Liquefaction financing
the next evolution in LNG's commoditization?

LNG special report
November 2018

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S&P Global
Platts

LNG

LNG financing leaders share insights on the current evolution

"In Africa, for example... I would expect ECAs to be leading, in a big way, to bridge the commercial risk linked to the political environment."

Olivier Musset
Global Head of Energy
Société Générale

"We have seen a few projects where the lack of credit worthy buyers... has been circumvented... by selling the output of the project to portfolio players."

Heike Trischmann
Of Counsel
Watson Farley & Williams LLP

"In the last two years we've certainly seen the emergence of JKM as a very interesting mix in hedging and I think we'll see that increase."

James Lowrey
Director
Resources Energy & Infrastructure, ANZ

"If you want to increase your level of leverage and you would like the banks to take a more risk on a certain commodity then, yes, hedging will help the banks to be more comfortable with the higher leverage."

Luca Tonello
Deputy General Manager and Head of Project Finance for Asia - Investment Banking Department
Sumitomo Mitsui Banking Corporation

LIQUEFACTION FINANCINGS ATTEMPT TO KEEP PACE WITH LNG'S COMMODITIZATION

Changes in how LNG is bought and sold are creating financing challenges for new liquefaction projects. This is despite the LNG market not being cyclically over-supplied, leading to a potentially severe supply shortfall, beginning in the early 2020s.

For several decades, LNG liquefaction project financing has been underpinned by long-term, oil-price-linked contracts with strong-credit buyers. However, buyers today are increasingly lower-rated and seeking flexible terms.

The slowdown in new projects reaching Final Investment Decisions (FIDs) has prompted the proposal of new financing solutions, including more flexible lending terms, larger equity investments, and the increased use of hedging.

LNG portfolio players are also playing a more active role to secure new liquefaction project financing. LNG Canada's FID, in October 2018, was underpinned by the project partners, mostly portfolio players, each marketing their own LNG shares.

Structural shifts in LNG contracts

Buyers' rising flexibility requirements are increasingly being met by LNG portfolio players. Portfolio players' LNG is typically not committed to a particular destination and is divertible, allowing it to quickly respond to evolving market conditions.

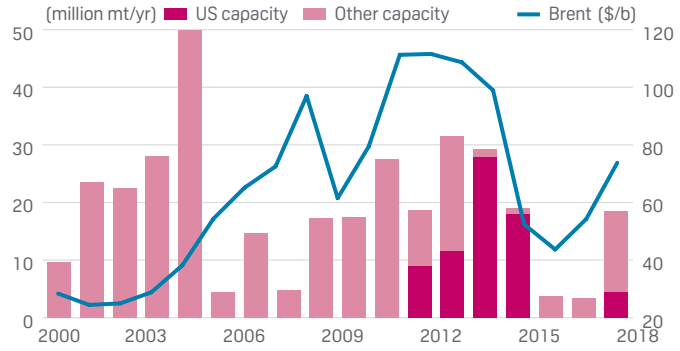
This fast-growing supply source, predominately from the US and traders , should reach 20% of total contracted volume by 2020, from 11% in 2014. Portfolio volumes, representing a marked shift away from traditional point-to-point LNG deliveries, are well-suited to meeting importers' increasingly uncertain demand.

The ongoing ramp-up of Free on Board (FOB), versus Delivered Ex Ship (DES), LNG contracts further enhances buyer destination flexibility. Whereas the significant majority of deals were traditionally signed DES, often with seller-controlled, and/or inflexible, destinations, in 2020 these proportions equalize. By 2024, over 60% of all contracts signed are expected to be FOB.

The average length and volume of LNG contracts have fallen sharply since 2013 as importers seek flexibility to manage fluctuating demand. Newer LNG buyers, including in Jamaica, Colombia, Lithuania, Malta and Bangladesh, present challenges as counterparties for new projects due to their relatively small size and often lower credit ratings.

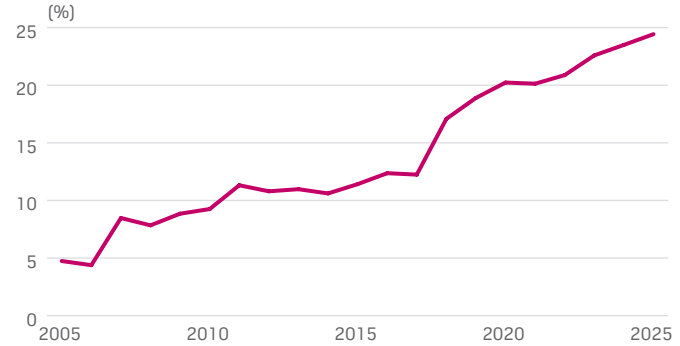
> *"Buyers' rising flexibility requirements are increasingly being met by LNG portfolio players. Portfolio players' LNG is typically not committed to a particular destination and is divertible, allowing it to quickly respond to evolving market conditions."*
>
> *–Marc Howson, Director, LNG Market Development, S&P Global Platts*

LIQUEFACTION CAPACITY TAKEN FID BY YEAR



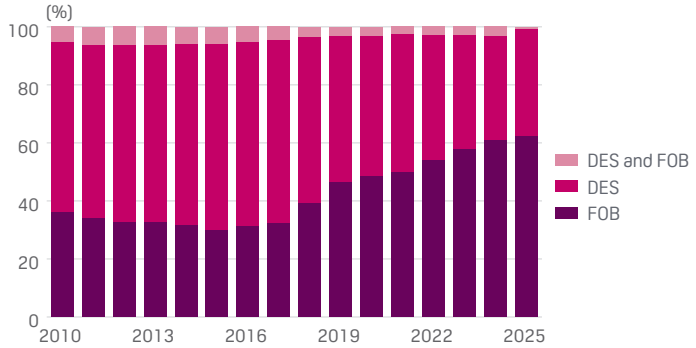
Note: 2018 data above only considers January-October 2018.
Source: S&P Global Platts Analytics

CONTRACTED LNG HELD BY PORTFOLIO PLAYERS



Source: S&P Global Platts Analytics

LNG CONTRACT SIGNINGS BY FOB/DES



Note: Only includes known FOB/DES LNG contract signings.
Source: S&P Global Platts Analytics

LIQUEFACTION PROJECTS FIDS SINCE JANUARY 2015

Project name	Country	Project capacity under 5 (million mt/year)	Expansion project?	Predominant Buyer type	Predominant contract type
Coral FLNG	Mozambique	Yes	No	Portfolio player	FOB
Tangguh train 3	Indonesia	Yes	Yes	End users	DES
Corpus Christi train 3	U.S	Yes	Yes	Portfolio players and end users	FOB
LNG Canada	Canada	No	No	Portfolio players and end user	Equity marketing

Note: Portfolio players includes traders.

Source: S&P Global Platts Analytics

Rising adoption of multiple pricing indices, including LNG spot pricing

Recent LNG contract renegotiations highlight the risk of pricing LNG against other commodities. There have been almost 80 identified LNG contract disputes, according to a 2017 report by Macquarie Research[1]. In the vast majority of these disputes, one or more parties eventually resorted to filing arbitration or litigation to resolve their disagreement. Specifically, pricing has been the most frequent subject of the disputes.

Rising demand from price-sensitive, especially Chinese, Indian and south-east Asian buyers, where coal, not oil, is LNG's primary competition, is also pressurizing LNG's oil-price linkages.

US LNG cargoes are usually priced against natural gas benchmarks including Henry Hub and European hubs. Meanwhile, Mozambique LNG has agreed long-term LNG contracts priced against five different price indices.

Growing adoption of Platts JKM, the LNG spot price benchmark, ensures the contractual price remains market-based and can be hedged with a like-for-like derivative product, JKM Derivatives. As a result, cleared volumes of JKM Derivatives have sharply ramped-up since 2015.

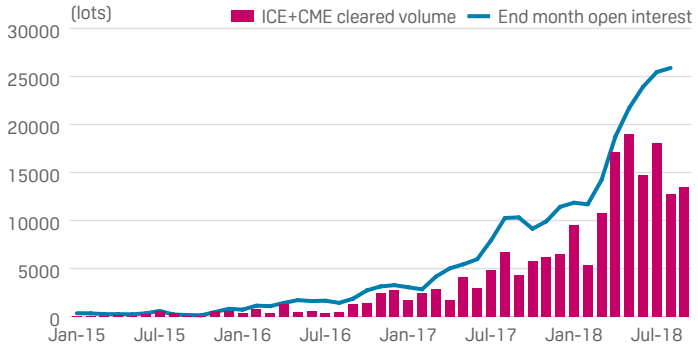
LNG supply shortfall from early 2020s

As players struggle to adapt to shifts in LNG pricing and non-pricing contractual terms,relatively few projects have reached FID since 2015.

> *"The slowdown in new projects reaching FID has prompted the proposal of new financing solutions, including more flexible lending terms, larger equity investments, and the increased use of hedging."*
>
> *– Marc Howson, Director, LNG Market Development, S&P Global Platts*

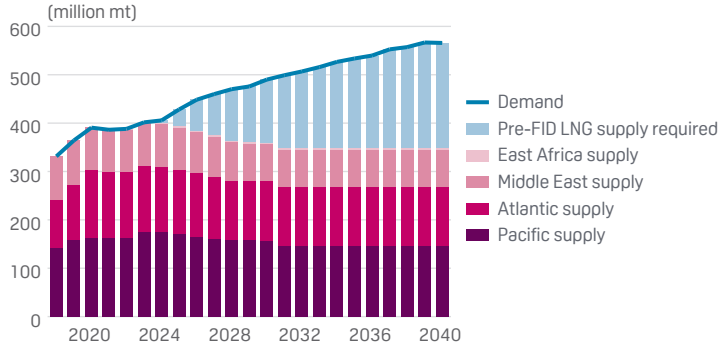
1 https://www.investorvillage.com/uploads/44821/files/LNG_Macq_120517.pdf

CLEARED JKM DERIVATIVES



Source: Platts data, ICE data, CME data

GLOBAL LNG SUPPLY/DEMAND OUTLOOK



Source: S&P Global Platts Analytics

This is particularly surprising as oil prices have risen sharply since 2016 and JKM has remained generally elevated, indicating the LNG market is not over-supplied.

Only four liquefaction projects have been sanctioned globally since 2015. Given LNG's growing commoditization, it's unsurprising that these were mostly relatively small size projects, with volumes generally sold FOB, typically to portfolio players.

Given that liquefaction projects typically take four to five years to construct, the recent relative lack of FIDs is expected to result in declining global LNG supply, and potentially severe market tightness, in the early 2020s.

To release supply-constrained LNG demand from 2024, LNG players, including financiers, need to realign and restart sanctioning significant capacity from 2019.

S&P Global Ratings credit insights

S&P Global rates LNG transactions financed either on corporate balance sheets or as project financings (PF). A sponsor typically finances a transaction as a project financing if it is too large to be supported on its balance sheet, or if through the project financing, the sponsor is able to allocate risks more efficiently to parties most capable of managing such risks.

Current outstanding ratings

We currently rate several project-financed LNG transactions:

- Cameron LNG LLC
- Sabine Pass Liquefaction LLC
- Cheniere Corpus Christi Holdings LLC (CCH)
- FLNG (Freeport LNG) Liquefaction 2 LLC
- FLNG (Freeport LNG) Liquefaction 3 LLC
- Ras Laffan Liquefied Natural Gas Co. Ltd. (3)
- Ras Laffan Liquefied Natural Gas Co. Ltd. (II)

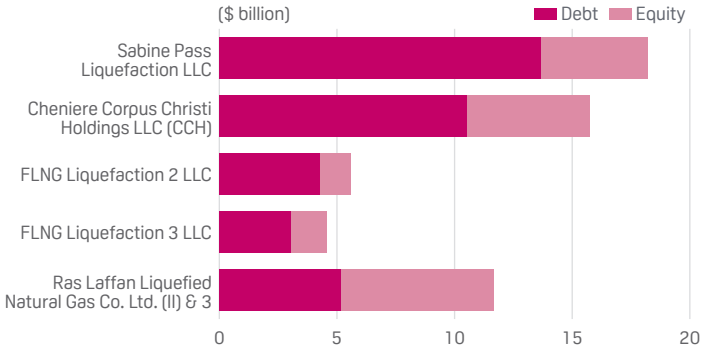
If the debt is amortizing, we expect debt service coverage ratios (DSCR) for projects that have long-term SPAs or tolling agreements in the 1.5x-1.6x range. For riskier projects that have varying levels of merchant tails we will expect DSCRs to be in the 1.75x-2.0x range for investment grade ratings. For projects with merchant or significant re-contracting exposure, we would expect ratios in the 2.5x-4x range.

Greater lending by export agencies will likely be at lower cost compared to capital/credit markets and therefore improve DSCR's – mitigates, but does not offset, higher risk of the short-term business risk.

Market risks

Market exposure measures the expected volatility of a project's cash flow available for debt service (CFADS) from our projected base case to the market-downside case due to price changes or volume fluctuations, or both.

DEBT/EQUITY CAPITALIZATION BY LIQUEFACTION PROJECT



Source: S&P Global Ratings

> *"From a credit perspective, a divergence between spot prices and long-term contract prices raises risks for debt-financed LNG transactions."*
>
> *– Aneesh Prabhu, Senior Director, US Energy Infrastructure, S&P Global Ratings*

Market risks also emerge from volume variability. In recent months, buyers have gained greater leverage in contract negotiations. We have seen buyers asking for more quantity flexibility, cargo cancellation rights, back-end "ramp-down" rights, etc. We see these contractual terms as riskier for a project than the take-or-pay provision in legacy contracts.

We have also noticed that some buyers now want seasonal delivery schedules. This is usually in the form of delivery requests for a disproportionate quantity of the average annual contract quantity (AACQ) in a defined 3-5 month season (typically winter). However, because a facility will produce LNG on a reasonably ratable basis throughout the year, seasonal deliveries put significant strains on its ability to market all of its production on a long-term basis.

Counterparty risks

Counterparty risks arise from two specific concerns. First, the credit quality of offtakers could constrain ratings of the LNG project. Second, should the existing contract become substantially out-of-the-money, a counterparty could attempt to force a renegotiation.

Counterparty ratings

We note that some of the newer buyers have lower credit ratings than traditional LNG buyers, and are also buying on shorter contract durations than the traditional 20-year LNG SPA. If the offtaker credit ratings are low, the project ratings could be constrained by the counterparty's credit quality even if the project's stand-alone credit profile is stronger. Alternatively, we could evaluate the project as if the contract does not exist and impose our assumptions of market-based pricing on the project.

Contract negotiations

One of the inherent risks with long-term contracting is that, over time, it can become significantly out (or in)-the-money, raising the prospects of a contract dispute.

From a credit perspective, a divergence between spot prices and long-term contract prices raises risks for debt-financed LNG transactions. In theory, this divergence provides an economic incentive for buyers to turn down long-term oil-

indexed contractual volumes towards take-or-pay levels and instead purchase spot LNG cargoes. We have already seen a resistance from many Asian buyers to signing new long-term contracts when spot prices remain so low.

The big question is whether Asian buyers will seek to renegotiate LNG prices in long-term contracts with higher slopes?

The large number of long-term contracts signed in the 2011-2014 period, particularly with Australian projects, could come under pressure. Many of these contracts include price-review provisions, though buyers are likely to have to wait for at least five years after LNG supply commences to trigger price negotiations under the terms of the contract. If this is the case, then there could be a wave of price renegotiations in the early 2020s if spot prices remain low and there is continued downward pressure on the level of oil indexation in new long-term contracts.

We see oil-linked contracts at higher risk of renegotiations. While many of the projects entering service in the US over the next 12-18 months were also sanctioned in a higher LNG and crude oil price environment during 2012-2014.

Credit considerations

Lately, some sponsors have considered the use of LNG benchmark indexes for inking contracts. This has been fueled by pricing disputes on long-term commodity-linked contracts and growing demand for LNG in non-oil dominated economies. We think that with increasing commoditization of the LNG markets, the trend towards benchmark index-based pricing could endure. On the one hand, it is likely that given the trend towards shorter-term and smaller-volume contracts, sponsors will prefer to take on more balance sheet risk, or infuse more equity, when making their final investment decisions. On the other hand, we also expect that a number of sponsors will continue to consider project financings as an attractive financing option if they can contract long-term.

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Recontracting risks

Over the duration of a term contract, using market-based LNG pricing can potentially reduce incentives for one of the counterparties to renegotiate the contract's pricing terms. In fact, the emergence of a rapidly growing derivative market (for instance Platts JKM Derivatives) can potentially allow parties to hedge their physical positions, as derivatives can be settled against physical spot price.

APPENDIX

The following table presents details of some of S&P Global Ratings existing transactions:

Credit	OPBA	Minimum DSCR	Average DSCR	Debt Structure
Cameron LNG LLC	N/A	N/A	N/A	The rating on the debt is based on credit substitution of the off-taker based on an "all-in" wrap.
Sabine Pass Liquefaction LLC	4	1.51	1.81	The debt is predominately bullet maturity with one small tranche of amortizing debt. Our base-case scenario is that Cheniere will either refinance with amortizing debt or repay with debt issued at the Cheniere Energy Partners LP level.
Cheniere Corpus Christi Holdings LLC (CCH)	5	1.45	1.55	The debt is a mix of bullet bonds and bank financing. The bank financing is being used to finance construction. Our base case is that the bank financing will be repaid with bonds. In addition, the bonds will be refinanced with amortizing debt or repaid with debt issued at the Cheniere Energy Inc. level.
FLNG Liquefaction 2 LLC	5	1.65	1.74	The debt is a mix of amortizing bonds and bank financing. The bank financing is being used to finance construction. Our base case is that the bank financing will be repaid with amortizing bonds.
FLNG Liquefaction 3 LLC	6	1.69	1.99	The debt is a mix of amortizing bonds and bank financing. The bank financing is being used to finance construction. Our base case is that the bank financing will be repaid with amortizing bonds.
Ras Laffan Liquefied Natural Gas Co. Ltd. (3)	9	3.35	10.61	The debt is exclusively bullet debt.
Ras Laffan Liquefied Natural Gas Co. Ltd. (II)	9	3.35	10.61	The debt is exclusively bullet debt.

OPBA = Operations Phase Business Assessment. DSCR = Debt Service Coverage Ratio.

Source: S&P Global Ratings

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