



**S&P Global**  
Platts

# JKM: Diving into Asia's Natural Gas Benchmark

---

John Fry | Training Delivery Manger, ICE Education  
Kenneth Foo | Asia LNG, Regional Manager, S&P Global Platts

November 2020



Transforming global markets

# S&P Global Platts LNG pricing & Methodology

Kenneth Foo  
Managing Editor, APAC LNG

November 2020



---

**S&P Global**  
Platts



# Our benchmark price assessments

By standardizing and providing an assessed value for a particular commodity, S&P Global Platts price assessments provide a reference point for buyers and sellers.

## Focus, impact and relevance

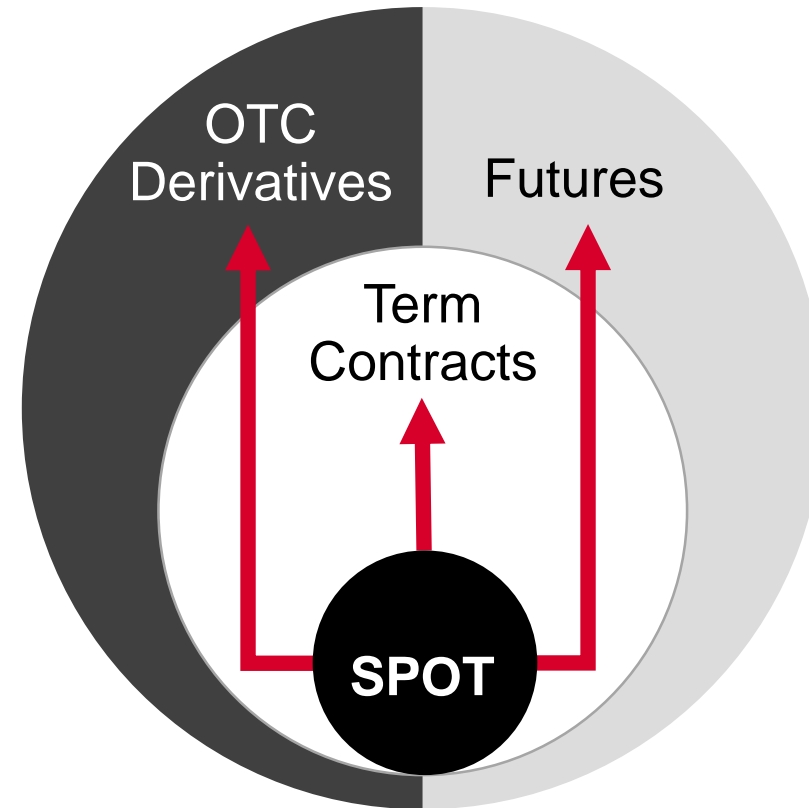
S&P Global Platts benchmarks are used to price term contracts

---

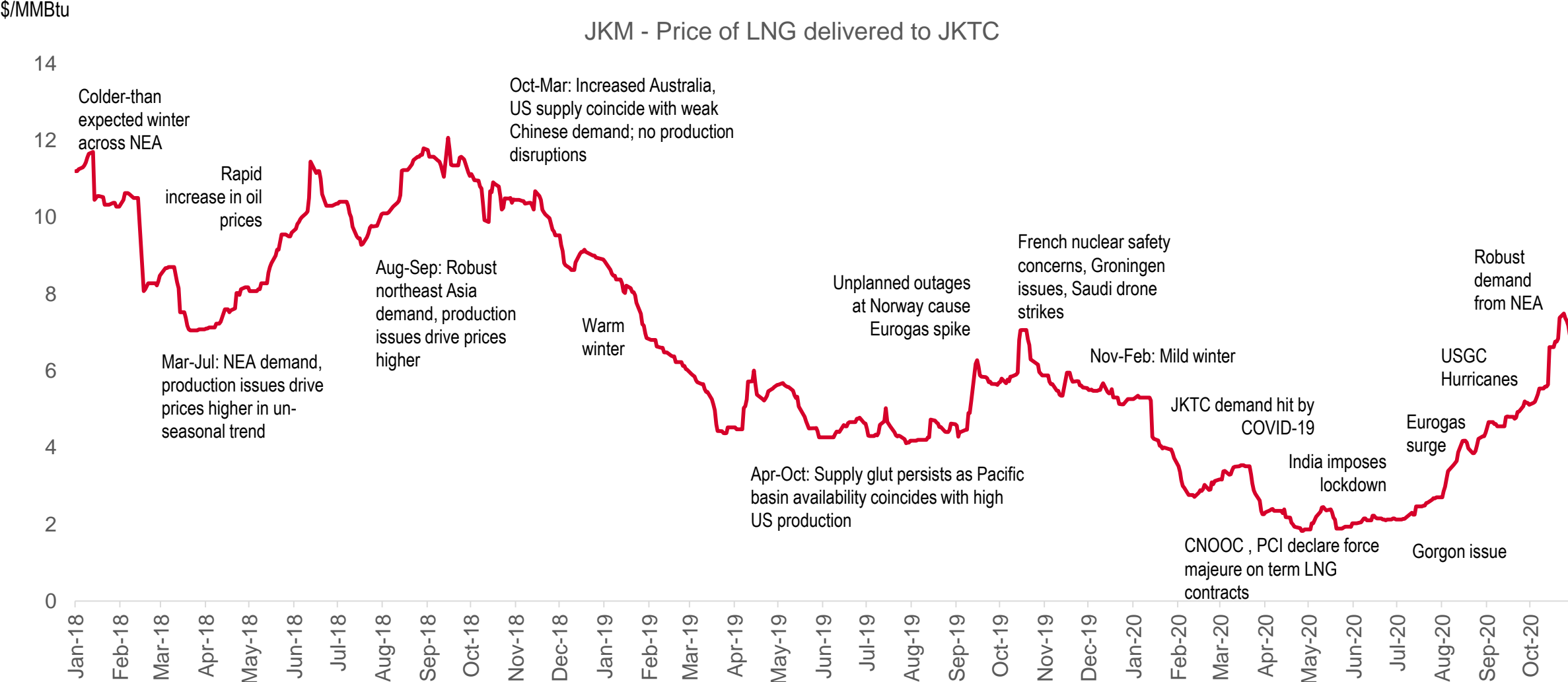
Futures settlements are often tied to S&P Global Platts spot market assessments

---

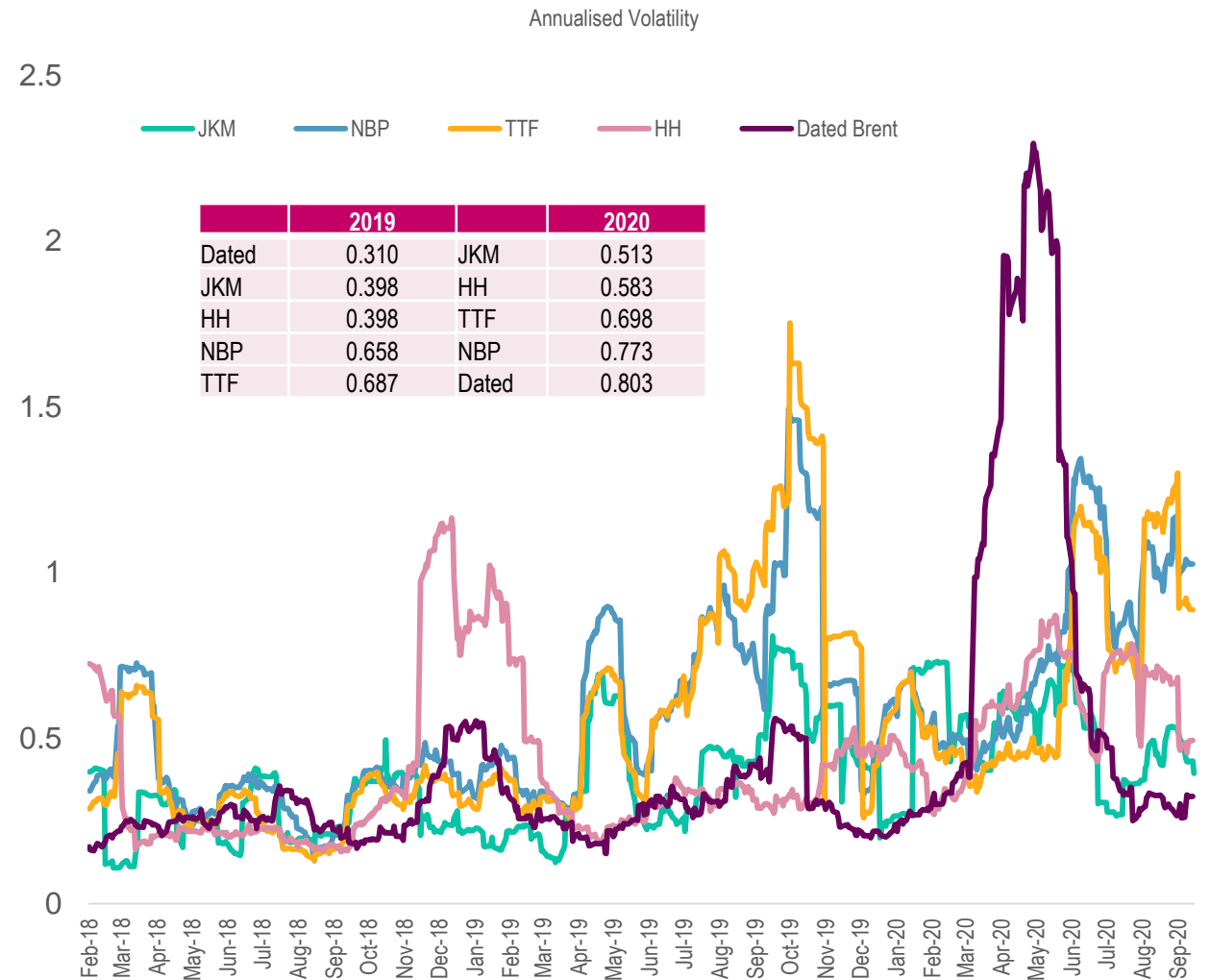
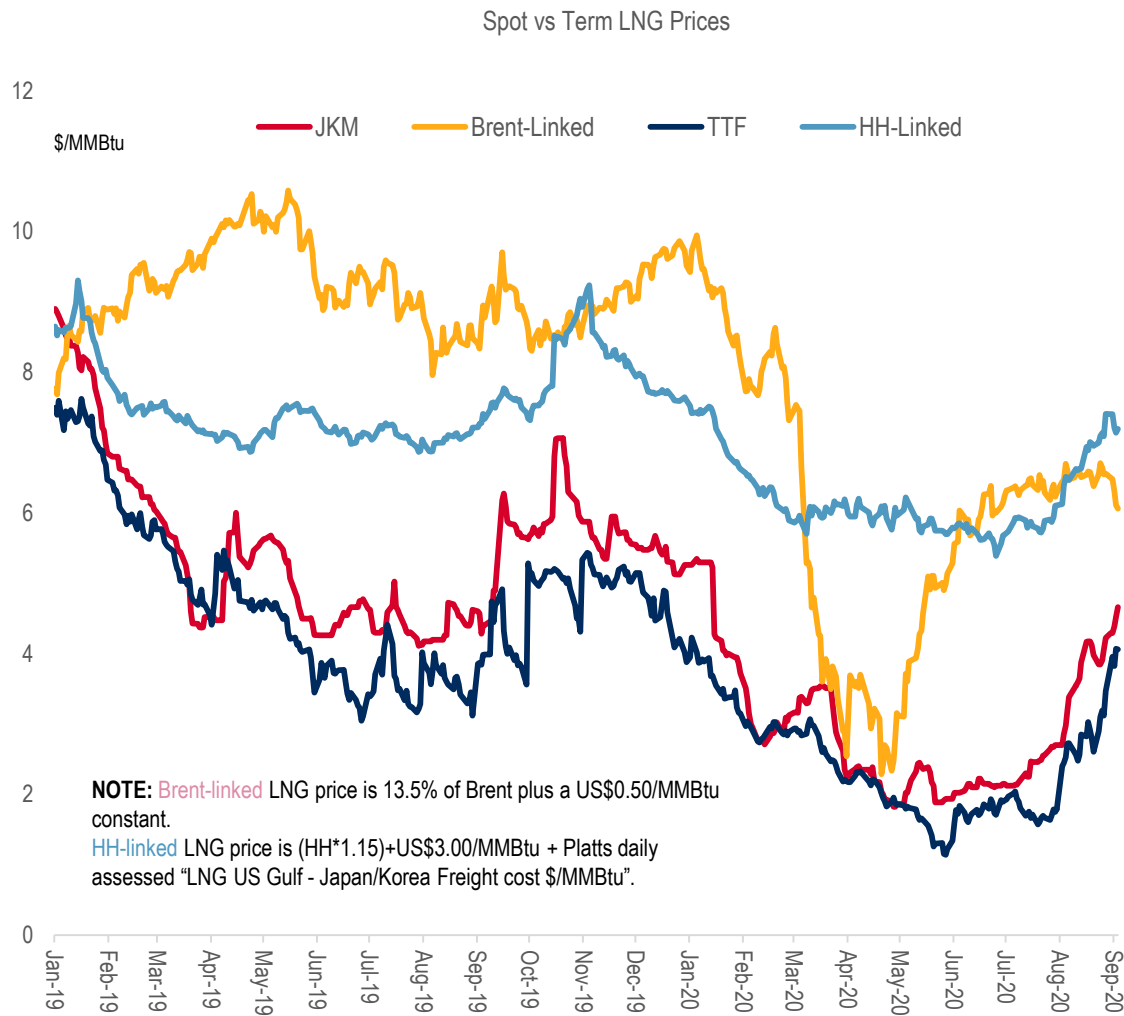
Derivatives “price out” against S&P Global Platts spot price assessments or futures settlements



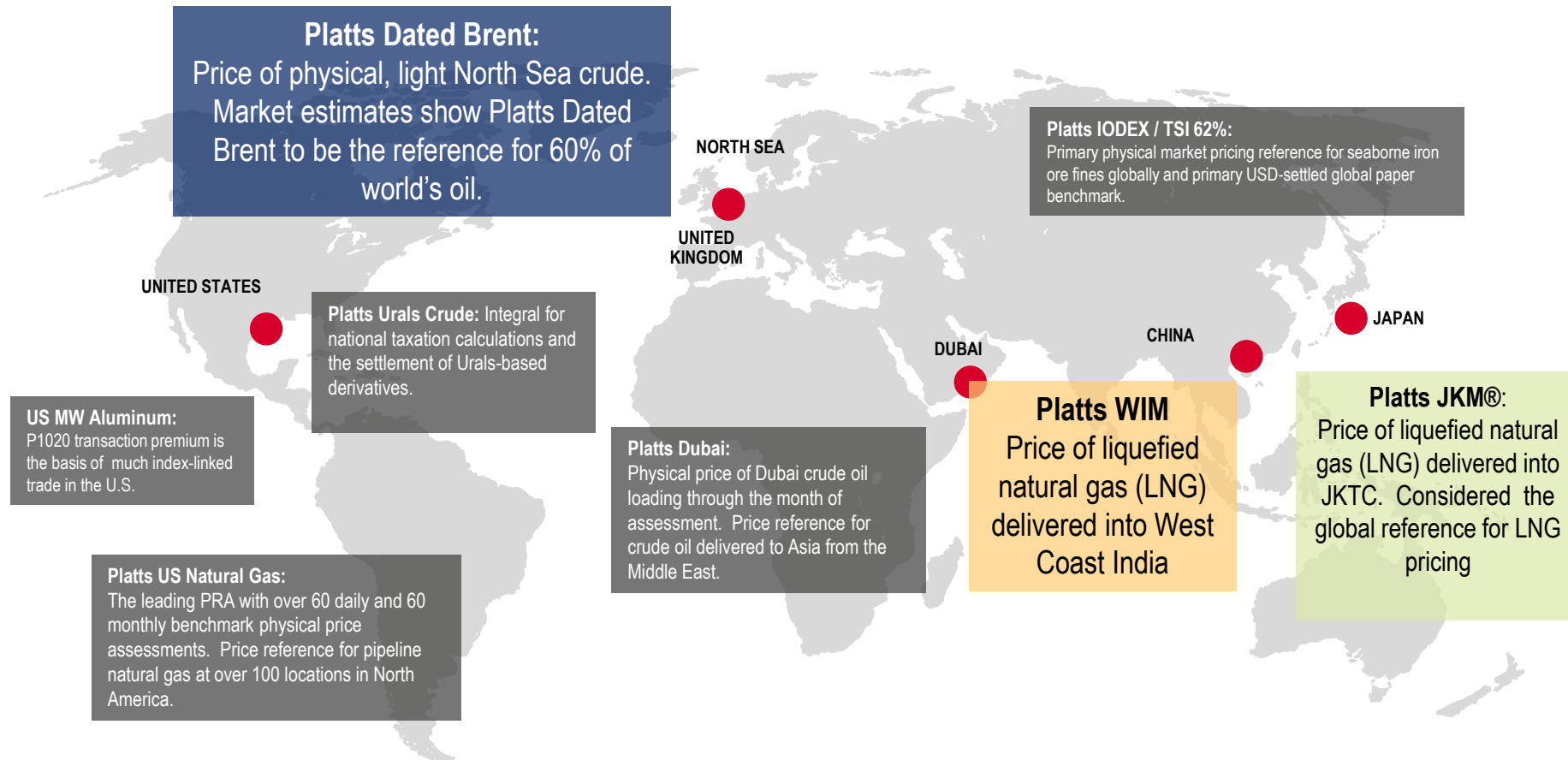
# Spot LNG price recovers from record lows on robust NEA demand and supply disruptions



# LNG, oil prices remain de-correlated, while LNG price volatility stays relatively low



# Platts JKM® and West India Marker (WIM) use the same Market on Close (MOC) assessment process as Dated Brent, the key reference for most of the world's oil

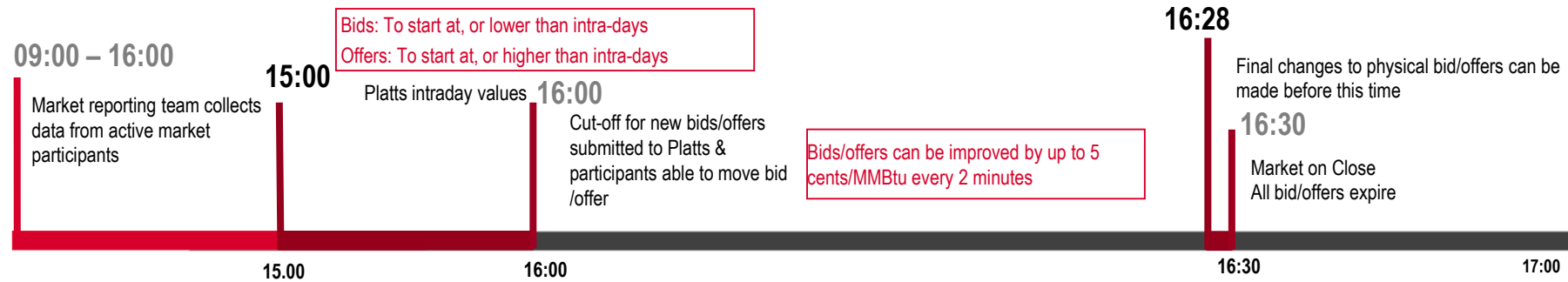


# Physical adoption of JKM and WIM

## Short to long term contracts

Duration	Contract	Volume
2020-2022	HPCL and ONGC (WIM)	100,000 scmd
2020-2022	GAIL AND ONGC (WIM)	650,000 scmd
2020-2024	ONGC Bokaro tender (WIM, HH, Brent)	20,000 scmd
2020	Petronet LNG (WIM)	1 cargo
2020-2021	GSPC	10 cargoes
2021-2023	Arcelor Mittal Nippon Steel (JKM/flat price)	30 TBtu/year
2020	Reliance Energy	2 cargoes
2021-2022	BP-ENN (R-LNG)	0.3 MTPA
2021-2022	BP – Foshan Gas (R-LNG)	0.85 MTPA
2023-2038	Tellurian-Total	1-2.5 MTPA
2020-2035	EOG-Cheniere	0.85 MTPA
2020-2035	Apache-Cheniere	0.85 MTPA
2020-2023	China's Guangzhou Energy buy-tender	16 cargoes
2020	Thailand's PPT buy-tender	12 cargoes
2020	Australia's APLNG buy-tender	6-8 cargoes
2020	Japan's JERA buy-tender	0.8 million metric tons
2020	Taiwan's CPC two yearly buy-tenders	24 cargoes
2019	Russia's Sakhalin LNG sell-tender	10 cargoes
2019	Mexico's CFE buy-tenders	8 cargoes

# JKM standard terms and assessment timeline



Bids: To start at, or lower than intra-days  
Offers: To start at, or higher than intra-days

Bids/offers can be improved by up to 5 cents/MMBtu every 2 minutes

SPECIFICATION	STANDARD TERMS
<b>Delivery Window</b>	3-5 days long; buyer to narrow to a 1-or 2-day window 30 days prior
<b>Discharge Location</b>	Delivery into Japan, South Korea, Taiwan and China, Delivery port nomination up to 30 days prior. Substitution within the same country up to 20 days prior
<b>Loading Location</b>	Nominate and substitute loading port up to 30 days prior
<b>Quality</b>	JKM reflects cargoes with GHV of 1030-1130 Btu/Scf, Ethane no more than 10%/mol, Sulphur no more than 5mg/NM3
<b>Quantity</b>	Specific volume of 3.4 TBtu; +/-5% Optol
<b>LNG Vessel</b>	Vessel size range of 135,000-175,000m3; Base vessel to be stated 45 days prior; May substitute delivery vessel up to 30 days prior



# Platts Market on Close Defined

Among the most transparent markets in the world

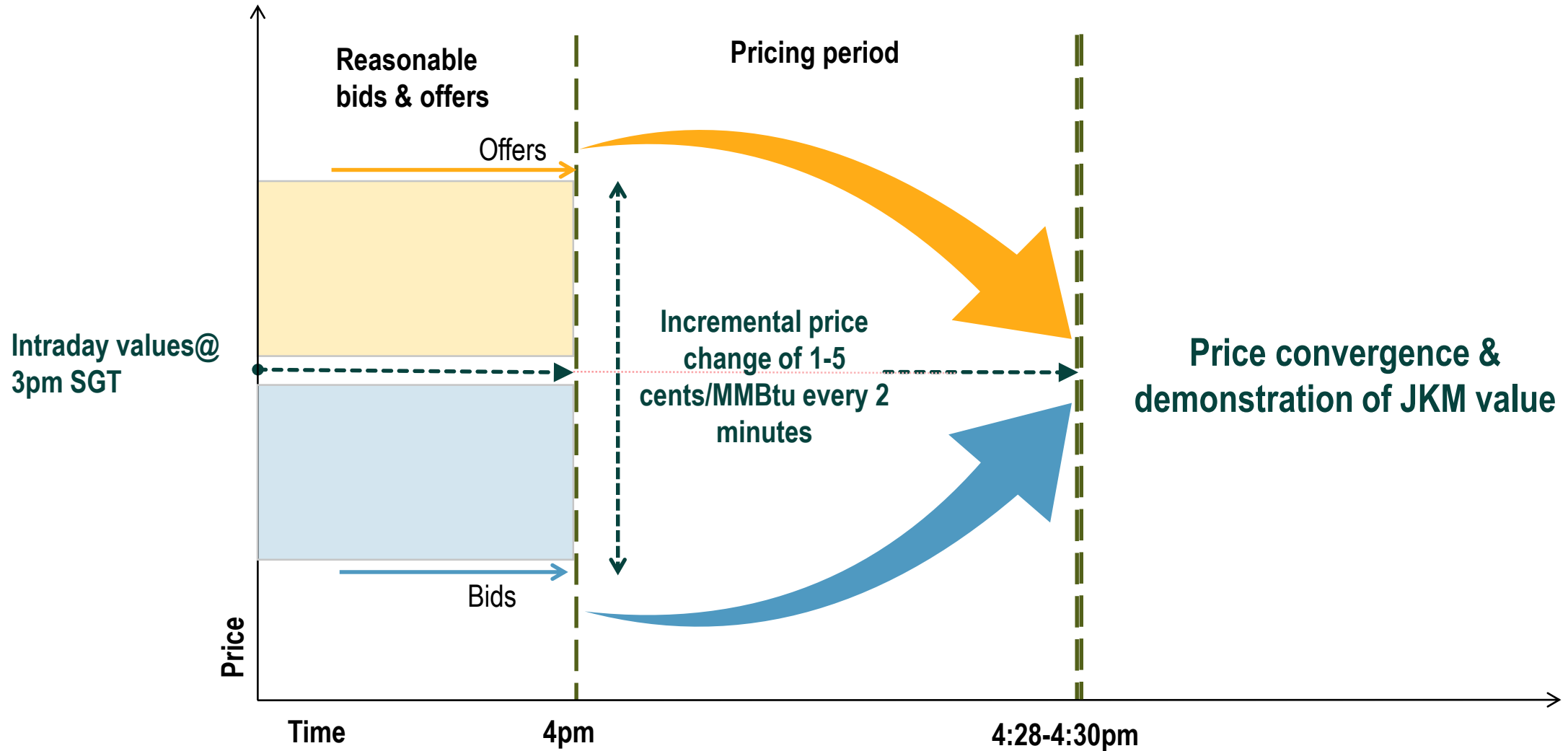
A structured price assessment system designed to yield a price assessment reflective of market values at the **close of the typical trading day**

Similar information gathering systems are common in the futures markets where **energy and financial exchanges** publish daily settlement prices reflective of activity at the close of markets

---

The Market on Close allows **transparent** and **fully verifiable** market information to form the basis of the daily price assessment

# Platts Market on Close – a price assessment process



# Entities reviewed for Asian LNG MOC participation



# Platts LNG MOC eWindow launched in July 2019

Trade (WebICE) (ICE) - modaka2 @ Platts [LL: 9/20/19 2:46 PM]

Kill All Activate All Live Only Hold Bids Hold All Hold Offers Excel Search...

Platts Bunker (S) Platts HSFO (S) Platts EU Gasoline (S) Platts MOGAS (S) Platts Crude (S) Platts Brent (S) Platts Naphtha (S) Platts Asia FO swaps (S) Platts MD Phy (S) Platts HSFO (S)\* JKM (S) **Platts LNG (S)** TTF (S)\* Platts Asia MD swaps (S)

Orders Deals Positions Options Market Watch UPS ICE Brent futures (S) Platts Only Rack (S) Platts PVO (S) Platts JDW (S) Platts PVO (S)\*

Sell	Product Basis	Hub Pricing Period	Qty	Dates Bid Price	Buyer	TQC	Mkt State	Product Basis	Hub Pricing Period	Qty	Dates Offer Price	Seller	TQC	Mkt State	Buy
Take	Platts LNG	DES JKTC	3.6	Nov 01-Nov 05	TRAFI	• Pricing		Platts LNG (Qty in TQC)	DES JKTC	1	Nov 08-Nov 10	BPSG	• Pricing	Take	
	JKM Full Mnth-Nov			-0.30				Flat Price			6.00				
Take	Platts LNG (Qty in TQC)	DES JKTC	1	Nov 13-Nov 17	TRAFI	• Pricing		Platts LNG (Qty in TQC)	DES JKTC	1	Nov 16-Nov 20	TRAFI	• Pricing	Take	
	Flat Price			5.75				Flat Price			6.20				
Take	Platts LNG	DES JKTC	3.4	Nov 13-Nov 17	BPSG	• Pricing									
	Flat Price			5.50											
Take	Platts LNG	DES JKTC	3.6	Nov 15-Nov 19	UNIPER <P>	• Pricing									
	JKM Full Mnth-Nov			0.02											
Take	Platts LNG (Qty in TQC)	DES JKTC	1	Nov 28-Dec 02	BPSG	• Pricing									
	Flat Price			6.00											
Take	Platts LNG	DES JKTC	3.4	Nov 28-Dec 02	VITOLSG	• Pricing									
	Flat Price			6.10											
Take	Platts LNG	DES JKTC	3.4	Dec 01-Dec 05	GLENCORESG <P>	• Pricing									
	JKM Full Mnth-Dec			-0.25											
Take	Platts LNG (Qty in TQC)	DES JKTC	1	Dec 11-Dec 15	ENGIEEM <P>	• Pricing									
	Flat Price			6.05											

- BP ⇒ Vitol: \$6.05/MMBtu Nov 13-17
- Shell ⇒ Vitol: \$5.90/MMBtu Nov 21-23
- Shell ⇒ BP: \$6.10/MMBtu Nov 28-30
- Petrochina ⇒ Vitol: \$6/MMBtu Nov 16-20

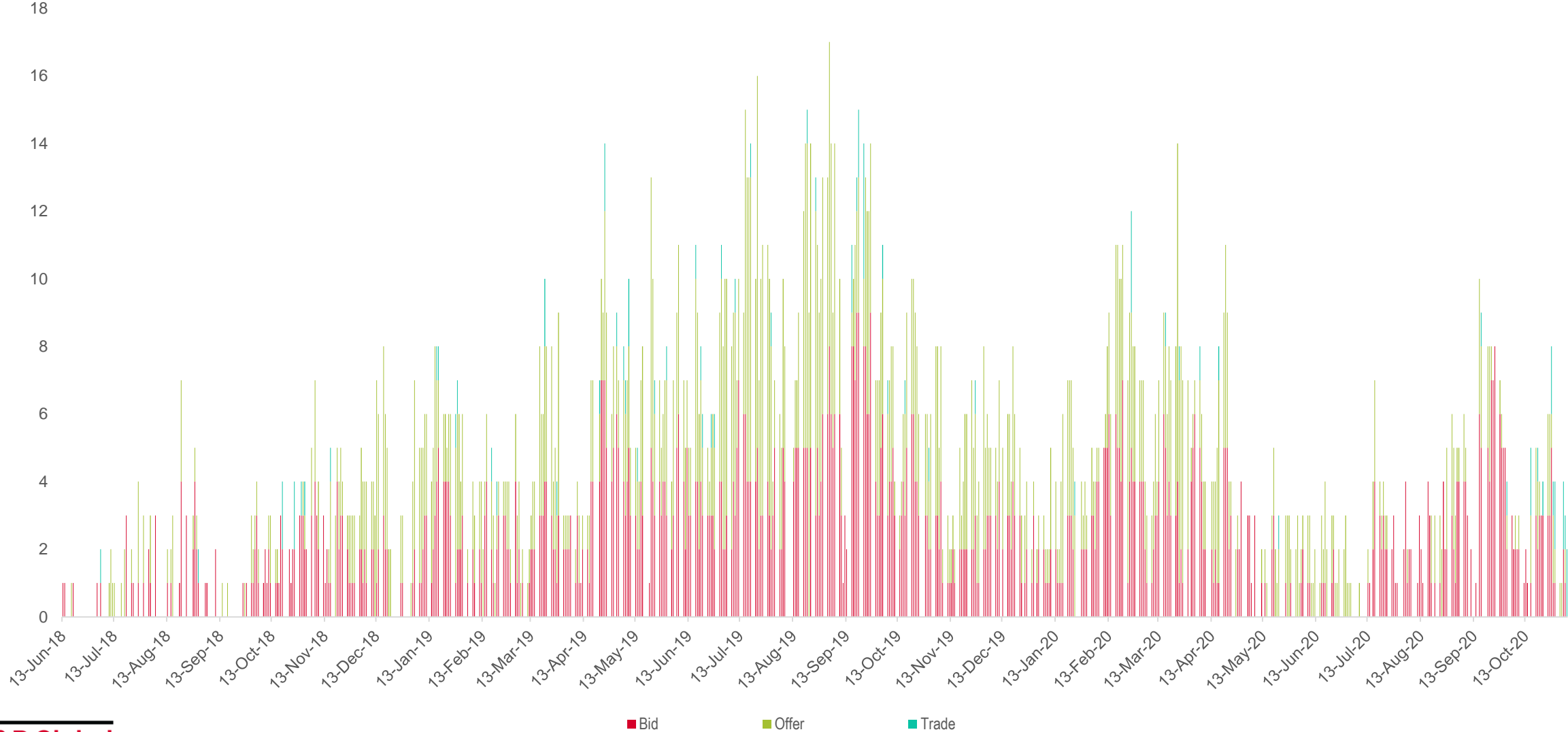
Manual Headline Filter: [Eng]

LNG Futures - JKM - Summer20, 5 @ 6.200 ♦ 15:50:00 SGT <<<BLOCK>>>  
 LNG Futures - JKM - Nov19, 10 @ 5.950 ♦ 15:50:00 SGT <<<BLOCK>>>

Platts LNG (Qty in TQC) DES JKTC H3-H6, BPSG lowers offer Nov 8-Nov 10 100% Flat Price -- \$6.00 for 1-1 "QUALITY:GHV 1030-1130 Btu/Scf in Seller option, Ethane no more than 12%/mol. DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 RFL: zhou2 @ PetroChina/Chinaoil 8:20:48.186 GMT  
 RFL: tmiyazawa3 @ Mitsui & Co. Energy Trading Singapore Pte. Ltd. 8:20:11.423 GMT  
 RFL: wchan4 @ Cathay (Parent) 8:20:02.284 GMT  
 RFL: smccreedy @ Alsea Petroleum & Shipping FZC 8:19:17.085 GMT  
**Platts LNG DES JKTC H3-H6, PETROCHINA SELLS TO VITOLSG Nov 16, 2019-Nov 20, 2019 100% Flat Price -- \$6.00 for 3.6 "QUALITY:GHV 1000-1020Btu/Scf or 1070-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less) DELIVERY WINDOW: Buyer to narrow to 2-day delivery window**  
 Platts LNG DES JKTC H3-H6, VITOLSG raises bid Nov 16-Nov 20 100% Flat Price -- \$6.00 for 3.6-3.6 "QUALITY:GHV 1000-1020Btu/Scf or 1070-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less) DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 RFL: meom1 @ SK (Parent) 8:17:36.653 GMT  
 Platts LNG (Qty in TQC) DES JKC H3-H6, VITOLSG BUYS FROM SHELNG Nov 21, 2019-Nov 23, 2019 100% Flat Price -- \$5.90 for 1 "QUALITY:GHV 1030-1130 Btu/Scf in Seller option. Ethane no more than 10%/mol. DELIVERY WINDOW: 21-23 Nov 2019Buyer to narrow to 2-day delivery window  
 Platts LNG DES JKTC H3-H6, UNIPER <P> raises bid Nov 15-Nov 19 100% JKM Full Mnth Nov \$0.02 for 3.6-3.6 "QUALITY:GHV 1030-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less) DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 Platts LNG (Qty in TQC) DES JKC H3-H6, BPSG BUYS FROM SHELNG Nov 28, 2019-Nov 30, 2019 100% Flat Price -- \$6.10 for 1 "offer:QUALITY:GHV 1030-1130 Btu/Scf in Seller option. Ethane no more than 10%/mol. DELIVERY WINDOW: 28-30 Nov 2019Buyer to narrow to 2-day delivery window  
 Platts LNG DES JKTC H3-H6, BPSG SELLS TO VITOLSG Nov 13, 2019-Nov 17, 2019 100% Flat Price -- \$6.05 for 3.6 "QUALITY:GHV 1030-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 Platts LNG DES JKTC H3-H6, VITOLSG raises bid Nov 13-Nov 17 100% Flat Price -- \$6.05 for 3.6-3.6 "QUALITY:GHV 1030-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 RFL: knakai1 @ Marubeni International Petroleum (S) PTE LTD 8:16:07.075 GMT  
 Platts LNG (Qty in TQC) DES JKTC H3-H6, TRAFI lowers offer Nov 16-Nov 20 100% Flat Price -- \$6.20 for 1-1 "QUALITY:GHV 1000-1160 Btu/Scf in Seller option(Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 Platts LNG (Qty in TQC) DES JKTC H3-H6, TRAFI raises bid Nov 13-Nov 17 100% Flat Price -- \$5.75 for 1-1 "QUALITY:GHV 1000-1020Btu/Scf or 1070-1150 Btu/Scf in Seller option.(Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 Platts LNG DES JKTC H3-H6, VITOLSG raises bid Nov 13-Nov 17 100% Flat Price -- \$6.00 for 3.6-3.6 "QUALITY:GHV 1030-1150 Btu/Scf in Seller option. (Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 Platts LNG (Qty in TQC) DES JKTC H3-H6, TRAFI lowers offer Nov 16-Nov 20 100% Flat Price -- \$6.25 for 1-1 "QUALITY:GHV 1000-1160 Btu/Scf in Seller option(Ethane limit no more than 10%, Total Sulfur of 4.7mg/Nm3 or less)DELIVERY WINDOW: Buyer to narrow to 2-day delivery window  
 RFL: bakao @ JXTG Nippon (Parent) 8:12:18.137 GMT

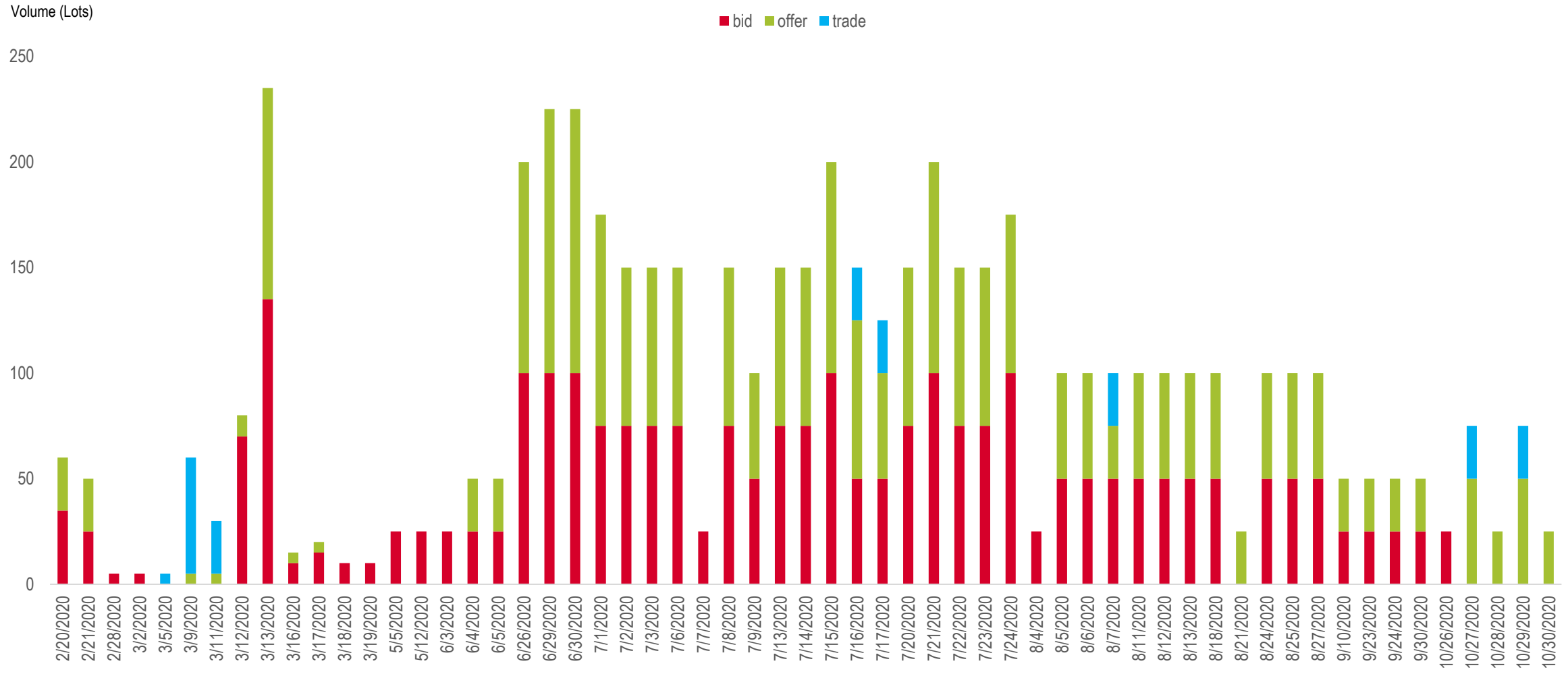
Alerts (0) 16:22:35 SGT Users: 16191

# Platts LNG Asia Physical MOC daily bids, offers and trades



# Platts Asia LNG Derivatives MOC bids, offers and trades

Platts LNG derivatives eWindow launched June 26

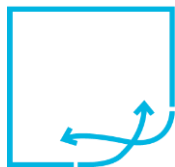




# **JKM:** Using Derivatives to Manage Price Risk & Growth in ICE JKM (Platts) Futures

John Fry | ICE Education

# Connecting participants to a global ecosystem of information, trading, clearing and capital raising



## Markets

### FUTURES EXCHANGES



### SECURITIES EXCHANGES



### OTC MARKETS



### LISTINGS



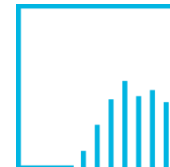
## Clearing

### CENTRAL CLEARING HOUSES



### LOCATED IN:

- US
- UK
- EU
- SINGAPORE



## Data

### PRICING & ANALYTICS



### DESKTOPS & CONNECTIVITY



### EXCHANGE DATA



Agriculture

Connectivity

Desktops

Energy

Fixed Income & futures Reference Data

ICE Chat

Interest Rates

Analytics

Corporate listings

Digital currencies

Equities / Index / Options

FX

ICE Mobile

Precious Metals

Bonds

Credit Derivatives

End-of-Day & Real-Time pricing

Exchange Traded products

Indices



# ICE Global Natural Gas Markets

**64** basis markets

**235+** physical markets

## Europe

Northwest Europe's natural gas markets are a crucial driver for balancing the LNG market, with their diverse energy supply and flexible infrastructure. ICE's **NBP** and **TTF** are the most liquid natural gas trading hubs in Europe.

## North America

The Shale revolution has amplified the importance of **ICE's basis markets** as Henry Hub prices diverge from key Shale basins. Our 64 basis markets trade at prices reflective of regional supply and demand dynamics. North America's status as a key exporter of natural gas continues to strengthen.

## Asia Pacific

Asia is driving global gas demand due to its fast-growing economies and environmental concerns. Our **JKM LNG** contract is the benchmark for natural gas across the region.

### Key



#### ICE's Key NA Basis Markets

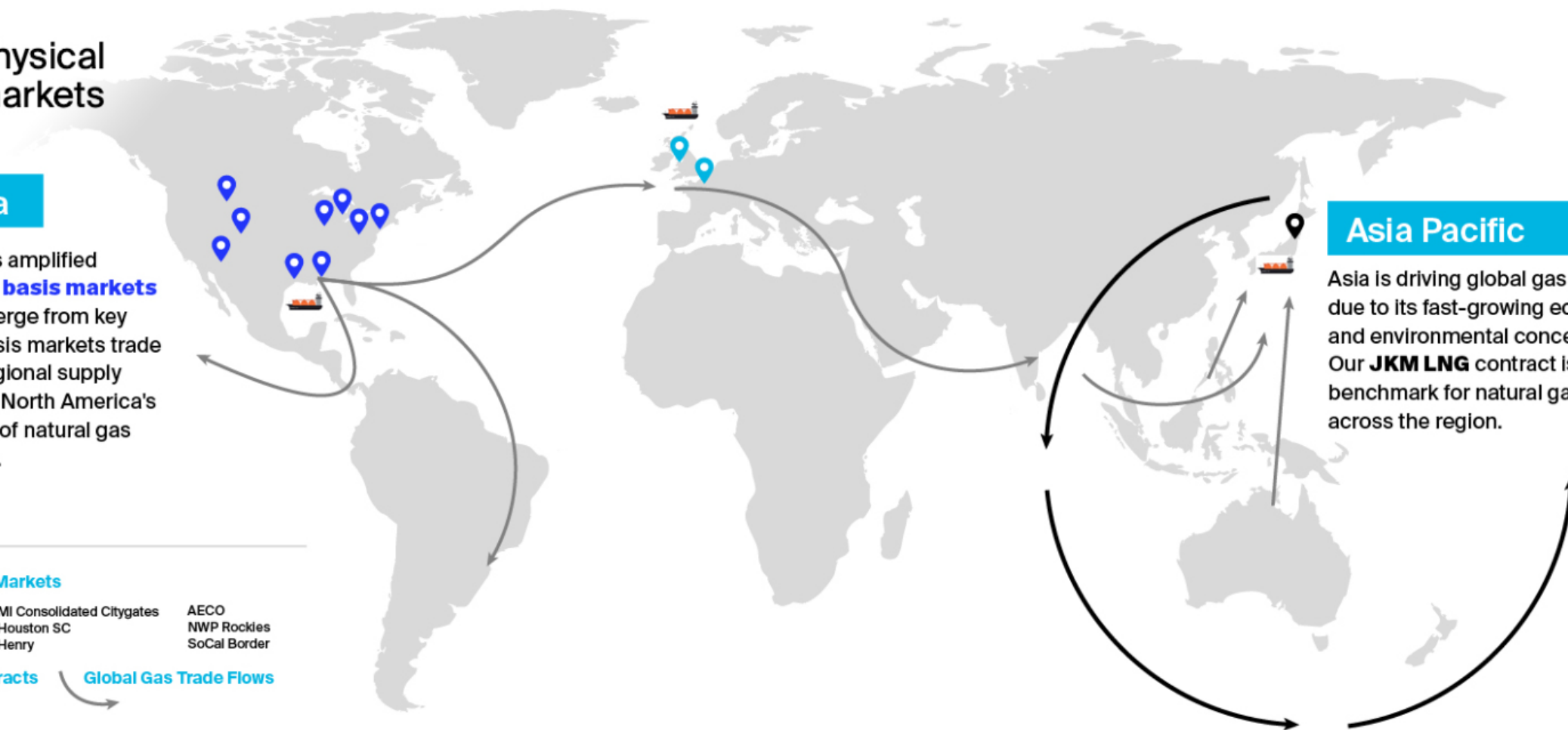
- |                   |                           |              |
|-------------------|---------------------------|--------------|
| TETCO M3          | MI Consolidated Citygates | AECO         |
| Dominion South    | Houston SC                | NWP Rockies  |
| Chicago Citygates | Henry                     | SoCal Border |



#### ICE's Key LNG Contracts

- Gulf Coast Marker (GCM)
- TTF and NBP First Lines
- JKM

#### Global Gas Trade Flows



# Physical markets are risky to trade

## Why futures exist

---

- Evolving markets create a need
- Uncertainty about future supply & future price
- Need to establish a future market price and offset risks

## Key requirements

---

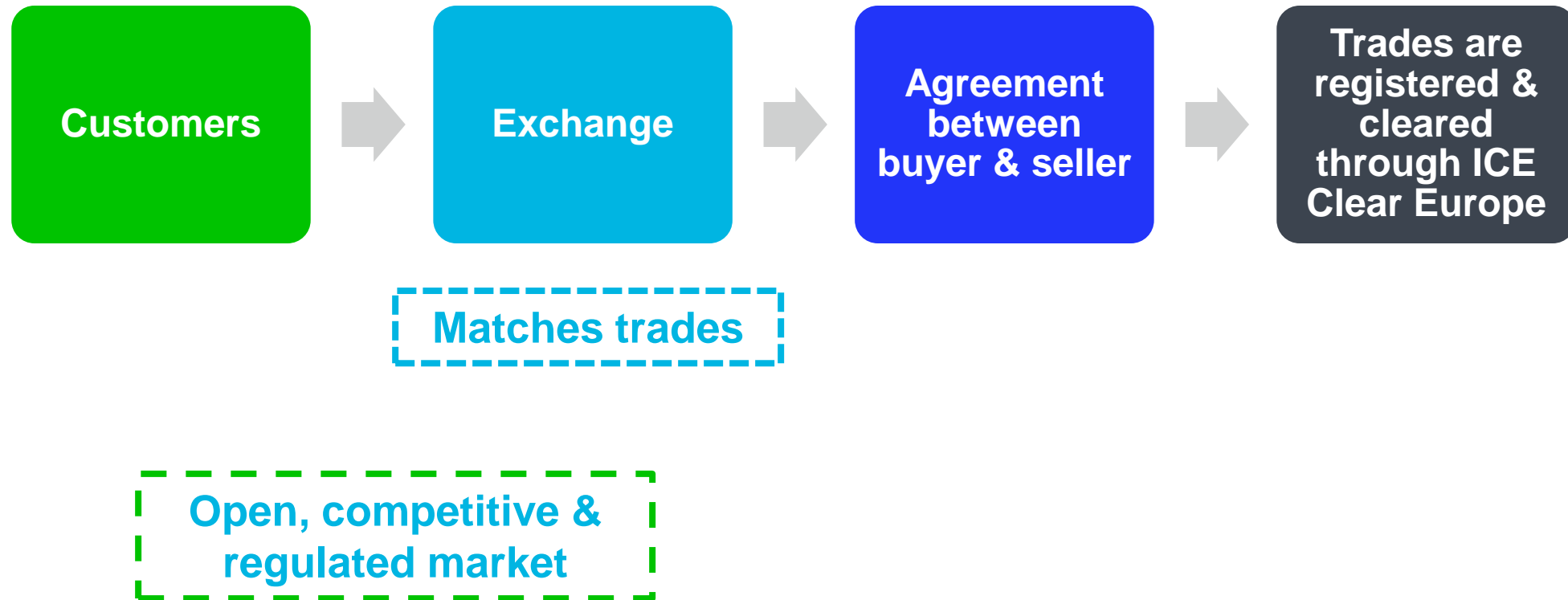
- Standardised
- Strong price correlation with underlying market
- Competitive and open market
- Guarantee of performance
- Anonymous

## Factors for success

---

- Crowd of participants, acting independently
- Transparency, futures show value of the commodity
- Liquidity, ease of entering and exiting the market
- No single party dominates
- Growing volume, open interest

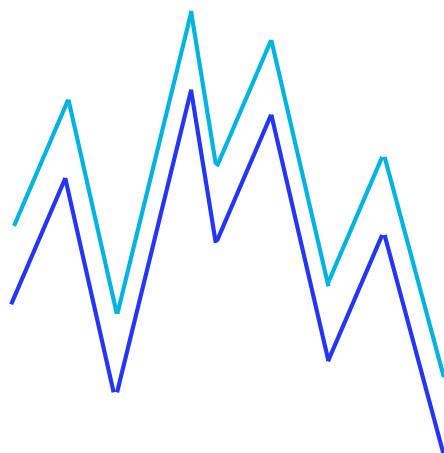
# ICE Futures Europe



# Futures contracts are useful

- **Managing price risk**
- **Price transparency**
- **Strong price correlation with physical**

Physical  
Future



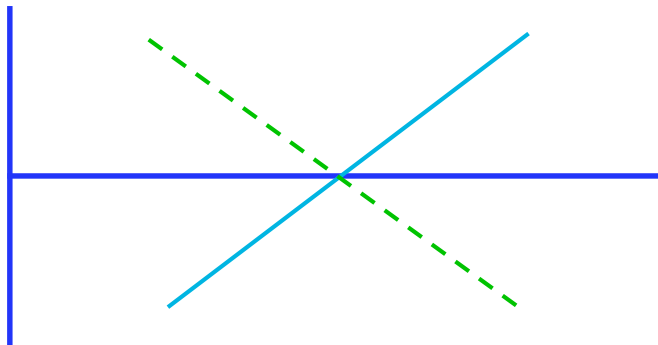
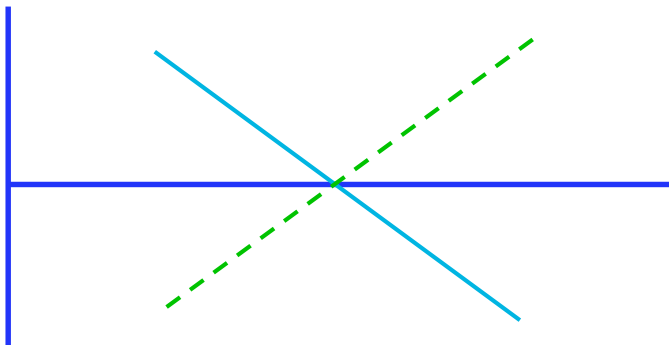
Hedge exposure through offsetting a physical position with a Future

Enable participants to see the price of the underlying commodity, present and future value

Convergence of future with physical at expiry; ICE JKM (Platts) Future settles against Platts JKM spot

# Managing price risk

- **Consumers seek protection against volatile prices**
- **Traders offset price risk while transporting LNG cargoes**
- **Producers protecting against downside risks**



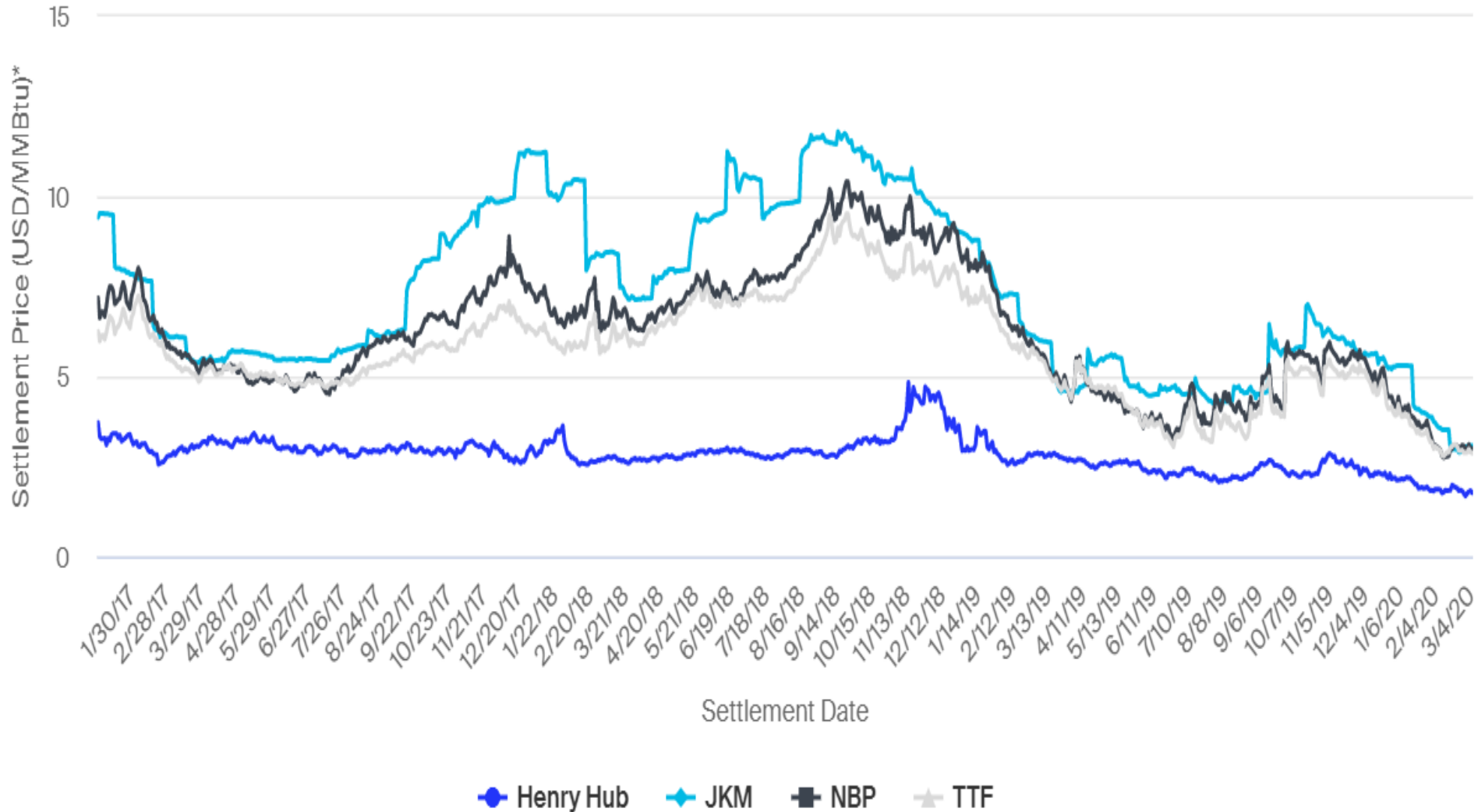
Deregulation in power markets creates the need to manage LNG costs

Equal and opposite position in JKM future offsets price movement in the physical

Ability to lock in a price/margin using the ICE JKM (Platts) Future contract

# ICE JKM (Platts) future: Asia's benchmark

The interplay between Europe's TTF with Asia's JKM will drive pricing formation for global natural gas



Platts JKM index is the benchmark for Asia, prices can be compared directly to other gas benchmarks; JKM & TTF have not diverged greatly since start of 2019

Lower US prices and excess supply make it a natural exporter

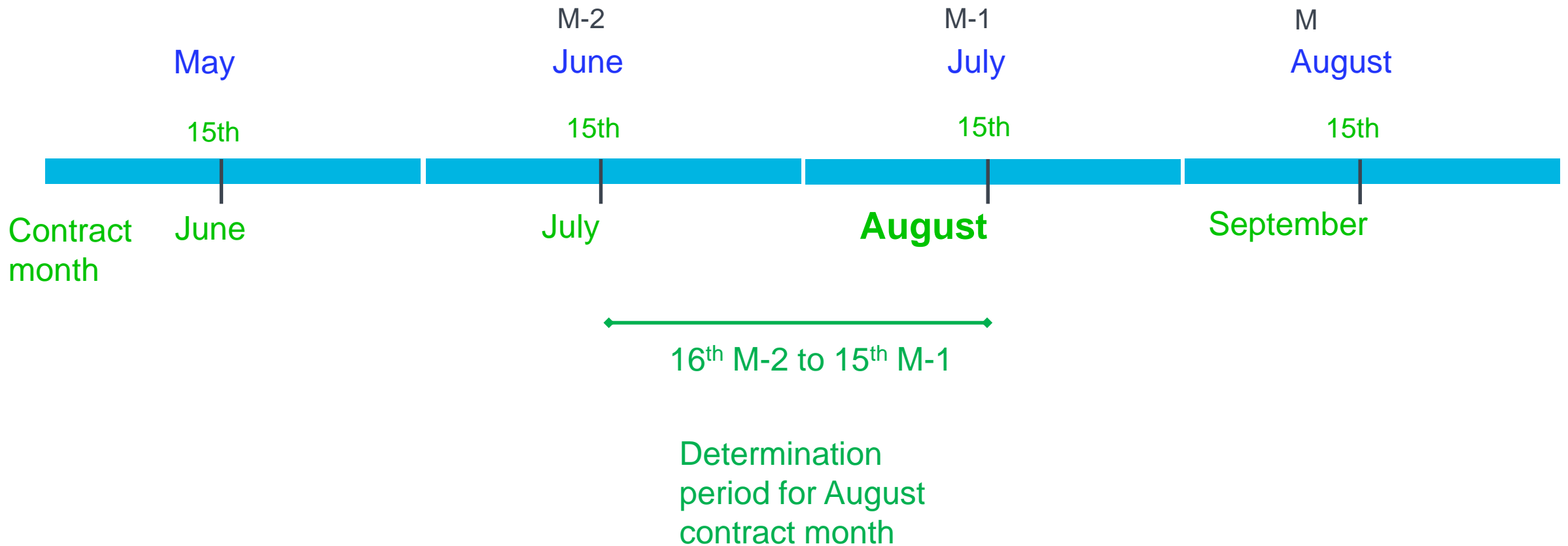
# ICE JKM LNG (Platts) future

## Monthly cash settled future based on the Platts daily assessment price for the LNG Japan/Korea Marker

<b>Contract size:</b>	10,000 MMBtu
<b>Min price movement:</b>	One tenth of one cent (\$0.001) per MMBtu
<b>Currency:</b>	US Dollars & cents
<b>Trading hours:</b>	Singapore 8:50 AM - 7:00 AM, London 12.50 AM – 11.00 PM, New York 7.50 PM – 6.00 PM
<b>Floating price:</b>	In respect of daily settlement, the Floating Price will be determined by ICE using price data from a number of sources including spot, forward and derivative markets for both physical and financial products
<b>Last trading day:</b>	Trading shall cease on the 15th calendar day of the calendar month prior to the contract month. If the 15th calendar day is not a business day then trading shall cease on the next preceding business day
<b>Final settlement:</b>	In respect of final settlement, the Floating Price will be a price in USD and cents per MMBtu based on the average of the relevant quotations appearing in “Platts LNG Daily” under the heading “Platts daily LNG markers (\$/MMBtu)” subheading “DES Japan/Korea Marker (JKM)” for “JKM (month)” for each business day (as specified below) in the determination period
<b>Determination period:</b>	The determination period starts on the 16th calendar day of the month which is two months before the contract month. If that day is not a business day, the determination period starts on the next following business day. The determination period ends on and includes the 15th calendar day of the month which is one month before the contract month. If that day is not a business day, the determination period ends on the next preceding business day
<b>Listed months:</b>	Up to 156 consecutive monthly contracts, or as otherwise determined by the Exchange. Quarterly, seasonal, calendar, and any period of consecutive monthly contracts can be registered as a strip

# Expiry timeline

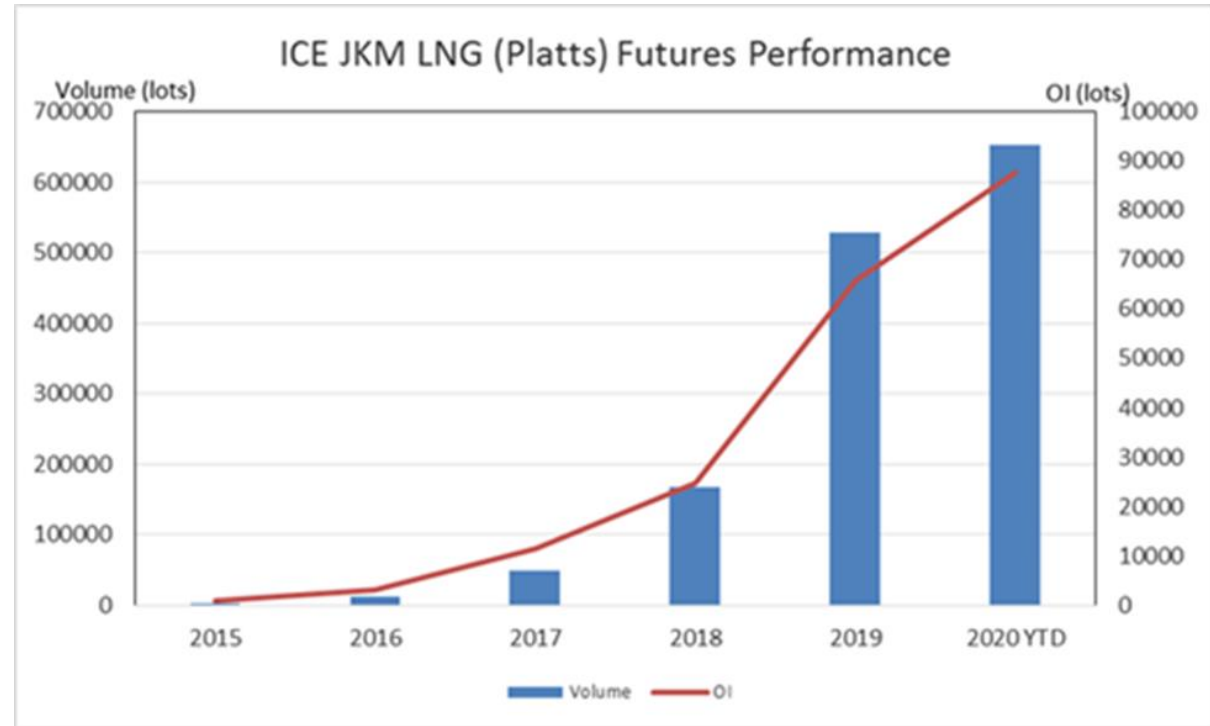
August settlement price is the average of Platts daily JKM marker, from 16th June to 15th July





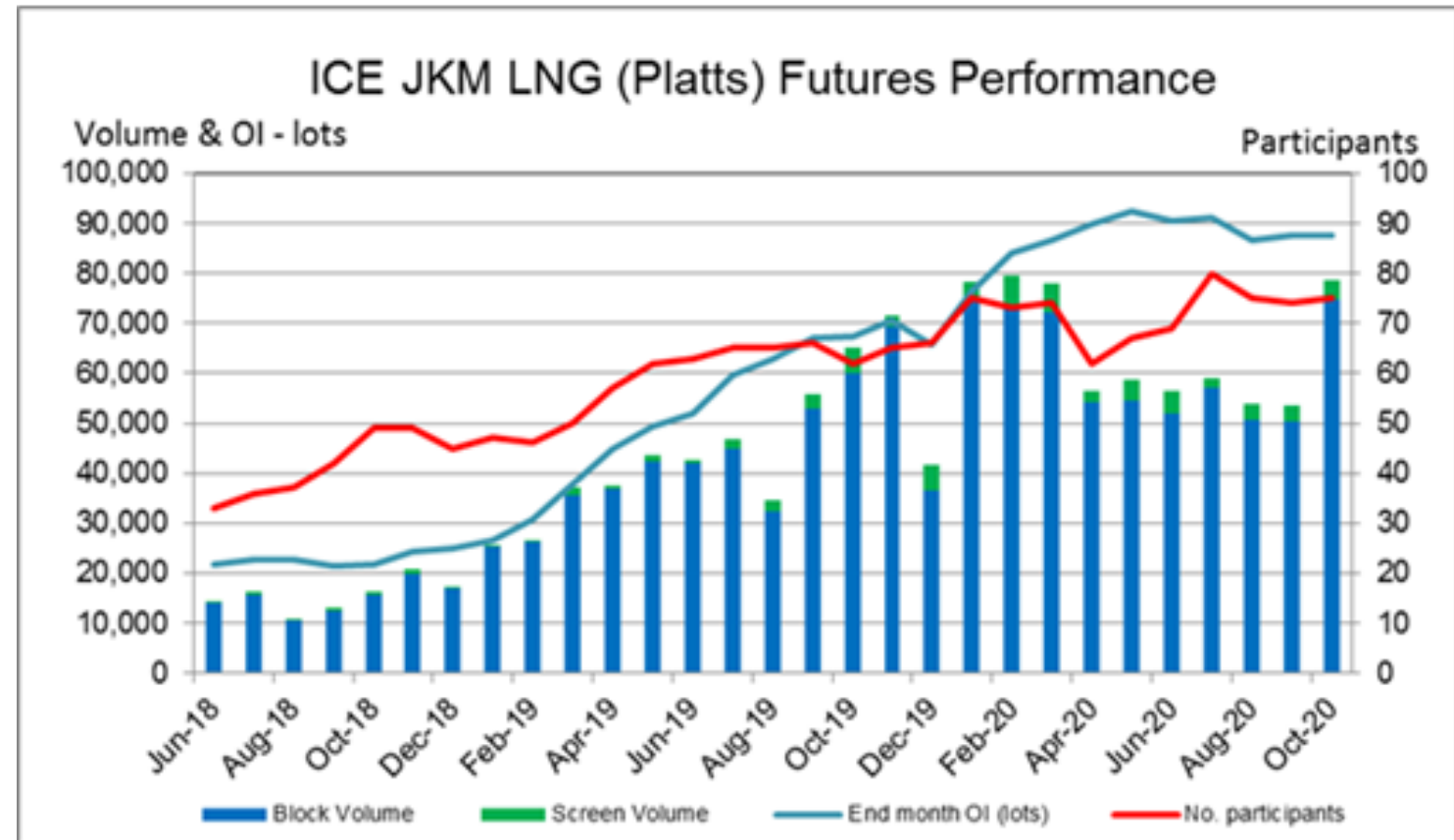
# ICE JKM (Platts) future: annual change

- JKM futures reached a churn rate of 1 in 2019; the ratio of the derivative volume to the underlying physical market volume; based on total LNG volumes imported into Japan, South Korea, Taiwan and China
- Average daily volumes in cargo equivalents reached 1 per day in Jan 2018, increasing to 12 cargoes per day by Feb 2020; the record for a single day is 26 cargoes on 23<sup>rd</sup> Jan 2020
- Trend is driven by growth in the Asian Natural Gas spot market and by increasing use of JKM indexation in spot and term contracts



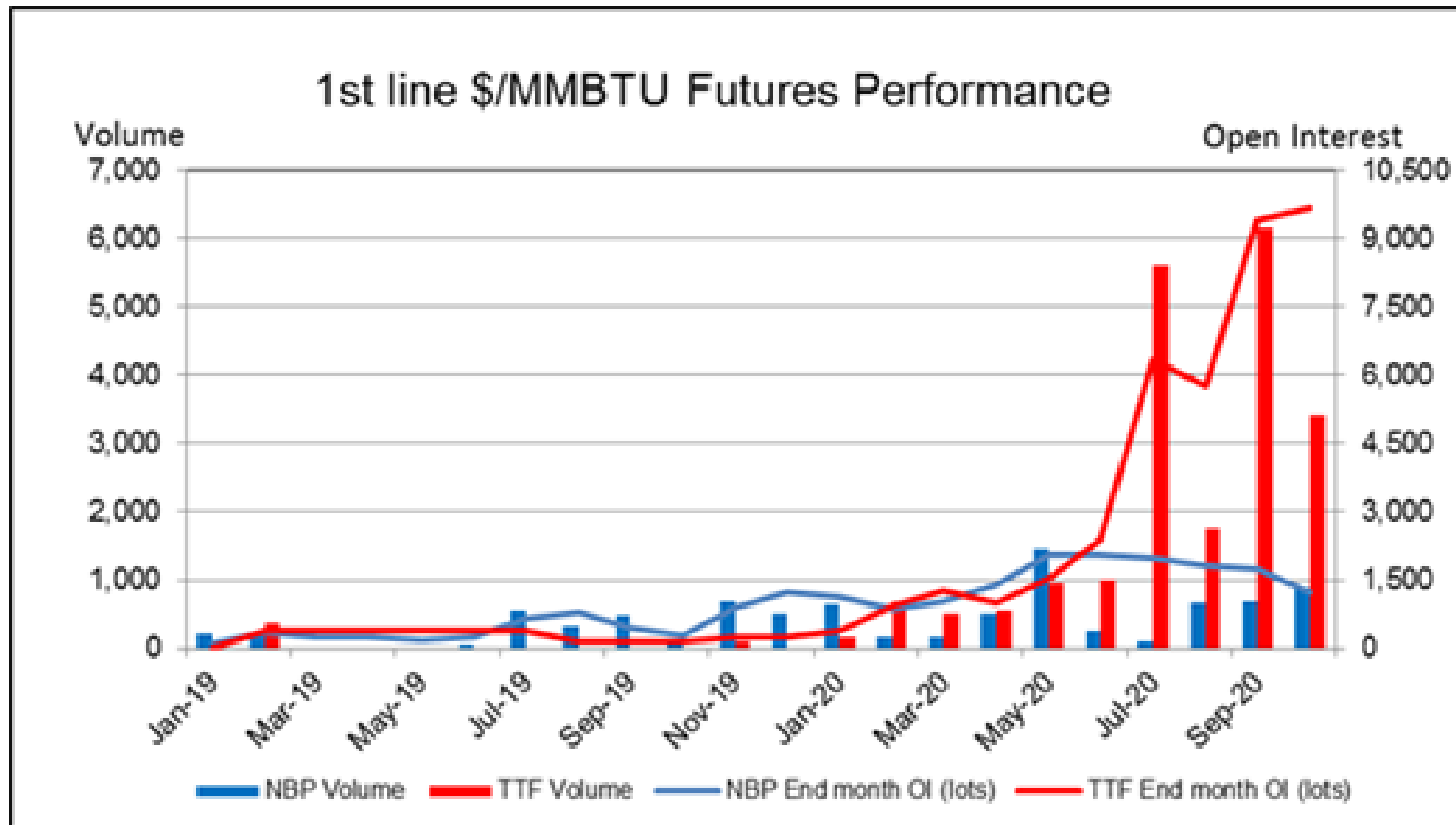
# Factors contributing to growth

- Platts launched the Japan Korea marker in 2009; JKM gave price transparency to the value of LNG arriving in Japan and South Korea; ICE launched the JKM (Platts) Future in 2012
- China and Taiwan become large importers alongside Japan and South Korea; China LNG volume exceeds South Korea
- Increasing supply adds to competition, growth in Australia and US exports
- Increased flexibility in supply to consumers, shorter term trading, lifting of destination restrictions
- Deregulation in importing markets creates the need to manage input cost of gas; Japan power market, China gas pipeline system



# 1<sup>st</sup> line \$/mmbtu futures

The main Natural Gas markets can be directly compared to each other using the \$/mmbtu 1<sup>st</sup> line TTF and NBP contracts



# Looking into the future

- Asia Pacific market is forecast to grow 57% by 2050, to a total of 2,633 mtoe
- Asia imports are forecast to grow 140% by 2050
- Fuel switching in industrial and power sectors
- Cleaner energy needs in other consuming countries such as India and the Philippines

# ICE Education: resources

ICE Education, LNG trading simulation course

[LNG Trader Program - Simulation Based: VIRTUAL DELIVERY](#)



S&P Global  
Platts

**Thank You**  
**Questions**

# ICE Disclaimer

© 2020 Intercontinental Exchange, Inc. The information and materials contained in this document - including text, graphics, links or other items - are provided "as is" and "as available." ICE and its subsidiaries do not warrant the accuracy, adequacy or completeness of this information and materials and expressly disclaims liability for errors or omissions in this information and materials. This document is provided for information purposes only and in no way constitutes investment advice or a solicitation to purchase investments or market data or otherwise engage in any investment activity. No warranty of any kind, implied, express or statutory, is given in conjunction with the information and materials. The information in this document is liable to change and ICE undertakes no duty to update such information. You should not rely on any information contained in this document without first checking that it is correct and up to date. The content of this document is proprietary to ICE in every respect and is protected by copyright. No part of this material may be copied, photocopied or duplicated in any form by any means or redistributed without the prior written consent of ICE. All third party trademarks are owned by their respective owners and are used with permission.

Trademarks of ICE and/or its affiliates include Intercontinental Exchange, ICE, ICE block design, NYSE and New York Stock Exchange. Information regarding additional trademarks and intellectual property rights of Intercontinental Exchange, Inc. and/or its affiliates is located at <https://www.intercontinentalexchange.com/terms-of-use>.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995 - Statements in this presentation regarding ICE's business that are not historical facts are "forward-looking statements" that involve risks and uncertainties. For a discussion of additional risks and uncertainties, which could cause actual results to differ from those contained in the forward-looking statements, see ICE's Securities and Exchange Commission (SEC) filings, including, but not limited to, the risk factors in ICE's Annual Report on Form 10-K for the year ended December 31, 2018, as filed with the SEC on February 7, 2019.

## Platts Disclaimer

### Restrictions on Use:

You may use the analyses, prices, indexes, assessments and other related information (collectively, “Data”) in this presentation only for your personal use. You may not publish, photocopy, reproduce, distribute, retransmit, resell, create any derivative work from, put into a computer system and/or otherwise provide access to Data or any portion thereof to any person (either within or outside your company including, but not limited to, via or as part of any internal electronic system or Internet site), firm or entity.

### Disclaimer:

S&P GLOBAL PLATTS, ITS AFFILIATES AND ALL OF THEIR THIRD-PARTY LICENSORS DISCLAIM ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE AS TO THE DATA, OR THE RESULTS TO BE OBTAINED BY ITS USE OR AS TO THE PERFORMANCE THEREOF.

### Limitation of Liability:

In no event whatsoever shall S&P Global Platts, its affiliates or their third-party licensors be liable for any indirect, special, incidental, punitive or consequential damages, including but not limited to loss of profits, trading losses, or lost time or goodwill, even if they have been advised of the possibility of such damages, whether in contract, tort, strict liability or otherwise. The Data is provided on an “as is” basis and your use of the Data is at your own risk.

**Copyright** © 2020 by S&P Global Platts, a division of S&P Global Inc. All rights reserved.