY FEATS

Learn about the monumental breakthroughs made in the FLNG space! What were the initial missteps, considerations and counterstrategies?

STATE OF THE INDUSTRY FLNG REPORT

Uncover FLNG prospects in the next 2 years. Where are the market opportunities and how will the industry fare under current market conditions?

FEATURING:



Dr. Oliver Quinn
Director of Africa & Global
New Ventures
OPHIR ENERGY



Sampe Purba
Vice President of Gas
Commercialization
SKK MIGAS



Frederick Jones
CEO, **FAIRWOOD**
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