

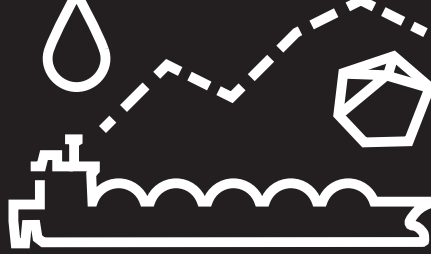
The rapidly evolving global LNG pricing matrix

Having a globally understood measurement of value for a commodity enables pricing to perform its primary function of balancing markets.

Important global catalysts are creating a more flexible and transparent LNG market. This is particularly relevant for Asia, which has traditionally dominated global LNG imports, now accounting for over 70% of total LNG demand. Both supply and demand factors are currently facilitating a fundamental restructuring of LNG transactions' key pricing features.

On any given day, we can now see the value of LNG regionally and in the global context. Recent global gas pricing convergence is arguably due to market participants closing LNG arbitrage opportunities as soon as they arise, because they are now transparent – a natural evolution for a global commodity.

LNG's pricing and non-pricing evolution is underpinned by a combination of important global supply and demand drivers.



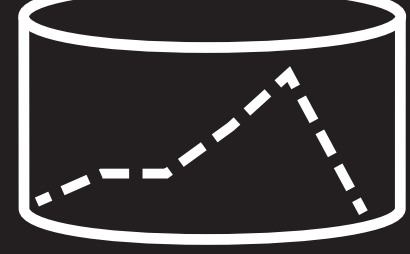
Increasing non-oil competition for Asian LNG: Legacy Asian LNG procurement has been dominated by oil-price-linked contracts, partly because oil represented the substitute fuel to LNG in some buyers' energy mixes. However, for important fast-growing LNG importers, e.g. China, India and across Southeast Asia, non-oil fuels, including coal and renewables, are often the primary alternative to LNG. For these growing Asian LNG importers, oil price-linked LNG contracts are therefore becoming fundamentally less important.



Increasingly flexible procurement reducing LNG contract length and size: Unlike when contracts were initially negotiated, "foundation" sellers and buyers no longer require off-take and supply surety to secure project funding. They are therefore free to contract for shorter periods and size. North Asian LNG buyers, particularly Japan, face ongoing uncertainty regarding the future of nuclear plants, demographics and their impact on LNG demand. This, combined with the ongoing start-up of smaller LNG importers including Jamaica, Malta, Bangladesh, Bahrain etc., has facilitated shorter, smaller contracting.

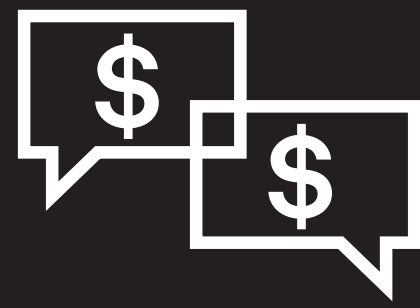


Growth of destination-flexible US LNG supply: The strong ongoing ramp-up of US LNG has already resulted in US cargoes' deep penetration into East of Suez markets, the destination for most US Gulf LNG produced before April 2018. US LNG is typically sold on an FOB basis, allowing the cargoes to flexibly respond to country-specific demand fluctuations, unlike legacy point-to-point LNG contracts.



Legacy LNG contract expiry: While the number of US and Australian contracts are increasing, total contracted LNG volumes will decline dramatically post-2020. Many of these legacy LNG exporters possess insufficient gas reserves to renew these contracts at existing volumes/durations, while buyers are increasingly confident relying on the LNG spot market for security of energy supply.

Three key benefits of LNG market pricing in term LNG transactions



1. Reduced incentives to renegotiate an LNG contract's pricing terms: LNG spot pricing is representative of constantly evolving LNG supply/demand fundamentals, compared with pricing LNG against a different commodity e.g. oil or US domestic gas prices.

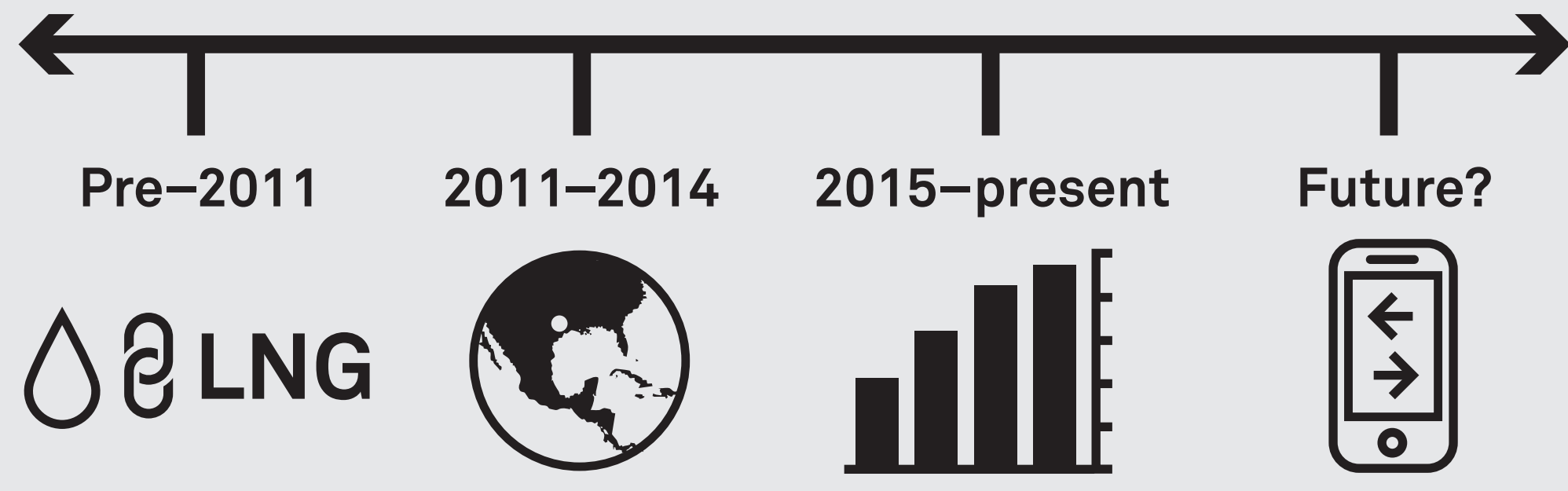


2. Often simpler pricing negotiations: Harnessing LNG spot pricing can reduce the time, expense, and potentially negative impact on counterparty relationships, compared with negotiating other LNG contractual pricing structures.



3. Counterparty can enter/exit derivative hedges, at suitable times or price points: The fast-growing LNG derivatives market is allowing players to hedge their physical benchmark LNG spot price, Platts JKM™, exposure through corresponding financial products, Platts JKM derivatives, which are settled against the physical price.

Asia LNG pricing evolution



Platts JKM

Platts JKM™, the daily benchmark price for spot physical LNG cargoes delivered ex-ship into North Asia. Platts JKM is increasingly used as the price benchmark for spot trades and as a basis for term contracts, both in and outside Asia. In addition to Platts JKM, Platts JKM derivatives are financially settled based on the physical Platts JKM assessments published.

We can expect to see ever-increasing levels of granularity being contested and discovered in the LNG pricing process. Quality and heating value will be explained through premiums, discounts and differentials to the basis benchmark, along with location and, importantly the relative value of delivery periods will be expressed by market structure. New benchmarks focused on centers of production and consumption will emerge, all working in a matrix with the key measures of LNG value and all measured in MMBtu, orbiting the basis – Platts JKM™.



GCM Gulf Coast Marker

Reflects the value of spot LNG exported from the US Gulf Coast on an FOB basis, with location normalized to Sabine Pass.



FOB Australia (Netback)

A daily spot netback assessment for LNG loading in Dampier, Western Australia, which applies a freight cost subtraction from Platts JKM™. Australia is a fast-growing LNG producer, becoming the world's largest LNG supplier in 2019, representing an important FOB pricing hub.



MEM Middle East Marker

Reflects the value of spot LNG delivered ex-ship at ports in the Middle East. The location is normalized to Ain Sukhna, Egypt, using an assessed deviation cost.



DES DES West India

Reflects the value of spot LNG delivered ex-ship at ports on the west coast of India, assessed for five half-months. This includes a half-month immediately preceding Platts JKM™, reflecting the often prompt nature of Indian LNG procurement.

The key drivers behind the fast-growing trade in Platts JKM derivatives

The growth in volume and the resulting increase in liquidity can be attributed to a number of factors, including the potential for the globalization of natural gas markets, the need for a more specific price benchmark for LNG in Asia such as the Platts Japan-Korea Marker (JKM™), and the region's energy supply and production. However, neither LNG nor the globalization of natural gas are new phenomena. LNG has been around for decades. It is the market structure that is at a point of inflection with the arrival of flexible shorter term supply, transparent and robust natural gas benchmarks and legacy long term contracts beginning to unwind."

The key outlook and/or features of Platts JKM derivatives

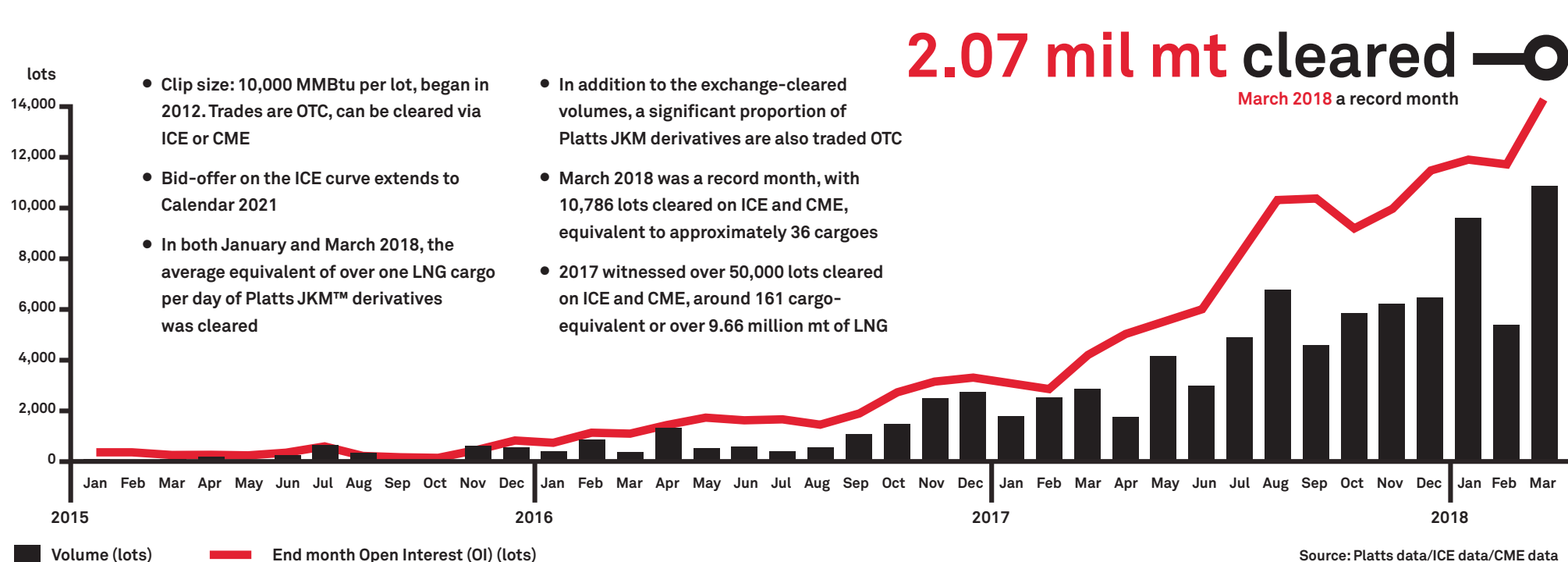
Momentum in ICE's Platts JKM™ LNG futures contract has been building since the second half of 2016 in terms of liquidity, volumes and number of market participants as the contract's global relevance has grown, driven by changing market dynamics for Liquefied Natural Gas. In 2017 alone, volume rose over 293% in comparison to 2016, and the first quarter of 2018 saw two new monthly volume records. We are also seeing many signs of increasing confidence in Platts JKM, including trading out until the 2020 tenor, the increasing size of trades and recently the first ever screen executed, on-exchange trades in Platts JKM futures."

The role for exchanges and/or clearing for Platts JKM derivatives

As the world's leading energy marketplace, ICE provides participants with efficient access to all of the world's major oil and natural gas benchmarks. Access to our clearing house allows participants to manage credit risk whilst accessing the most complete set of offsets available to energy market participants for capital efficiency."

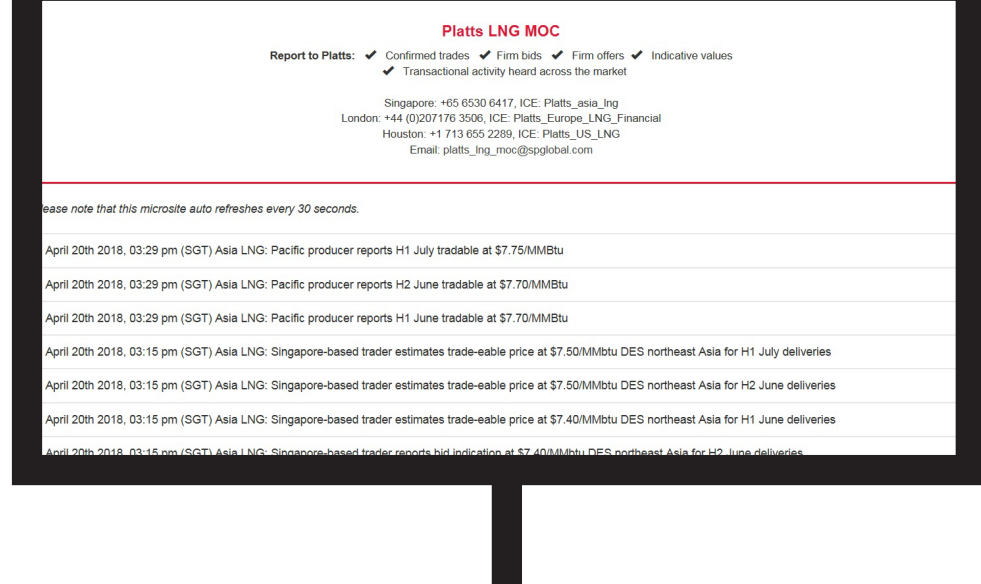
Gordon Bennett
Managing Director of Utility Markets, ICE
April 2018

Q1 2018 Platts JKM™ derivatives cleared volumes reached 5 mil mt, including two new monthly records



We have seen tremendous recent growth in Platts JKM™ clearing on CME Group and we are very positive about the future. Platts JKM derivatives are in a growth phase at present as the market becomes more comfortable with prompt price structures and with gas-to-gas pricing. Interest continues to grow and CME saw its most active Platts JKM trading day ever on 3 April. CME expects new participants to enter the market, enabling existing Platts JKM traders to increase the size of their trading. The ability to clear trades through an exchange such as CME allows new participants to enter the market smoothly without the need to conclude multiple credit agreements with different parties. Clearing is an accelerator of derivative market activity and CME is excited to play its part in the development of this very promising market.

Owain Johnson
Managing Director, Energy Research, CME Group
April 2018



View this recently launched Platts LNG MOC website:

<https://lmg-moc.plattslabs.io/heards>