

METHODOLOGY AND SPECIFICATIONS GUIDE

LIQUEFIED NATURAL GAS ASSESSMENTS AND NETBACKS

Latest update: November 2017

INTRODUCTION	2	PART V: CORRECTIONS	6
HOW THIS METHODOLOGY STATEMENT IS ORGANIZED	2		
PART I: DATA QUALITY AND DATA SUBMISSION	2	PART VI: REQUESTS FOR CLARIFICATIONS OF DATA AND COMPLAINTS	6
WHAT TO REPORT	2		
HOW TO REPORT	3	PART VII: DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES DAILY INDEXES OR ASSESSMENTS	8
PRICE DISCOVERY PUBLISHING PRINCIPLES	3	PACIFIC BASIN ASSESSMENTS	9
PART II: SECURITY AND CONFIDENTIALITY	4	LNG SWAPS ASSESSMENTS	12
		ATLANTIC BASIN LNG ASSESSMENTS	13
PART III: CALCULATING INDEXES AND MAKING ASSESSMENTS	4	LNG SHIPPING ASSESSMENTS	17
PRICE ASSESSMENT PRINCIPLES	4	LNG COMPETING FUELS ASSESSMENTS	22
NORMALIZATION PRICE ADJUSTMENT TECHNIQUES	4	CONVERSION RATES	23
PRIORITIZING DATA	5	REVISION HISTORY	24
ASSESSMENT CALCULATIONS	5		
PART IV: PLATTS EDITORIAL STANDARDS	6		

INTRODUCTION

Platts' methodologies are designed to produce price assessments that are representative of market value, and of the particular markets to which they relate. Methodology documents describe the specifications for various products reflected by Platts' assessments and indexes, the processes and standards Platts adheres to in collecting data, and the methods by which Platts arrives at final assessment values for publication. These guides are freely available on Platts' website for public review.

Platts discloses publicly the days of publication for its price assessments and indexes, and the times during each trading day in which Platts considers transactions in determining its assessments and index levels. This schedule of publication is available on Platts' website, at the following link: <http://www.platts.com/HolidayHome>.

The dates of publication and the assessment periods are subject to change in the event of outside circumstances that affect Platts' ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism and other situations that result in an interruption in Platts' operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessment periods, with as much advance notice as possible.

All Platts methodologies reflect Platts' commitment to maintaining best practices in price reporting.

Platts' methodologies have evolved to reflect changing market conditions through time, and will continue to evolve as markets change. A revision history, a cumulative summary of changes to this and future updates, is included at the end of the methodology.

How this methodology statement is organized

This description of methodology for indexes and assessments is

divided into seven major parts (I-VII) that parallel the entire process of producing price assessments.

- Part I describes what goes into Platts indexes and price values, including details on what data market participants are expected to submit, the process for submitting data and criteria for timeliness of market data submissions.
- Part II describes any security and confidentiality practices that Platts uses in handling and treating data, including the separation between Platts price reporting and its news reporting.
- Part III is a detailed account of how Platts collects bids, offers, trades and other market data, and what Platts does with the data to formulate its indexes and assessments. It includes descriptions of the methods that Platts uses for reviewing data, and the methods used to convert raw data into indexes and assessments, including the procedures used to identify anomalous data. This section describes how and when judgment is applied in this process, the basis upon which transaction data may be excluded from a price assessment, and the relative importance assigned to each criterion used in forming the price assessment. This section describes the minimum amount of transaction data required for a particular price assessment to be published, and the criteria for determining which values are indexes, and which are assessments, based on reported transactions and other market information. Finally, this section describes how Platts addresses assessment periods where one or more reporting entities submit market data that constitute a significant proportion of the total data upon which the assessment is based.
- Part IV explains the process for verifying that published prices comply with Platts' standards.
- Part V lays out the verification and correction process for revising published prices and the criteria Platts uses to determine when it publishes a correction.
- Part VI explains how users of Platts assessments and indexes can

contact Platts for clarification of data that has been published, or to register a complaint. It also describes how to find out more about Platts' complaint policies.

- Part VII is a list of detailed specifications for the trading locations and products for which Platts publishes indexes or assessments in this commodity. This section describes why specific units of measurement are used, and what conversion factors are used to move between units of measurement, where relevant.

PART I: DATA QUALITY AND DATA SUBMISSION

Platts' objective is to ensure that the submission of transactional information and other data inputs that editors use as the basis for their price assessments is of the highest quality. Ensuring that data used in Platts assessments is of high quality is crucial to maintaining the integrity of Platts' various price assessment processes.

Platts encourages entities that submit any market data for consideration in its assessment processes to submit all market data that they have which may be relevant to the assessment being made. Platts' aim is to determine the full circumstances surrounding all reported transactional data, including details of quality, specifications, order sizes, dimensions, lead times and any locational and loading/delivery information. Platts uses that information to determine a typical and repeatable market level for the commodity or product being assessed.

What to report

- Firm bids that are open to the marketplace as a whole, with standard terms
- Firm offers that are open to the marketplace as a whole, with standard terms
- Expressions of interest to trade with published bids and offers, with standard terms

- Confirmed trades
- Indicative values, clearly described as such
- Reported transactional activity heard across the market, clearly described as such
- Other data that may be relevant to Platts assessments

How to report

- Platts accepts information provided for publication in real-time across a wide variety of media. The following reporting methods are accepted by Platts' editorial staff:
 - Commonly used Instant Messaging software
 - Telephone
 - Email
 - Face to face meetings

Price assessment publishing principles

Platts assesses the value of LNG globally using its Market on Close (MOC) assessment process. The MOC assessment process establishes core standards for how data is collected and published, how data is prioritized by value, and ultimately how data is analyzed in the course of completing Platts assessments.

Transparency underpins Platts' data publishing processes in the commodity markets. Under Platts MOC guidelines for collecting and publishing data, Platts publishes market information including but not limited to firm bids and offers from market participants, expressions of interest to trade and confirmed trades that are received from market participants throughout the day.

This information is published in real-time, as it is received, on Platts' information services. Platts publishes all information received so that it can be fully tested by the market at large. Information collected and published may include the identities of buyers and sellers, confirmed prices, volumes, location, and stated trading terms.

Platts assessments are designed to reflect market value at the close of the assessment process. Platts tracks market price evolution during the entire day, and publishes a wide range of data relating to market value as it does so. All data that has been published through the day is analyzed during the assessment process. Platts focuses its assessment process to publish firm bids and offers, expressions of interest to trade and confirmed trades, with all relevant details. Transparent data is prioritized in the assessment process, because it is available to the entire market for testing.

Platts collects a wide variety of transactional and market information through a survey of participants, which typically includes communicating with sources via phone, email, and instant messaging, among other communication methods.

Platts collects as much data as possible, including bids, offers, interest to trade, transactions that have been previously concluded, and indications of value from participants in the market. Platts seeks to collect, confirm and analyze as much information as possible, and encourages market participants to provide all relevant information. Platts publishes credible information collected that meets our methodological standards, typically through real-time information services and with as much transparency as possible. This information is considered when determining and completing a final assessment.

All Platts market reporters are trained to analyze the data they receive and to question sources to establish the fullest set of information possible around price data. Reporters are trained to seek a wide variety of information to test reported transactional activity, including the specific price agreed, the counterparty to the trade, the point of origin and destination for delivery of the commodity, the size of the transaction, any physical quality commitments agreed as part of the trade, the terms and conditions of a trade and when a trade was agreed.

For analysis of the data, Platts assessment methodologies will typically give priority to data collected that is confirmed and published, and which is most relevant to closing values in the markets covered.

Bids and offers published by Platts are considered to be firm until Platts is informed otherwise, or until the close of the assessment process for the day, whichever comes first. Platts will consider all firm bids and offers as open to the market at large and executable unless informed otherwise by the counterparty submitting the market information. If no communication is made to Platts to withdraw or change the parameters of the bid or offer it is assumed that it is available to the marketplace. Platts seeks verification of any transaction originating from a bid or offer submitted for inclusion in the assessment process.

Platts' editorial guidelines governing its assessment process require it must consider only those transactions, bids or offers where market participants perform under typical contractual terms. Platts accepts that individual companies may have trading limits with counterparties and that national legislation may prevent companies from dealing in materials of certain origins. Such counterparty issues are dealt with on a case-by-case basis. Platts seeks to track all circumstances surrounding trades reported during the assessment process. Platts not only focuses on the performance of the transaction at the time of trade, but also on any significant issues stemming from such trades, including logistics and eventual delivery of the product. Post-assessment deal tracking enables Platts to determine the actual performance of the participants in the trade and the validity of their inputs.

Platts cannot make any guarantee in advance about how and whether market information received and published but not fully adhering to its defined methodology will be incorporated in its final assessments.

PART II: SECURITY AND CONFIDENTIALITY

Data is stored in a secure network, in accordance with Platts' policies and procedures. Platts LNG assessments are produced in accordance with Platts' Market on Close assessment methodology. This means

that all data for use in Platts' LNG assessments may be published by Platts editorial staff while assessing the value of the markets.

Platts believes that all subscribers have a right to review and analyze market data that is provided for use in its assessments, and therefore Platts does not have confidentiality agreements for information provided for use in LNG assessments.

PART III: CALCULATING INDEXES AND MAKING ASSESSMENTS

The following section describes how Platts uses information, such as concluded and reported transactions, bids, offers and any other market information it has collected, in the manner described in section one, to formulate its price assessments. Additionally, this section describes other information, including the normalization of market data, assumptions and extrapolations that are considered when making a final assessment.

Price assessment principles

Through the assessment process, Platts considers market information gathered throughout the normal trading day, and publishes such information throughout the day. Platts analyzes all published information in determining its final published price assessments.

Through the assessment process, Platts seeks to establish and publish the value of markets that prevail at the close of the assessment process itself. Platts has aligned the timestamps reflected in its assessments with what typically is a period of high activity in the markets that Platts observes. The typical period of high activity in LNG markets tends to be in the afternoon in every major trading location around the world. Platts believes that aligning its price assessments to typical periods of greater market activity and liquidity provides a robust basis upon which to derive a reliable assessment of market value.

In order to provide complete clarity over the precise point in time reflected in its market assessments, Platts provides timestamps for all LNG assessments and netbacks. Like the quality of a commodity, its delivery location, delivery dates, contract terms, and the volume to be supplied, the time of commercial activity is an important attribute considered in Platts price assessments. The time that a bid or offer is shown to the market, or a transaction concluded, is vitally important in understanding the market value of the respective commodity, in the same way that the quality of the commodity, where it will be delivered and when it will be delivered are important factors. By clearly reflecting value at a defined point in time Platts is able to properly reflect outright and spread values.

Platts does not specify a minimum amount of transaction data, or a transaction data threshold, for the publication of its price assessments. Physical commodity markets vary in liquidity. Any particular market analyzed on its own will typically demonstrate rising and falling levels of transactional activity through time. Platts is committed to providing an assessment of value for every market that it covers, equally well in times of heightened or reduced liquidity.

Platts seeks to receive market information from as broad a cross section of the market as possible. If a very limited number of market-makers are active in the market, or if a limited number submit data that constitutes a significant proportion of the total data upon which the assessment is based, Platts will continue to seek fully transparent and verifiable data from the market at large and to apply Platts methodology principles of transparency and time sensitivity. Platts considers data for assessment of any market where a single company provides more than half of all available information to be one where such a company provides a significant proportion of data. For consideration in the assessment process such a company's bids or offers must be clearly available for execution by any other potential trading counter party.

Normalization price adjustment techniques

Platts seeks to align the standard specifications for the markets it assesses and the timestamps reflected in its assessments

with standard industry practice. However, physical commodity markets are generally heterogeneous in nature – not only can time of transactional activity considered for inclusion in the price assessment process vary through the day, other key attributes often vary from the base standard reflected in Platts assessments as product is supplied to market.

The quality of fuel supplied, delivery location, and other specific terms of trade may be varied in the physical commodity markets assessed by Platts. This is one reason among many why data collected from the physical markets may not be simply averaged to produce a representative benchmark value.

Because of the complex nature of the physical markets, market data typically must be aligned with standard definitions to allow for a fully representative final published assessment. Platts aligns data collected through an analysis of the physical markets with its standard assessment specifications through a process called normalization.

Normalization is an essential price adjustment technique applied by Platts, to align reported market information to reflect the economic relationship between specific reported activity and the base standard reflected in Platts price assessments.

By surveying markets and observing the economic impact of variance from the base standard reflected in Platts assessments, Platts regularly normalizes disparate information from the diverse physical commodity markets back to the standard reflected in Platts price assessments. This is done by analyzing freight rates (for locational differences), quality premiums (for quality differences), the movements of all markets through time (for time differences) and other premiums associated with the size of trades and delivery terms.

Normalization for time may be done by analyzing movement in a related market observed through time, and that movement may provide a basis by which to align market value of an earlier reported bid, offer or transaction to market value at the close. This alignment for time is essential to ensure that Platts price assessments reflect the prevailing value of a market at the close of the assessment process.

Prioritizing data

Transparency underpins Platts' assessment process, just as it does Platts data publishing processes, in the LNG markets. When determining a final market assessment, Platts gives the greatest priority to fully verifiable and transparent market information. A firm bid or offer that has been published by Platts in accord with its data publishing standards, and which still stands open to the marketplace at the close of the assessment process, will establish clear parameters for Platts' final published assessments. Platts will typically assess market value somewhere between the best bid, and best offer, open to the market at the close of the assessment process. This ensures that Platts assessments reflect the transactable value of the commodities it is assessing at the close of the market.

Platts considers changes to bids or offers when those changes are made transparently and in normal increments. Platts may not consider bids, offers or transactions that are the result of market gapping, i.e. changes that are in excess of normal market practice.

Completed, transparent transactions that are fully published by Platts are important in helping establish where trading interest prevails in the market, and may help determine where, in a bid/offer spread, Platts may assess value for publication.

Firm bids and offers that are available to the entire market take precedence over trades that have been concluded earlier in the assessment process when establishing the value of the market, particularly if bids are available at the close above previously traded levels, or offers are available to the market below previously traded levels. Value is a function of time.

Similarly, firms bids and offers that are available to the entire market take precedence over transactional activity reported to Platts after the fact.

When no bid, offer or transaction data exists, Platts may consider other verifiable data reported and published through the day, including fully and partially confirmed trades, notional trading values

and other market information as provided for publication. Under such circumstances, Platts may also be able to observe direct market activity or the effect of commonly traded commodities on illiquid markets via spread differentials and shipping economics.

Platts also analyzes the relationships between different markets, and factors these relationships into assessments for markets where transactional data falls to low levels. Finally, Platts normalizes other available data that may be relevant to the assessment during periods when low amounts or no transactional data exists, including transactional data from related markets, in the manner described above.

To do this, Platts takes into account representative transactions executed at arms-length in the open market occurring during the assessment period and additionally taking into account bid and offer information submitted during this period. Platts editors always seek direct verification from the principals to a reported bid, offer or deal.

Platts guidelines are designed to avoid any distortion of the final price assessment and so inputs that are not verifiable may be eliminated and "one-off" or unrepeatable transaction data may be disregarded from the price assessment process.

Assessment calculations

Platts publishes its assessments reflecting the currencies and units of measurement in which the products typically trade.

LNG is generally traded in US dollars, and Platts assessments are typically published in that currency as a result. Certain markets, such as regional and domestic markets, trade using local currency. Platts assesses the value of such markets as appropriate in local currency.

LNG is typically traded in Millions of British Thermal units (MMBtu), and Platts publishes its assessments using these units of measurement as they prevail in practice. The minimum and maximum volume considered for each individual Platts assessment of a physical market is described in section VII of this document

In certain cases Platts converts its assessments to other currencies or units of measurement to allow for ease of comparison or analysis in regional markets. Such conversions are done using published exchange rates and conversion factors.

Platts reporters follow specific methodology when exercising editorial judgment during their assessment process. Platts editors apply judgment when determining (1) whether information is suitable for publication, (2) when normalizing data and (3) when determining where to assess final value of a market.

Judgment may be applied when analyzing transactional data to determine if it meets Platts standards for publication; judgment may also be applied when normalizing values to reflect differences in time, location, quality, and other trading terms when comparing transactional data to the base standard reflected in Platts assessments.

All such judgment is subject to review by Platts editorial management for adherence to the standards published in Platts methodologies. The following section illustrates how these guidelines work when calculating indexes and making assessments.

To ensure the assessments are as robust as possible, Platts editorial systems are backed by a strong corporate structure that includes managerial and compliance oversight. To ensure reporters follow Platts methodological guidelines in a consistent manner, reporters are trained and regularly reviewed.

Application of judgment guidelines promote consistency and transparency in judgments and are systematically applied by Platts. Where professional judgment is exercised, all information available is critically analyzed and synthesized. The various possibilities are critically analyzed and fully evaluated to reach a judgment. Platts manages and maintains internal training guides for each of the different products assessed which aim to assist assessors and ensure Platts' price assessments are produced consistently. Platts' price assessments are reviewed prior to publication and exercise of professional judgment is further discussed and verified during this process. Finally, consistent with the concept of proportionality,

assessments that are referenced by derivatives contracts are supported by assessment rationale, including the application of judgment, which is published together with the price assessment offering full transparency to the market.

Reporters are trained to identify potentially anomalous data. Platts defines anomalous data as any information, including transactions, which is inconsistent with or deviates from our methodology or standard market conventions.

As a publisher owned by S&P Global, independence and impartiality are at the heart of what Platts does. Platts has no financial interest in the price of the products or commodities on which it reports. Platts' aim is to reflect where the actual market level is.

Platts focuses on assessing the value of LNG trading in the spot market. A spot price for a physical commodity is the value at which a standard transaction for merchantable material takes place, or could take place in the open market at arms' length. In LNG, Platts' spot price assessments reflect the value at which transactions take place, or could take place during the assessment process.

Platts' overall objective is to reflect the transactable value of the commodity assessed. In cases where the apparent value of the commodity includes extra optionalities, the intrinsic value of the commodity may be masked. In such cases, Platts may use its editorial judgment to factor out such extraneous elements from the value of the commodity, or it may decide not to use the bid, offer or transaction in its assessment process. Optionalities that may mask the value of the commodity include but are not limited to loading or delivery options held by the buyer or seller, volume option tolerances exercisable by the buyer or seller or quality specifications.

Platts assesses the outright value of LNG around the world, as well as differentials for LNG assessments when they trade with reference to other benchmarks. Platts analyses all data collected and published by Platts throughout the day. Final assessments are above firm bids, and below firm offers, that stand at the close of the assessment process. This is true for outright values and differentials. In the event of an

observed conflict between outright values and differentials, outright values prevail in Platts final published assessments.

Platts produces time-sensitive assessments that reflect the value of the markets during the price assessment process in Singapore, Houston and London. By providing clear timestamps for every region the Platts assessment process is designed to provide price assessments that properly reflect outright and spread values.

Assessments reflect typical loading and delivery schedules for each market assessed. The standard loading and delivery windows are specified under each data code.

Market structure such as backwardation and contango is also factored into the Platts' assessment process.

PART IV: PLATTS EDITORIAL STANDARDS

All Platts' employees must adhere to the S&P Global Code of Business Ethics (COBE), which has to be signed annually. The COBE reflects -S&P Global's commitment to integrity, honesty and acting in good faith in all its dealings.

In addition, Platts requires that all employees attest annually that they do not have any personal relationships or personal financial interests that may influence or be perceived to influence or interfere with their ability to perform their jobs in an objective, impartial and effective manner.

Market reporters and editors are mandated to ensure adherence to published methodologies as well as internal standards that require accurate records are kept in order to document their work.

Platts has a Compliance function that is independent of the editorial group. Compliance is responsible for ensuring the quality and adherence to Platts' policies, standards, processes and procedures. The Compliance team conducts regular assessments of editorial operations, including checks for adherence to published methodologies.

S&P Global's internal auditor, an independent group that reports directly to the parent company's board of directors, reviews the Platts risk assessment programs.

PART V: CORRECTIONS

Platts is committed to promptly correcting any material errors. When corrections are made, they are limited to corrections to data that was available when the index or assessment was calculated.

PART VI: REQUESTS FOR CLARIFICATIONS OF DATA AND COMPLAINTS

Platts strives to provide critical information of the highest standards, to facilitate greater transparency and efficiency in physical commodity markets.

Platts customers raise questions about its methodologies and the approach taken in price assessments, proposed methodology changes and other editorial decisions in relation to Platts price assessments. Platts strongly values these interactions and encourages dialogue concerning any questions a customer or market stakeholder may have.

However, Platts recognizes that occasionally customers may not be satisfied with responses received or the services provided and may wish to escalate matters. Full information about how to contact Platts to request clarification around an assessment, or make a complaint, is available on the Platts website, at: <http://www.platts.com/ContactUs/Complaints>.

PART VII: DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES DAILY INDEXES OR ASSESSMENTS

The following contains the primary specifications and methodologies for Platts LNG assessments throughout the world. The various components of this guide are designed to give Platts subscribers as much information as possible about a wide range of methodology and specification issues.

This methodology is current at the time of publication. Platts may issue further updates and enhancements to this methodology and will announce these to subscribers through its usual publications of record. Such updates will be included in the next version of the methodology. Platts editorial staff and managers will usually be ready to provide guidance when assessment issues require clarification.

Unless otherwise stated, standard specifications for all Platts LNG assessments are as follows:

Frequency: Assessments are published each business day and reflect market values prevailing at the close of markets in the respective region (Singapore/UK/US). On certain days ahead of a public holiday, such as Christmas Eve or New Year's Eve, Platts may assess the market earlier than normal. This would typically be 12:30pm in Singapore and 12:00pm in London.

Unit: All prices are quoted in US dollars per million British Thermal Units (\$/MMBtu) to three decimal places. ICE NBP futures in pence per therm are converted to \$/MMBtu using a US\$/GBP exchange rate assessed at market close. Prices at European gas hubs in Euros per megawatt hour are converted to \$/MMBtu using a US\$/Eur exchange rate assessed at market close.

Quality: Price assessments reflect 1030-1130 Btu/scf calorific value; cargoes outside of this range will be considered and may be normalized to within the range.

Volume: Standard cargoes of 135,000-175,000 cu m. Larger Qatari Q-Flex (210,000 cu m) and Q-Max (260,000 cu m) carriers will not be assessed directly, though they may be normalized to standard volume.

Timing: Platts assesses LNG markets in half-month cycles forward

For instance, on June 1, Platts will assess DES cargoes for delivery in H1 July, H2 July, H1 August (and H2 August in the case of JKM™), and FOB cargoes loading in H2 June, H1 July, H2 July.

Marker assessments represent the average of the two half-month cycles which comprise the first full month of delivery or loading. For instance, on June 4, Platts' JKM™, (Jul) represents the average of price assessments for cargoes for delivery in H1 July and H2 July. On the same day Platts' EAM (Jul) represents the average of price assessments for cargoes loading in H1 July and H2 July.

DES markers roll over on the 16th of each calendar month and FOB markers roll on the 1st unless that day is not a business day, in which case the marker rolls over on the next business day. For instance, if June 16 is a business day, Platts' JKM™, (Aug) averages price assessments of cargoes for delivery in H1 August and H2 August.

Spot prices for prompt or deferred cargoes delivered on any day during the assessed half-months of trading are normalized to the median point of the assessment time frame for each market, by taking into account forward market structure.

This market structure is assessed using analysis of fundamental conditions of supply and demand, and using observed bid, offer and trading price levels. Depending on market conditions, however, prices for very prompt cargoes for delivery less than one month from the date of transaction may be deemed distressed, and not taken into consideration for assessment.

Netback assessments: For all netback and netforward assessments, Platts publishes a single value reflecting the implied price of a cargo at market close using freight cost formulae which employ standard Platts freight route costs assumptions and a relevant journey time to a base price point. More details are provided in the relevant netback sections and the Shipping Assessments section below.

PACIFIC BASIN SPOT LNG ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	min. size	max. size	Currency	UOM
LNG Japan/Korea Spot Crg DES	AAOVQ00	AAOVQ03			Spot	DES	Japan-Korea	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea DES 1 Half-Month	AAPSU00	AAPSU03			Spot	DES	Japan-Korea	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea DES 2 Half-Month	AAPSV00	AAPSV03			Spot	DES	Japan-Korea	4th Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea DES 3 Half-Month	AAPSW00	AAPSW03			Spot	DES	Japan-Korea	5th Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea DES 4 Half-Month	AAPXA00	AAPXA03			Spot	DES	Japan-Korea	6th Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea vs Henry Hub Spore 16:30	AAPRZ00				Differential			Front month			USD	MMB
LNG Japan/Korea vs UK NBP Spore 16:30	AAPSA00				Differential			Front month			USD	MMB
LNG Japan/Korea vs ADB Spore 16:30	AAPSB00				Differential			Front month			USD	MMB
LNG Freight Japan/Korea Vs Taiwan/China 16:30	AAPSC00				Differential			Front month			USD	MMB
HHub 1-Mo Spore 16:30 Hrs \$	AAPSD00	AAPSD03			Futures		Henry Hub	M+1			USD	MBB
HHub 2-Mo Spore 16:30 Hrs \$	AAPSE00	AAPSE03			Futures		Henry Hub	M+2			USD	MMB
NBP 1-Mo Spore 16:30 Hrs \$	AAPSF00	AAPSF03			Futures		NBP	M+1			USD	MMB
NBP 2-Mo Spore 16:30 Hrs \$	AAPSG00	AAPSG03			Futures		NBP	M+2			USD	MMB
NBP 1-Mo Spore 16:30 Hrs p/th	AAPSH00	AAPSH03			Futures		NBP	M+1			GBC	THR
NBP 2-Mo Spore 16:30 Hrs p/th	AAPSI00	AAPSI03			Futures		NBP	M+2			GBC	THR
LNG FOB Mid East 25-45 Days	AARXQ00	AARXQ03			Netback	FOB	Middle east	25-45 days	135,000	175,000	USD	MMB
LNG FOB Australia NetBack	AARXR00	AARXR03			Netback	FOB	Australia	JKM minus 8 days	135,000	175,000	USD	MMB
LNG DES West India	AARXS00	AARXS03			Spot	DES	West India	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB
LNG DES West India 1 Half-Month	LMEAA00				Spot	DES	West India	2nd Half-Month forward	135,000	175,000	USD	MMB
LNG DES West India 2 Half-Month	LMEAB00				Spot	DES	West India	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG DES West India 3 Half-Month	LMEAC00				Spot	DES	West India	4th Half-Month forward	135,000	175,000	USD	MMB
LNG DES West India 4 Half-Month	LMEAD00				Spot	DES	West India	5th Half-Month forward	135,000	175,000	USD	MMB
LNG DES West India 5 Half-Month	LMEAE00				Spot	DES	West India	6th Half-Month forward	135,000	175,000	USD	MMB
LNG Japan/Korea Spot Crg DES Jpy/MMBtu	AAOVR00	AAOVR03			Spot	DES	Japan-Korea	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	JPY	MMB
JKM Monthly Average USD	AAOV503				Spot	DES	Japan-Korea		135,000	175,000	USD	MMB
JKM Monthly Average JPY	AAOVT03				Spot	DES	Japan-Korea		135,000	175,000	JPY	MMB
DES West India Monthly Average	AAWIC03				Spot	DES	West India		135,000	175,000	USD	MMB
JKM Cumulative Moving Average USD	AAOV500				Spot	DES	Japan-Korea		135,000	175,000	USD	MMB
JKM Cumulative Moving Average JPY	AAOVT00				Spot	DES	Japan-Korea		135,000	175,000	JPY	MMB
DES West India Cumulative Moving Average USD	AAALIC00				Spot	DES	West India		135,000	175,000	USD	MMB

Pacific Basin Assessments

Pacific Basin assessments, swaps and netbacks are published each business day and reflect market values prevailing at the close of Asian markets, at 4:30 pm Singapore time. Prices are published in the following Platts services: Natural Gas Alert (NGA), Platts LNG Daily, Platts Market Data and Platts LNG Navigator.

Platts Asian liquefied natural gas (LNG) spot prices

Platts launched on February 2, 2009, daily spot Asian LNG assessments under the benchmark name Japan/Korea Marker (Platts JKM™). As of October 17, 2016, Platts started publishing a single value daily assessment of the JKM™, in Jpy/MMBtu, calculated using an assessed daily currency exchange rate.

The assessment is published following editorial engagement with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes delivered ex-ship (DES) to ports in Japan and South Korea that can receive a minimum cargo size of 135,000 cu m.

Prices of LNG spot cargoes delivered into ports in Taiwan or China with the same minimum cargo size may be normalized to basis Japan/Korea, using an assessed deviation cost from Japan/Korea to Taiwan/China. For example, a cargo delivered to Taiwan or China at \$5.00/MMBtu would be equated to a price of \$5.05/MMBtu delivered to Japan/Korea, given an assessed deviation freight cost of +5 cents.

As of January 4, 2010, Platts publishes a single value assessment for the JKM™. This assessed value is based on confirmed spot transactions, firm bids / offers, indications of value, expressions of interest, or in the absence of liquidity, where a spot transaction would have been concluded. Prior to January 4, 2010, Platts published a low-high range of price, indicating a narrow tradable range either side of the mean spot market value, assessed at the close of Asian markets on a typical trading day.

Timing: Cargo delivery in the third, fourth, fifth and sixth half-month cycles forward from the date of trade. (Platts launched the sixth half-month cycle on June 1, 2012.)

Platts Asian liquefied natural gas (LNG) swap prices

Platts launched on June 1, 2012, daily Asian LNG swaps assessments under the name DES Japan/Korea Marker (Platts JKM™) swaps.

The assessments are published following editorial engagement with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Volume: Swaps typically trade in lot sizes of 10,000 MMBtu. Platts will also consider larger clip sizes for swaps in its assessment process.

Timing: Swaps prices are for one month forward from the physical JKM™, two months forward and three months forward, the next two active quarters and the active forward calendar year. For example, on June 1, Platts will assess the physical JKM™, for July delivery, and will assess JKM™, swaps for August, September and October. The swaps assessment rolls over on the 16th of each calendar month unless that day is not a business day, in which case the swaps assessment rolls over on the next business day. For example, if June 16 is a business day, the JKM™, swaps assessments will roll over to September, October and November. The quarters are assessed beyond the three forward months. For example, in H1 November 2016, Platts would assess the JKM™, forward curve periods; January, February, March, Q1 2017, Q2 2017 and Cal 17. In H2 November, the forward curve periods will be; February, March, April, Q2 2017, Q3 2017 and Cal 17. The Calendar Year assessment will roll over on the first business day of the year. For example, the Cal18 JKM swaps assessment will roll into Cal19 on January 2 2018.

Settlement: The Platts JKM™ swap is financially settled based on the physical spot Platts JKM™ assessments published. For example, the August swap will be settled against the average of the daily assessments for August physical JKM™, published between June 16 and July 15.

Platts Liquefied Natural Gas (LNG) FOB Middle East Netback

Platts launched on January 8, 2010, daily spot assessments of LNG under the benchmark name FOB Middle East (FOB ME). The quote became a netback calculation in August 2012 when the DES West India assessment (which had been a netforward from FOB Middle East) emerged as the more liquid and transparent spot market.

Timing: Assessment of cargoes loading 25-45 days forward from the date of publication. For instance, on March 1, Platts will assess cargoes for loading between March 26 and April 15.

Basis & Location: Cargoes loaded free on board at ports in Das Island in Abu Dhabi and Ras Laffan in Qatar.

Assessment: Platts publishes a single netback value indicating the implied price of a cargo at the close of Asian markets using freight cost formulae. For FOB Middle East, a freight rate covering a three-day voyage will be subtracted from DES West India.

Calculation: Cost of charter for the entire voyage, accounting for a round-trip and a three-day loading/discharging time, and dividing that cost by the total delivered cargo in MMBtu; the cost of boil-off by multiplying the volume lost by the delivered price, divided by the delivered cargo size in MMBtu; the consumption rate of bunker oil required is 100 mt/day minus the bunker fuel-equivalent volume of the boil-off gas; the cost of bunker oil by multiplying Platts' FOB Fujairah bunker fuel assessment in \$/mt by the consumption rate. The delivered cargo size is calculated by multiplying the vessel cargo size by a fillable volume of 98.5%, minus the volume of boil-off from the combined laden and ballast legs of the journey, including the three-day loading/discharging time.

Platts Liquefied Natural Gas (LNG) DES West India spot prices

Effective August 1, 2011, Platts modified the methodology for the daily spot DES West India assessment from a net-forward calculation (launched January 8, 2010), which applied a freight cost addition to the FOB Middle East (FOB ME) assessments, to a stand-alone DES

West India assessment.

Platts launched on June 16, 2016, daily DES West India assessments for a total of five half-month periods. Four of the half-months will match the delivery periods of Platts JKM™ assessments, with the fifth half-month introduced immediately preceding JKM™'s first half-month. The DES West India monthly assessment is based on the average of the two DES West India half-months that match the JKM™ delivery month period.

The assessment is published following editorial engagement with producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes delivered ex-ship (DES) at ports on the west coast of India that can receive a minimum cargo size of 135,000 cu m.

Assessment: Platts publishes a single value indicating the price at which a cargo could be traded at the close of the assessment

period. This assessed value is based on confirmed spot transactions, firm bids/offers, indications of value and expressions of interest, or in the absence of liquidity, where a spot transaction would have been concluded. It also takes into account netbacks from prevailing consumer markets.

Timing: Cargo delivery for the DES West India monthly assessment matches the month of the Platts headline Japan/Korea Marker (JKM™).

Platts LNG FOB Australia Netback

Platts launched on January 8, 2010, a daily spot netback assessment for LNG loading in Australia which applies a freight cost subtraction from the DES Japan/Korea Marker (Platts JKM™).

Timing: Freight netbacks correspond to the outright assessment from the primary end-use market. Cargoes for loading in Australia are assessed using Platts DES Japan/Korea Marker (Platts JKM™) assessments minus a freight period of eight days.

Location: Loading at Dampier for FOB Australia.

Assessment: Platts publishes a single value indicating the implied price of a cargo at Asian market close using freight cost formulae. For FOB Australia, a freight rate covering an eight-day voyage will be subtracted from JKM™.

Calculation: Cost of charter for the entire voyage, accounting for a round-trip and a three-day loading/discharging time, and dividing that cost by the total delivered cargo in MMBtu; the cost of boil-off by multiplying the volume lost by the delivered price, divided by the delivered cargo size in MMBtu; the consumption rate of bunker oil required is 100 mt/day minus the bunker fuel-equivalent volume of the boil-off gas; the cost of bunker oil by multiplying Platts' FOB Singapore bunker fuel assessment in \$/mt by the consumption rate. The delivered cargo size is calculated by multiplying the vessel cargo size of 165,000 cu m by a fillable volume of 98.5%, minus the volume of boil-off from the combined laden and ballast legs of the journey, including the three-day loading/discharging time.

LNG SWAPS ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	min. size	max. size	Currency	UOM
LNG Japan/Korea swap Mo01	LJKM001	LJKM031			Swap		Japan/Korea	JKM physical +1 Month	10,000	10,000	USD	MMB
LNG Japan/Korea swap Mo02	LJKM002	LJKM032			Swap		Japan/Korea	JKM physical +2 Months	10,000	10,000	USD	MMB
LNG Japan/Korea swap Mo03	LJKM003	LJKM033			Swap		Japan/Korea	JKM physical +3 Months	10,000	10,000	USD	MMB
LNG Japan/Korea swap Q1	LJKQR01				Swap		Japan/Korea	JKM physical active forward quarter	10,000	10,000	USD	MMB
LNG Japan/Korea swap Q2	LJKQR02				Swap		Japan/Korea	JKM physical active forward quarter+1	10,000	10,000	USD	MMB
LNG Japan/Korea swap Calendar Year	LJKYR01				Swap		Japan/Korea	JKM physical active forward calendar year	10,000	10,000	USD	MMB

ATLANTIC BASIN LNG ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Min size	Max size	Currency	UOM
LNG DES Middle East Marker MEM Spot Cargo Mo01	LMEMA00				Spot	DES	Middle East	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB
LNG DES Middle East Marker MEM 1 Half-Month	LMEMB00				Spot	DES	Middle East	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG DES Middle East Marker MEM 2 Half-Month	LMEMC00				Spot	DES	Middle East	4th Half-Month forward	135,000	175,000	USD	MMB
LNG DES Middle East Marker MEM 3 Half-Month	LMEMD00				Spot	DES	Middle East	5th Half-Month forward	135,000	175,000	USD	MMB
LNG DES Middle East Marker MEM 4 Half-Month	LMEME00				Spot	DES	Middle East	6th Half-Month forward	135,000	175,000	USD	MMB
LNG DES Middle East Marker MEM vs Middle East Fuel Oil	LMEMF00				Spot	DES	Middle East	Front month			USD	MMB
LNG DES Middle East Marker MEM vs Henry Hub 16:30 London Mo01	LMEMG00				Spot	DES	Middle East	Front month			USD	MMB
LNG DES Middle East Marker MEM vs JKM 16:30 Singapore Mo01	LMEMH00				Spot	DES	Middle East	Front month			USD	MMB
LNG DES Middle East Marker MEM vs NBP 16:30 London Mo01	LMEMJ00				Spot	DES	Middle East	Front month			USD	MMB
LNG DES Middle East Marker MEM vs DES Northwest Europe	LMEMK00				Spot	DES	Middle East	Front month			USD	MMB
LNG DES Middle East Marker MEM vs DES Southwest Europe	LEML00				Spot	DES	Middle East	Front month			USD	MMB
LNG FOB East Atlantic spot cargo Mo01	LEAMM01	LEAMM3			Spot	FOB	East Atlantic	2nd & 3rd or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB
LNG FOB East Atlantic 1 Half-Month	LEAMH01	LEAMH31			Spot	FOB	East Atlantic	2nd Half-month forward	135,000	175,000	USD	MMB
LNG FOB East Atlantic 2 Half-Month	LEAMH02	LEAMH32			Spot	FOB	East Atlantic	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG FOB East Atlantic 3 Half-Month	LEAMH03	LEAMH33			Spot	FOB	East Atlantic	4th Half-Month forward	135,000	175,000	USD	MMB
LNG FOB East Atlantic spot cargo Monthly Average	LEAMS31				Spot	FOB	East Atlantic		135,000	175,000	USD	MMB
LNG FOB East Atlantic spot cargo Cumulative Moving Average	LEAMT00				Spot	FOB	East Atlantic		135,000	175,000	USD	MMB
LNG FOB East Atlantic vs Dated Brent	LEADB00	LEADB03			Differential			Front Month			USD	MMB
LNG FOB East Atlantic vs ARA Fuel Oil	LEARA00	LEARA03			Differential			Front Month			USD	MMB
LNG FOB East Atlantic vs Henry Hub London 16:30 Mo01	LEHHM01	LEHHM31			Differential			Front Month			USD	MMB
LNG FOB East Atlantic vs JKM Singapore 16:30 Mo01	LEJKM01	LEJKM31			Differential			Front Month			USD	MMB
LNG FOB East Atlantic vs NBP London 16:30 Mo01	LENPM01	LENPM31			Differential			Front Month			USD	MMB
LNG FOB East Atlantic vs DES South West Europe	LESWE00	LESWE03			Differential			Front Month			USD	MMB
LNG NWE Spot DES	AASXU00	AASXU03			Spot	DES	Northwest Europe	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB
LNG NWE Spot DES 1 Half-Month	AASXV00	AASXV03			Spot	DES	Northwest Europe	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG NWE Spot DES 2 Half-Month	AASXW00	AASXW03			Spot	DES	Northwest Europe	4th Half-Month forward	135,000	175,000	USD	MMB
LNG NWE Spot DES 3 Half-Month	AASXX00	AASXX03			Spot	DES	Northwest Europe	5th Half-Month forward	135,000	175,000	USD	MMB
LNG NWE Spot DES Monthly average	AASDE03				Spot	DES	Northwest Europe		135,000	175,000	USD	MMB
LNG NWE Spot DES Cumulative Moving Average	AASDF00				Spot	DES	Northwest Europe		135,000	175,000	USD	MMB
LNG SWE Spot DES	AASXY00	AASXY03			Spot	DES	Southwest Europe	3rd & 4th or 4th & 5th Half-Month forward	135,000	175,000	USD	MMB

ATLANTIC BASIN LNG ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Min size	Max size	Currency	UOM
LNG SWE Spot DES 1 Half-Month	AASXZ00	AASXZ03			Spot	DES	Southwest Europe	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG SWE Spot DES 2 Half-Month	AASYA00	AASYA03			Spot	DES	Southwest Europe	4th Half-Month forward	135,000	175,000	USD	MMB
LNG SWE Spot DES 3 Half-Month	AASYB00	AASYB03			Spot	DES	Southwest Europe	5th Half-Month forward	135,000	175,000	USD	MMB
LNG SWE Spot DES Monthly Average	AASDE03				Spot	DES	Northwest Europe		135,000	175,000	USD	MMB
LNG SWE Spot DES Cumulative Moving Average	AADCU00				Spot	DES	Northwest Europe		135,000	175,000	USD	MMB
LNG DES NWE Percent NBP	AASYD00	AASYD03			Percentage			Front Month			USD	PCT
LNG NWE vs HH London 16:30	AASYE00	AASYE03			Differential			Front Month			USD	MMB
LNG SWE vs HH London 16:30	AASYF00	AASYF03			Differential			Front Month			USD	MMB
LNG NWE vs UK NBP London 16:30	AASYG00	AASYG03			Differential			Front Month			USD	MMB
LNG SWE vs UK NBP London 16:30	AASYH00	AASYH03			Differential			Front Month			USD	MMB
LNG NWE vs DB London 16:30	AASYI00	AASYI03			Differential			Front Month			USD	MMB
LNG SWE vs DB London 16:30	AASYJ00	AASYJ03			Differential			Front Month			USD	MMB
LNG NWE vs SWE London 16:30	AASYK00	AASYK03			Differential			Front Month			USD	MMB
LNG NWE Ldn 16:30 vs JKM Spore 16:30	AASYL00	AASYL03			Differential			Front Month			USD	MMB
LNG SWE Ldn 16:30 vs JKM Spore 16:30	AASYM00	AASYM03			Differential			Front Month			USD	MMB
HHub 1-Mo London 16:30 Hrs	AASYN00	AASYN03			Futures		Henry Hub	M+1			USD	MMB
HHub 2-Mo London 16:30 Hrs	AASYO00	AASYO03			Futures		Henry Hub	M+2			USD	MMB
NBP 1-Mo London 16:30 Hrs p/th	AASYP00	AASYP03			Futures		NBP	M+1			GBC	THR
NBP 2-Mo London 16:30 Hrs p/th	AASYQ00	AASYQ03			Futures		NBP	M+2			GBC	THR
NBP 1-Mo London 16:30Hrs \$/MMBtu	AASYR00	AASYR03			Futures		NBP	M+1			USD	MMB
NBP 2-Mo London 16:30Hrs \$/MMBtu	AASYS00	AASYS03			Futures		NBP	M+2			USD	MMB
DES Brazil Netforward Mo01	LEBMH01	LEBMH31			Netforward	DES	Brazil	Front Month	135,000	175,000	USD	MMB
DES Brazil Netforward vs ARA Fuel Oil	LAARM01	LAAR03			Differential			Front Month			USD	MMB
DES Brazil Netforward vs DES SWE LNG	LASWM01	LASW03			Differential			Front Month			USD	MMB
DES Brazil Netforward vs Dated Brent	LADB001	LADB003			Differential			Front Month			USD	MMB
DES Brazil Netforward vs Henry Hub	LAHHM01	LAHH03			Differential			Front Month			USD	MMB
DES Brazil Netforward vs JKM	LAJKM01	LAJK03			Differential			Front Month			USD	MMB
DES Brazil Netforward vs NBP	LABPM01	LABP03			Differential			Front Month			USD	MMB
LNG FOB GCM spot cargo Mo01	LGCSM01	LGCSM31			Spot	FOB	Gulf Coast	2nd & 3rd or 3rd & 4th half month forward	135,000	175,000	USD	MMB
LNG FOB GCM spot cargo Monthly Average	LGGCM31				Spot	FOB	Gulf Coast		135,000	175,000	USD	MMB
LNG FOB GCM spot cargo Cumulative Moving Average	LGGCN00				Spot	FOB	Gulf Coast		135,000	175,000	USD	MMB
LNG FOB GCM 1 Half-Month	LUGCA01	LUGCA31			Spot	FOB	Gulf Coast	2nd Half-month forward	135,000	175,000	USD	MMB
LNG FOB GCM 2 Half-Month	LUGCB02	LUGCB32			Spot	FOB	Gulf Coast	3rd Half-Month forward	135,000	175,000	USD	MMB
LNG FOB GCM 3 Half-Month	LUGCC03	LUGCC33			Spot	FOB	Gulf Coast	4th Half-Month forward	135,000	175,000	USD	MMB
LNG FOB GCM vs. Dated Brent	LGMDB00	LGMDB03			Differential			Front Month			USD	MMB
LNG FOB GCM vs. EAM	LGMEA00	LGMEA03			Differential			Front Month			USD	MMB
LNG FOB GCM vs Henry Hub Houston 13:30 Mo01	LGMHM01	LGMHM31			Differential			Front Month			USD	MMB
LNG FOB GCM vs JKM Houston 13:30 Mo01	LGMJM01	LGMJM31			Differential			Front Month			USD	MMB
LNG FOB GCM vs NBP Houston 13:30 Mo01	LGMNM01	LGMNM31			Differential			Front Month			USD	MMB
LNG FOB GCM vs USGC 3%S fuel oil	LGMFO00	LGMFO03			Differential			Front Month			USD	MMB
LNG FOB GCM vs WTI	LGMWT00	LGMWT03			Differential			Front Month			USD	MMB

Atlantic Basin Assessments

Atlantic Basin assessments and netforwards are published each business day and reflect market values prevailing at the close of European markets, at 4:30 pm London time, with the exception of daily FOB Gulf Coast assessments. Unless otherwise stated, prices are published in the following Platts services: Natural Gas Alert (NGA), European Power Alert (EPA), Platts LNG Daily, Platts Market Data and Platts LNG Navigator.

Platts Middle East Marker (MEM) for liquefied natural gas (LNG) delivered DES

Platts launched on January 16, 2017, daily DES Middle East LNG assessments under the marker name Middle East Marker (MEM). The assessment is published following editorial engagement with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes delivered ex-ship at ports in the Middle East capable of receiving cargoes with a minimum cargo size of 135,000 cubic meters.

Laycan is normalized to the geographical location of Ain Sukhna, Egypt, using an assessed deviation cost.

Assessment: Platts publishes a single value indicating the price at which a cargo could be traded at the close of the assessment period. This assessed value is based on confirmed spot transactions, firm bids/offers, indications of value and expressions of interest, or in the absence of liquidity, where a spot transaction would have been concluded. It also takes into account netbacks from prevailing consumer markets.

Timing: Cargo delivery in the month matching the Platts headline Japan/Korea Marker (JKM™).

Platts East Atlantic Marker (EAM) for liquefied natural gas (LNG) loaded FOB

Platts launched on January 2, 2015, daily FOB East Atlantic LNG assessments under the marker name East Atlantic Marker (EAM). The assessment is published following editorial engagement with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes lifted Free On-Board (FOB) from production/reload ports across the East Atlantic that can load a minimum cargo size of 135,000 cu m.

Laycan is normalized to the geographical location of Gibraltar/Huelva, using an assessed deviation cost. Ship-to-ship transactions and prices of volumes in-tank at terminals are also considered in the assessment where relevant.

This assessed value is based on confirmed spot transactions, firm bids / offers, indications of value and expressions of interest, or in the absence of liquidity, where a spot transaction would have been concluded.

Timing: Cargo loading in the second, third and fourth half-month cycles forward from the date of trade.

Platts Southwest Europe (SWE) liquefied natural gas (LNG) spot prices

Platts launched on June 28, 2010, daily spot Southwest European (SWE) LNG assessments. The assessment is published following direct contact with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes delivered ex-ship (DES) at ports in Southwest Europe that can receive a minimum cargo size of 135,000 cu m.

Platts publishes a single value assessment for the SWE. This assessed value is based on confirmed spot transactions, firm bids / offers, indications of value and expressions of interest, or in the absence of liquidity, where a spot transaction would have been

concluded. Valuation methods in the absence of trade could include use of “netback” valuations, to consider the cost of competing in the global market to attract a spot cargo of LNG. For example, if Japan was paying \$6/MMBtu for LNG, and the cost of shipping from Europe to Japan was \$1.50/MMBtu, a netback valuation of \$4.50/MMBtu for European LNG could show the price a European buyer might have to pay to stop a spot cargo in the Atlantic from being diverted to Japan. Such a netback valuation may be higher than the onshore gas price. In such a situation the LNG marker reflects the price that might be paid by an LNG buyer to attract a one-off cargo against global competition. But general gas buyers might prefer to source their requirements in the onshore market at the lower hub prices, and might not be willing to pay above those prices for LNG.

Timing: Cargo delivery in the third, fourth and fifth half-month cycles forward from the date of trade.

Platts Northwest Europe (NWE) liquefied natural gas (LNG) spot prices

Platts launched on June 28, 2010, daily spot Northwest Europe (NWE) LNG assessments. The assessment is published following direct contact with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes delivered ex-ship (DES) at ports in northwest Europe that can receive a minimum cargo size of 135,000 cu m.

Platts publishes a single value assessment for NWE. This assessed value is based on confirmed spot transactions, firm bids / offers, or in the absence of liquidity, where a spot transaction would have been concluded. Valuation methods in the absence of trade could include use of “netback” valuations, to consider the cost of competing in the global market to attract a spot cargo of LNG similar to the SWE. Timing: Cargo delivery in the third, fourth and fifth half-month cycles forward from the date of trade.

Platts LNG netforward DES Brazil

Platts launched on October 1, 2015, a daily spot netforward

assessment for LNG delivered to Brazil which applies a freight cost addition to the East Atlantic Marker (EAM).

The DES Brazil netforward is published in the following Platts services: Natural Gas Alert (NGA), Platts LNG Daily, Platts South American LNG supplement, Platts Market Data and Platts LNG Navigator.

Timing: The netforward corresponds to the front month East Atlantic Marker (EAM) plus the cost of freight from Huelva/Gibraltar, Spain to Salvador de Bahia, Brazil. The assessment rolls on the first of each month unless that day is not a business day, in which case it rolls over on the next business day. For example, on October 1 the front month assessment rolls to November; on November 1 the front month assessment rolls to December.

Location: Delivery at Bay of All Saints, Salvador de Bahia, Brazil

Assessment: Platts publishes a single value reflecting the implied price of a cargo at European market close using freight cost formulae. For the DES Brazil netforward, a freight rate covering a 9-day voyage will be added to FOB EAM.

Calculation: Cost of charter for the entire voyage, accounting for a round-trip and a three-day loading/discharging time, and

dividing that cost by the total delivered cargo in MMBtu; the cost of boil-off by multiplying the volume lost by the delivered price, divided by the delivered cargo size in MMBtu; the consumption rate of bunker oil required is 100 mt/day minus the bunker fuel-equivalent volume of the boil-off gas; the cost of bunker oil by multiplying Platts' FOB Gibraltar bunker fuel assessment in \$/mt by the consumption rate. The delivered cargo size is calculated by multiplying the initial cargo size by 98.5% fillable volume, minus the volume of boil-off from the combined laden and ballast legs of the journey, including the three-day loading/discharging time.

Platts Gulf Coast Marker (GCM) Liquefied Natural Gas (LNG) loaded FOB

Platts launched on June 16, 2016, daily FOB Gulf Coast LNG assessments under the marker name Gulf Coast Marker (GCM) reflecting the value of spot LNG exported from the US Gulf Coast on a FOB basis.

GCM FOB LNG spot price assessments are published in the following Platts services: Natural Gas Alert (NGA), Platts LNG Daily, Platts LNG Navigator and Platts Market Data.

Frequency: The GCM assessment is published each business day

and reflects market values prevailing at the close of US markets, at 13:30 Houston.

The assessment is published following editorial engagement with market participants such as producers, consumers, traders, brokers, shippers and other active spot market participants.

Basis & Location: Cargoes lifted Free On-Board (FOB) from production/reload ports across the US Gulf Coast. Laycan is normalized to the geographical location of Sabine Pass, using an assessed deviation cost.

Platts publishes a single value assessment for the GCM. This assessed value is based on confirmed spot transactions, firm bids / offers, indications of value and expressions of interest, or in the absence of liquidity, where a spot transaction would have been concluded. Valuation methods in the absence of trade could include use of "netback" valuations, to consider the cost of competing in the global market. In such a situation the LNG marker reflects the price that might be paid by an LNG buyer to attract a one-off cargo against global competition.

Timing: Cargo loading in the second, third and fourth half-month cycles forward from the date of trade.

LNG SHIPPING ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Minimum size	Max.size	Currency	UOM
LNG Carrier Day Rate Asia-Pac	AAAXT00	AAAXT03			Day Rate	Asia-Pacific			155,000	180,000	USD	UNS
LNG Atlantic Carrier Day Rate	AAAYC00	AAAYC03			Day Rate	Atlantic			155,000	180,000	USD	UNS
LNG Australia-Japan/Korea Freight cost \$/MMBtu	AAUSA00	AAUSA03							155,000	180,000	USD	MMB
LNG Trinidad-Japan/Korea Freight cost \$/MMBtu	AAUSB00	AAUSB03							155,000	180,000	USD	MMB
LNG Nigeria-Japan/Korea Freight cost \$/MMBtu	AAUSC00	AAUSC03							155,000	180,000	USD	MMB
LNG Algeria-Japan/Korea Freight cost \$/MMBtu	AAUSD00	AAUSD03							155,000	180,000	USD	MMB
LNG Zeebrugge-Japan/Korea Freight cost \$/MMBtu	AAUSE00	AAUSE03							155,000	180,000	USD	MMB
LNG Peru-Japan/Korea Freight cost \$/MMBtu	AAUSF00	AAUSF03							155,000	180,000	USD	MMB
LNG Sakhalin-Japan/Korea Freight cost \$/MMBtu	AAUSG00	AAUSG03							155,000	180,000	USD	MMB
LNG Middle East-S China/Taiwan Freight cost \$/MMBtu	AAUSH00	AAUSH03							155,000	180,000	USD	MMB
LNG Australia-S China/Taiwan Freight cost \$/MMBtu	AAUSI00	AAUSI03							155,000	180,000	USD	MMB
LNG Trinidad-S China/Taiwan Freight cost \$/MMBtu	AAUSJ00	AAUSJ03							155,000	180,000	USD	MMB
LNG Nigeria-S China/Taiwan Freight cost \$/MMBtu	AAUSK00	AAUSK03							155,000	180,000	USD	MMB
LNG Algeria-S China/Taiwan Freight cost \$/MMBtu	AAUSL00	AAUSL03							155,000	180,000	USD	MMB
LNG Zeebrugge-S China/Taiwan Freight cost \$/MMBtu	AAUSM00	AAUSM03							155,000	180,000	USD	MMB
LNG Peru-S China/Taiwan Freight cost \$/MMBtu	AAUSN00	AAUSN03							155,000	180,000	USD	MMB
LNG Sakhalin-S China/Taiwan Freight cost \$/MMBtu	AAUSO00	AAUSO03							155,000	180,000	USD	MMB
LNG Middle East-W India Freight cost \$/MMBtu	AAUSP00	AAUSP03							155,000	180,000	USD	MMB
LNG Middle East-W India Fgt MAvg	AAUSP03								155,000	180,000	USD	MMB
LNG Australia-W India Freight cost \$/MMBtu	AAUSQ00	AAUSQ03							155,000	180,000	USD	MMB
LNG Trinidad-W India Freight cost \$/MMBtu	AAUSR00	AAUSR03							155,000	180,000	USD	MMB
LNG Nigeria-W India Freight cost \$/MMBtu	AAUSS00	AAUSS03							155,000	180,000	USD	MMB
LNG Algeria-W India Freight cost \$/MMBtu	AAUST00	AAUST03							155,000	180,000	USD	MMB
LNG Zeebrugge-W India Freight cost \$/MMBtu	AAUSU00	AAUSU03							155,000	180,000	USD	MMB
LNG Peru-W India Freight cost \$/MMBtu	AAUSV00	AAUSV03							155,000	180,000	USD	MMB
LNG Sakhalin-W India Freight cost \$/MMBtu	AAUSW00	AAUSW03							155,000	180,000	USD	MMB
LNG Middle East-SW Europe Freight cost \$/MMBtu	AAUSX00	AAUSX03							155,000	180,000	USD	MMB
LNG Trinidad-SW Europe Freight cost \$/MMBtu	AAUSZ00	AAUSZ03							155,000	180,000	USD	MMB
LNG Nigeria-SW Europe Freight cost \$/MMBtu	AAUTA00	AAUTA03							155,000	180,000	USD	MMB
LNG Algeria-SW Europe Freight cost \$/MMBtu	AAUTB00	AAUTB03							155,000	180,000	USD	MMB
LNG Zeebrugge-SW Europe Freight cost \$/MMBtu	AAUTC00	AAUTC03							155,000	180,000	USD	MMB
LNG Peru-SW Europe Freight cost \$/MMBtu	AAUTD00	AAUTD03							155,000	180,000	USD	MMB
LNG Platts LNG Freight 2-Middle East-NWE Freight cost \$/MMBtu	AAUTE00	AAUTE03							155,000	180,000	USD	MMB
LNG Australia-NWE Freight cost \$/MMBtu	AAUTF00	AAUTF03							155,000	180,000	USD	MMB
LNG Nigeria-NWE Freight cost \$/MMBtu	AAUTG00	AAUTG03							155,000	180,000	USD	MMB
LNG Algeria-NWE Freight cost \$/MMBtu	AAUTH00	AAUTH03							155,000	180,000	USD	MMB
LNG Peru-NWE Freight cost \$/MMBtu	AAUTI00	AAUTI03							155,000	180,000	USD	MMB
LNG Sakhalin-NWE Freight cost \$/MMBtu	AAUTJ00	AAUTJ03							155,000	180,000	USD	MMB

LNG SHIPPING ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Minimum size	Max.size	Currency	UOM
LNG Middle East-North East US Freight cost \$/MMBtu	AAUTK00	AAUTK03							155,000	180,000	USD	MMB
LNG Australia-North East US Freight cost \$/MMBtu	AAUTL00	AAUTL03							155,000	180,000	USD	MMB
LNG Trinidad-North East US Freight cost \$/MMBtu	AAUTM00	AAUTM03							155,000	180,000	USD	MMB
LNG Nigeria-North East US Freight cost \$/MMBtu	AAUTN00	AAUTN03							155,000	180,000	USD	MMB
LNG Algeria-North East US Freight cost \$/MMBtu	AAUTO00	AAUTO03							155,000	180,000	USD	MMB
LNG Zeebrugge-North East US Freight cost \$/MMBtu	AAUTP00	AAUTP03							155,000	180,000	USD	MMB
LNG Peru-North East US Freight cost \$/MMBtu	AAUTQ00	AAUTQ03							155,000	180,000	USD	MMB
LNG Sakhalin-North East US Freight cost \$/MMBtu	AAUTR00	AAUTR03							155,000	180,000	USD	MMB
LNG Middle East-Argentina Freight cost \$/MMBtu	AAUTS00	AAUTS03							155,000	180,000	USD	MMB
LNG Australia-Argentina Freight cost \$/MMBtu	AAUTT00	AAUTT03							155,000	180,000	USD	MMB
LNG Trinidad-Argentina Freight cost \$/MMBtu	AAUTU00	AAUTU03							155,000	180,000	USD	MMB
LNG Nigeria-Argentina Freight cost \$/MMBtu	AAUTV00	AAUTV03							155,000	180,000	USD	MMB
LNG Algeria-Argentina Freight cost \$/MMBtu	AAUTW00	AAUTW03							155,000	180,000	USD	MMB
LNG Zeebrugge-Argentina Freight cost \$/MMBtu	AAUTX00	AAUTX03							155,000	180,000	USD	MMB
LNG Peru-Argentina Freight cost \$/MMBtu	AAUTY00	AAUTY03							155,000	180,000	USD	MMB
LNG Sakhalin-Argentina Freight cost \$/MMBtu	AAUTZ00	AAUTZ03							155,000	180,000	USD	MMB
LNG Platts LNG Freight Middle East-Japan/Korea Freight cost \$/MMBtu	AAUUA00	AAUUA03							155,000	180,000	USD	MMB
LNG Sakhalin-SW Europe Freight cost \$/MMBtu	AAUUB00	AAUUB03							155,000	180,000	USD	MMB
LNG Platts LNG Freight 3-Trinidad-NWE Freight cost \$/MMBtu	AAUUC00	AAUUC03							155,000	180,000	USD	MMB
LNG Spain- Japan/Korea Freight cost \$/MMBtu	ACAAA00	ACAAA03							155,000	180,000	USD	MMB
LNG Spain/South China/Taiwan Freight cost \$/MMBtu	ACAAB00	ACAAB03							155,000	180,000	USD	MMB
LNG Spain/West India Freight cost \$/MMBtu	ACAAC00	ACAAC03							155,000	180,000	USD	MMB
LNG Spain/North West Europe Freight cost \$/MMBtu	ACAAD00	ACAAD03							155,000	180,000	USD	MMB
LNG Spain/NorthEast US Freight cost \$/MMBtu	ACA AE00	ACA AE03							155,000	180,000	USD	MMB
LNG Spain/Argentina Freight cost \$/MMBtu	ACA AF00	ACA AF03							155,000	180,000	USD	MMB
LNG Spain/Brazil Freight cost \$/MMBtu	ACA AG00	ACA AG03							155,000	180,000	USD	MMB
LNG Norway-Japan/Korea Freight cost \$/MMBtu	ACA AH00	ACA AH03							155,000	180,000	USD	MMB
LNG Norway/South China/Taiwan Freight cost \$/MMBtu	ACA AI00	ACA AI03							155,000	180,000	USD	MMB
LNG Norway/West India Freight cost \$/MMBtu	ACA AJ00	ACA AJ03							155,000	180,000	USD	MMB
LNG Norway/South West Europe Freight cost \$/MMBtu	ACA AK00	ACA AK03							155,000	180,000	USD	MMB
LNG Norway/North West Europe Freight cost \$/MMBtu	ACA AL00	ACA AL03							155,000	180,000	USD	MMB
LNG Norway/NorthEast US Freight cost \$/MMBtu	ACA AM00	ACA AM03							155,000	180,000	USD	MMB
LNG Norway/Argentina Freight cost \$/MMBtu	ACA AN00	ACA AN03							155,000	180,000	USD	MMB
LNG Norway/Brazil Freight cost \$/MMBtu	ACA AO00	ACA AO03							155,000	180,000	USD	MMB
LNG Middle East/Brazil Freight cost \$/MMBtu	ACA AP00	ACA AP03							155,000	180,000	USD	MMB
LNG Australia/Brazil Freight cost \$/MMBtu	ACA AQ00	ACA AQ03							155,000	180,000	USD	MMB
LNG Trinidad/Brazil Freight cost \$/MMBtu	ACA AR00	ACA AR03							155,000	180,000	USD	MMB
LNG Nigeria/Brazil Freight cost \$/MMBtu	ACA AS00	ACA AS03							155,000	180,000	USD	MMB

LNG SHIPPING ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Minimum size	Max.size	Currency	UOM
LNG Algeria/Brazil Freight cost \$/MMBtu	ACAAT00	ACAAT03							155,000	180,000	USD	MMB
LNG Belgium/Brazil Freight cost \$/MMBtu	ACAAU00	ACAAU03							155,000	180,000	USD	MMB
LNG Peru/Brazil Freight cost \$/MMBtu	ACAAV00	ACAAV03							155,000	180,000	USD	MMB
LNG Russia/Brazil Freight cost \$/MMBtu	ACAAW00	ACAAW03							155,000	180,000	USD	MMB
LNG US Gulf - Japan/Korea Freight cost \$/MMBtu	LAUVA00	LAUVA03							155,000	180,000	USD	MMB
LNG US Gulf - Japan/Korea Freight cost via Cape \$/MMBtu	LAUVK00	LAUVK03							155,000	180,000	USD	MMB
LNG US Gulf - Japan/Korea Freight cost via Panama \$/MMBtu	LAUVI00	LAUVI03							155,000	180,000	USD	MMB
LNG US Gulf - Japan/Korea Freight cost via Suez \$/MMBtu	LAUVJ00	LAUVJ03							155,000	180,000	USD	MMB
LNG US Gulf - S China/Taiwan Freight cost \$/MMBtu	LAUVB00	LAUVB03							155,000	180,000	USD	MMB
LNG US Gulf - S China/Taiwan Freight cost via Cape \$/MMBtu	LAUVN00	LAUVN03							155,000	180,000	USD	MMB
LNG US Gulf - S China/Taiwan Freight cost via Panama \$/MMBtu	LAUVL00	LAUVL03							155,000	180,000	USD	MMB
LNG US Gulf - S China/Taiwan Freight cost via Suez \$/MMBtu	LAUVM00	LAUVM03							155,000	180,000	USD	MMB
LNG US Gulf - Argentina Freight cost \$/MMBtu	LAUVG00	LAUVG03							155,000	180,000	USD	MMB
LNG US Gulf - Brazil Freight cost \$/MMBtu	LAUVH00	LAUVH03							155,000	180,000	USD	MMB
LNG US Gulf - NW Europe Freight cost \$/MMBtu	LAUVE00	LAUVE03							155,000	180,000	USD	MMB
LNG US Gulf - SW Europe Freight cost \$/MMBtu	LAUVD00	LAUVD03							155,000	180,000	USD	MMB
LNG US Gulf - W India Freight cost \$/MMBtu	LAUVC00	LAUVC03							155,000	180,000	USD	MMB
LNG US Gulf - W India Freight cost via Cape \$/MMBtu	LAUVP00	LAUVP03							155,000	180,000	USD	MMB
LNG US Gulf - W India Freight cost via Suez \$/MMBtu	LAUV000	LAUV003							155,000	180,000	USD	MMB
LNG Australia-Southwest Europe Freight cost \$/MMBtu	AAUSY00	AAUSY03							155,000	180,000	USD	MMB
LNG Middle East/Ain Sukhna Egypt Freight cost	LMEMM00	LMEMM03							155,000	180,000	USD	MMB
LNG Australia/Ain Sukhna Egypt Freight cost	LMEMN00	LMEMN03							155,000	180,000	USD	MMB
LNG Trinidad/Ain Sukhna Egypt Freight cost	LMEMP00	LMEMP03							155,000	180,000	USD	MMB
LNG Nigeria/Ain Sukhna Egypt Freight cost	LMEMQ00	LMEMQ03							155,000	180,000	USD	MMB
LNG Algeria/Ain Sukhna Egypt Freight cost	LMEMR00	LMEMR03							155,000	180,000	USD	MMB
LNG Belgium/Ain Sukhna Egypt Freight cost	LMEMS00	LMEMS03							155,000	180,000	USD	MMB
LNG Peru/Ain Sukhna Egypt Freight cost	LMEMT00	LMEMT03							155,000	180,000	USD	MMB
LNG Russia/Ain Sukhna Egypt Freight cost	LMEMU00	LMEMU03							155,000	180,000	USD	MMB
LNG Spain/Ain Sukhna Egypt Freight cost	LMEMV00	LMEMV03							155,000	180,000	USD	MMB
LNG Norway/Ain Sukhna Egypt Freight cost	LMEMW00	LMEMW03							155,000	180,000	USD	MMB
LNG US Gulf Coast/Ain Sukhna Egypt Freight cost	LMEMX00	LMEMX03							155,000	180,000	USD	MMB
LNG US Gulf Coast/Ain Sukhna Egypt Freight cost via Suez	LMEY000	LMEY003							155,000	180,000	USD	MMB
LNG US Gulf Coast/Ain Sukhna Egypt Freight cost via Cape	LMEZ000	LMEZ003							155,000	180,000	USD	MMB
LNG Trinidad-Japan/Korea (most economic) Freight Cost	AAUZZ00	AAUZZ03							155,000	180,000	USD	MMB
LNG Trinidad-Japan/Korea via Panama Canal Freight Cost	AAUXB00	AAUXB03							155,000	180,000	USD	MMB
LNG Trinidad-S China/Taiwan (most economic) Freight Cost	AAUZD00	AAUZD03							155,000	180,000	USD	MMB
LNG Trinidad-S China/Taiwan via Panama Canal Freight Cost	AAUZB00	AAUZB03							155,000	180,000	USD	MMB

Shipping Assessments

Platts shipping assessments and freight costs are published each business day and reflect market values prevailing at the close of markets, in the respective region (Singapore/UK/US). On certain days

ahead of a public holiday, such as Christmas Eve and New Year’s Eve, Platts may assess the market earlier than normal. This would typically be 12:30pm in Singapore and 12:00pm in London.

Prices are published in the following Platts services: Natural Gas Alert

VOYAGE TIMES IN DAYS

	Japan/Korea	SChina/ Taiwan	West India	Southwest Europe	Northwest Europe	Northeast US	Argentina	Brazil	Egypt
Middle East	15	13	3	13*	16*	22*	21	24	8
Australia	8	7	9	21*	24*	29	21	25	15
Trinidad	33*	31*	22*	9	9	5	11	7	14*
Trinidad (via Panama Canal)	22**	27**							
Trinidad (most economic)	lower of above 2								
Nigeria	26	23	17	9	10	13	11	9	14*
Algeria	24*	22*	13*	1	4	9	14	12	5*
Belgium	28*	25*	16*	3	N/A	8	16	14	8*
Peru	21	24	27	23	24	24	9	14	29
Russia	3	5	15	27*	29*	35*	27	37	21
Spain	25*	22*	14*	N/A	3	7	14	11	5*
Norway	32*	28*	20*	6	3	9	19	18	12*
Sabine Pass (most economic)	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	12	12	N/A	17	13	
Sabine Pass (via Suez Canal)	36*	32*	24*	N/A	N/A	N/A	N/A	N/A	17*
Sabine Pass (via Cape)	38	35	31	N/A	N/A	N/A	N/A	N/A	31
Sabine Pass (via Panama Canal)	23**	28**	N/A	N/A	N/A	N/A	N/A	N/A	

* Route uses Suez canal, adds one day extra for shipping and 24 cents/MMBtu for canal fees

** Route uses Panama canal, adds 21 cents/MMBtu for canal fees

BUNKER FUEL BASES

	Japan/Korea	SChina/ Taiwan	West India	Southwest Europe	Northwest Europe	Northeast US	Argentina	Brazil	Egypt
Middle East	Fujairah	Fujairah	Fujairah	Fujairah	Fujairah	Fujairah	Fujairah	Fujairah	Fujairah
Australia	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore
Trinidad	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena
Trinidad (via Panama Canal)	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena
Trinidad (most economic)	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena	Cartagena
Nigeria	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas/Tenerife	Las Palmas
Algeria	Malta	Malta	Malta	Malta	Gibraltar	Gibraltar	Gibraltar	Gibraltar	Malta
Belgium	Antwerp	Antwerp	Antwerp	Antwerp	N/A	Antwerp	Antwerp	Antwerp	Antwerp
Peru	El Callao	El Callao	El Callao	El Callao	El Callao	El Callao	El Callao	El Callao	El Callao
Russia	Japan	Japan	Japan	Japan	Japan	Japan	Japan	Japan	Japan
Spain	Gibraltar	Gibraltar	Gibraltar	N/A	Gibraltar	Gibraltar	Gibraltar	Gibraltar	Gibraltar
Norway	Rotterdam	Rotterdam	Rotterdam	Rotterdam	Rotterdam	Rotterdam	Rotterdam	Rotterdam	Rotterdam
Sabine Pass (most economic)	Houston	Houston	Houston	Houston	Houston	N/A	Houston	Houston	Houston
Sabine Pass (via Suez Canal)	Houston	Houston	Houston	N/A	N/A	N/A	N/A	N/A	Houston
Sabine Pass (via Cape)	Houston	Houston	Houston	N/A	N/A	N/A	N/A	N/A	Houston
Sabine Pass (via Panama Canal)	Houston	Houston	N/A	N/A	N/A	N/A	N/A	N/A	Houston

(NGA), Platts LNG Daily, Platts Market Data and Platts LNG Navigator.

Platts Asia Pacific LNG Carrier Day Rates (APDR)

Platts launched on January 8, 2010, daily spot charter rate LNG carrier assessments under the benchmark name Asia Pacific LNG Day Rates (APDR).

Frequency: The APDR assessment is published each business day and reflects market values prevailing at the close of Asian markets, typically at 4:30 pm Singapore time.

The assessment is published following editorial engagement with ship owners, brokers, producers, consumers, traders and other active spot market participants.

Basis & Location: The day rate covers the daily cost of chartering a modern LNG vessel for a short (30- to 60-day) period. The rate covers carriers delivered in the Asia-Pacific region, without regional transfer costs. Fuel is assumed to be paid for by the charterer separately, and acquired on the open market. Carriers are assumed to be delivered cooled down. Ice class vessels will not be included for assessment.

Unit: All prices are quoted in US dollars per day (\$/day), to the nearest dollar.

Assessment: Platts publishes a single value indicating the price at which a ship can be chartered at the close of Asian markets, typically at 4:30 pm Singapore time. This assessed value is based on confirmed spot transactions, firm bids/offers, or in the absence of liquidity, where a spot transaction would have been concluded.

Volume: Standard carriers of 155,000-180,000 cu m. Larger Qatari Q-Flex (from 210,000 cu m) and Q-Max (from 260,000 cu m) carriers will not be assessed directly in the APDR, though they may be normalized to standard volume of 165,000 cu m.

Timing: Carriers for loading 25-45 days out from the date of assessment. For instance, on March 1, Platts would assess carriers loading between March 26 and April 15.

Platts Atlantic LNG Carrier Day Rates (ATDR)

Platts launched on June 28, 2010, daily spot charter LNG carrier assessments under the benchmark name Atlantic LNG Day Rates (ATDR).

Frequency: The ATDR assessment is published each business day and reflects market values prevailing at the close of European markets, typically at 4:30 pm London time.

The assessment is published following direct contact with ship owners, brokers, producers, consumers, traders and other active spot market participants.

Basis & Location: The day rate covers the daily cost of chartering a modern LNG vessel for a short (30- to 60-day) period. The rate covers carriers delivered in the Atlantic region, without regional transfer costs. Fuel is assumed to be paid for by the charterer separately, and acquired on the open market. Carriers are assumed to be delivered cooled down. Ice class vessels will not be included for assessment.

Timing: Carriers for loading 25–45 days out from the date of assessment. For instance, on July 1, Platts would assess carriers loading between July 26 and August 15.

Unit: All prices are quoted in US dollars per day (\$/day), to the nearest dollar.

Assessment: Platts publishes a single value indicating the price at which a ship can be chartered at the close of European markets, typically at 4:30 pm London time. This assessed value is based on confirmed spot transactions, firm bids/offers, or in the absence of liquidity, where a spot transaction would have been concluded.

Volume: Standard carriers of 155,000–180,000 cu m. Larger Qatari Q-Flex (from 210,000 cu m) and Q-Max (from 260,000 cu m) carriers

will not be assessed directly in the ATDR, though they may be normalized to a standard volume of 165,000 cu m.

Platts LNG global freight costs

Platts launched on January 17, 2011, daily LNG freight cost assessments for 55 routes. Additional routes were added on 2 January, 2015 to reflect loading from Spain and Norway and delivery to Brazil.

Additional routes were added on 16 June, 2016 to reflect loading from the US Gulf.

Additional routes were added on 1 June, 2017 to reflect loading from Trinidad.

Frequency: Platts LNG Freight Costs are published each business day and reflect market values prevailing during the day. On Singapore public holidays, no routes east of the Suez Canal will be published. On UK public holidays, no routes west of the Suez Canal will be published. On US public holidays, no routes to or from the Americas will be published.

Unit: All prices are quoted in US dollars per million British Thermal Units (\$/MMBtu) to two decimal places.

Quality: Price assessments reflect lean and rich gas.

Volume: Standard cargoes of 155,000–180,000 cu m normalized to a standard volume of 165,000 cu m.

Timing: Freight costs are calculated using spot cargo prices, spot vessel prices and spot bunker fuel prices, generally indicating a value for a voyage taken for delivery in the prompt calendar month. Due to differing roll dates, the prompt month may vary between markets.

Location: Loading in: Middle East (Ras Laffan); Australia (Dampier); Trinidad and Tobago (Point Fortin); Nigeria (Bonny Island); Algeria (Arzew); Belgium (Zeebrugge); Peru (Pampa Melchorita); Spain (Huelva); Norway (Hammerfest), Russia (Sakhalin) and US Gulf (Sabine Pass).

Delivery Points: Japan/Korea (Futtsu); South China/Taiwan (Guangdong Dapeng); West India (Dahej); Southwest Europe (Huelva); Northwest Europe (Zeebrugge); Northeast US (Everett); Brazil (Salvador Bahia); Argentina (Bahia Blanca) and Egypt (Ain Sukhana).

Assessment: Platts publishes a single value indicating the implied cost of a voyage. This value is based on applying the relevant freight rate to the base price point (eg, Japan Korea Marker), using Platts Asia Pacific LNG Day Rates (APDR) or Atlantic LNG Day Rates (ATDR), a boil-off rate of 0.12%/day while laden, a boil-off rate of 0.09% while on ballast, a 98.5% fillable volume, bunker oil consumption rate of 100 mt/day fuel oil-equivalent (100 mt/day requirement minus fuel oil-equivalent volume from natural gas boil-off, using the nearest applicable Platts bunker oil assessment), relevant voyage times, with heel calculated as 0.09% natural boil-off while on ballast, multiplied by the number of days of the return leg plus 36 hours. The voyage timing assumes an average speed of 17 knots.

Calculation: Cost of charter for the entire voyage, accounting for a round-trip and a three-day loading/discharging time, and dividing that cost by the total delivered cargo in MMBtu; the cost of boil-off by multiplying the volume lost by the delivered price, divided by the delivered cargo size in MMBtu; the consumption rate of bunker oil required is 100 mt/day minus the bunker fuel-equivalent volume of the boil-off gas; the cost of bunker oil by multiplying the Platts bunker fuel assessment in \$/mt by the consumption rate. The delivered cargo size is calculated by multiplying the vessel cargo size of 165,000 cu m by a fillable volume of 98.5%, minus the volume of boil-off from the combined laden and ballast legs of the journey, including the three-day loading/discharging time.

LNG COMPETING FUELS ASSESSMENTS

Assessment	Symbol	Mavg	Wavg	Rolling Mavg	Contract Type	Contract Basis	Location	Delivery Period	Minimum size	Max.size	Currency	UOM
UK NBP Gas \$/MMBtu	LNCVM01				Futures		NBP	Front month			USD	MMB
Naphtha CFR Japan \$/MMBtu	LNPJ00				Conversion		Japan	Front month			USD	MMB
LSWR Mxd/Ckd FOB Spore \$/MMBtu	LPAPU00				Conversion		Singapore	Front month			USD	MMB
ARA Coal \$/MMBtu	LSABG00				Conversion		ARA	Front month			USD	MMB
NEAT Coal Index \$/MMBtu	JKTCB00				Conversion		Japan, South Korea and Taiwan	15-60 day forward			USD	MMB
FO 180 FOB Spore \$/MMBtu	LUADW00				Conversion		Singapore	Front month			USD	MMB
New York Harbor 1.0 FO \$/MMBtu	LUAXD00				Conversion		New York Harbor	Front month			USD	MMB
US Gulf Coast 3% FuelOil \$/MMBtu	LUAXJ00				Conversion		US Gulf Coast	Front month			USD	MMB
Singapore Fuel Oil \$/MMBtu	LUAXZ00				Conversion		Singapore	Front month			USD	MMB
NorthWest Europe FO \$/MMBtu	LAEGR00				Conversion		Northwest Europe	Front month			USD	MMB
Jpn JCC LNG Imp Est CIF \$/MMbtu	LAKPM00				Conversion		Japan				USD	MMB
Jpn JCC LNG Imp Fin CIF \$/MMbtu	LAKPN00				Conversion		Japan				USD	MMB
Minas FOB Indonesia Crude oil \$/MMBtu	LCAB000				Conversion		Indonesia	Front month			USD	MMB

Conversion rates

Platts publishes a list of competing fuel prices daily in \$/MMBtu. The prices of competing oil and thermal coal assessments are converted from US dollars per barrel and US dollars per metric ton to US dollars per MMBtu using the conversions listed below. The conversion factors reflect those typically applied throughout the industry.

- Dated Brent and Asian Dated Brent price assessments are converted by using 5.8 MMBtu per barrel.
- Minas crude oil assessments are converted by using 5.9 MMBtu per barrel.
- LSWR Mixed/Cracked FOB Indonesia assessments are converted by using 5.5 MMBtu per barrel.
- The factor applied to the fuel oil 2% sulfur 180 CST FOB Singapore assessment to convert from dollars per metric ton to dollars per MMBtu is 39.7.
- The factor applied to the naphtha CFR Japan assessment to convert from dollars per metric ton to dollars per MMBtu is 46.8.
- The factor applied to the Northwest Europe fuel oil assessment to convert from dollars per metric ton to dollars per MMBtu is 39.7.
- The factor applied to the US West Coast 1% and 0.5% fuel oil, US Gulf Coast 3% fuel oil and New York Harbor 1% Sulfur fuel oil assessments to convert from dollars per barrel to dollars per MMBtu is 6.25.
- The factor applied to the Northeast Asia Thermal Coal price index (NEAT Coal Index) (5,750 kcal/kg NAR) is 23.705053 and CIF ARA coal (6,000 kcal/kg NAR) assessments to convert from dollar per metric ton to MMBtu is 24.294692.

REVISION HISTORY

November 2017: Platts updates JKM™ quality specifics as LNG spot pricing becomes more precise.

October 2017: Platts expanded the JKM™ swaps curve assessment to include a new calendar year period.

September 2017: Platts amended Panama Canal transit cost from \$0.18/MMBtu to \$0.21/MMBtu on September 18.

August 2017: Platts completed an annual update to the LNG Methodology and Specifications guide in August 2017. In this update, Platts reviewed all content. In this edition, Platts made minor edits throughout.

June 2017: Platts launched five half-month assessments for the DES West India assessment. Platts launched new freight route costs from Trinidad to North Asia using Panama Canal.

February 2017: Platts launched new freight route costs to the Egyptian port of Ain Sukhna from loading ports in the existing freight route cost table.

January 2017: Platts launched the DES Middle East Marker and corresponding comparisons. Platts also replaced the Qinhuangdao coal price with the Northeast Asia Thermal Coal price index, or NEAT Coal Index (\$/MMBtu conversion).

November 2016: Platts launched monthly averages and cumulative monthly averages for JKM™, JKM™JPY conversions, NWE, SWE,

EAM, West India and GCM markers. JKM™ swaps curve assessment expanded to include two new quarter periods.

October 2016: Platts introduces new assessment of currency conversion for JKM™, assessment to Jpy/MMBtu.

September 2016: Platts completed an annual update to the LNG Methodology and Specifications guide in September 2016. In this update, Platts reviewed all content. In this edition, Platts made minor edits throughout.

August 2016: Platts corrects printing errors in the LNG Methodology and Specifications Guide relating to the freight routes going to Japan/Korea. These were wrongly printed S China/Taiwan; Platts added symbol AAUSY00 for the route Australia>Southwest Europe that was previously missing; clarified Sabine Pass>West India freight

July 2016: Platts clarifies LNG freight route costs following a printing error in the LNG Methodology and Specifications Guide relating to the voyage times for two freight routes. The routes are Sabine Pass to Argentina and Sabine Pass to Brazil.

July 2016: Platts added new freight routes via the Panama Canal.

June 2016: Platts introduced the Gulf Coast marker and corresponding fuel comparisons and added new freight routes loading from US Gulf.

January 2016: Platts revised its shipping assumptions and netback calculations methodology to reflect newer spot tonnage and provide more specificity regarding routes.

October 2015: Platts introduced the DES Brazil netforward and changed its basis port for Brazil from Pecem to Bahia de Salvador. A number of price comparisons against the DES Brazil netforward were also launched.

February 2015: This methodology guide was updated to include further description of Platts' processes and practices in survey assessment environments.

January 2015: Platts introduced the East Atlantic Marker (EAM), marker for FOB cargoes lifted from ports along the East Atlantic. Additions to the global freight costs table were made in light of the launch of the EAM. Rotterdam was added as a bunker port to accommodate the addition of Norway as an export destination. Brazil as an import destination was also included within the global freight cost matrix.

November 2014: Platts revamped all LNG Methodology And Specifications Guides, including this guide in November 2014. This revamp was completed to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.

August 2012: Platts changed the FOB Middle East (FOB ME) quote to a netback calculation. This was clarified in the methodology guide in October 2015.

June 2012: Platts launched daily Asian LNG swaps assessments.