Platts
S&P Global
Commodity Insights

Methodology and Specifications Guide
Global M2M LNG Forward Curves

Latest update: June 2024

Scope

This document describes the algorithms used to quantitatively estimate a market-reflective forward curve for the Japan/Korea Marker (JKM), West India Marker (WIM) and Gulf Coast Marker (GCM) past the end of the editorially assessed periods (currently the third forward year for JKM and WIM, and Month-1 for GCM) and provide a monthly curve shape in the periods that do not have monthly editorial assessments (currently the balance of the forward quarter, the second forward quarter, the first forward season, the second forward season and the three forward years for JKM and WIM).

JKM forward curve

The JKM market is highly dynamic in terms of its fundamental drivers. Being a waterborne market, the suppliers are not fixed in geography or volume, and with growing demand, it is exerting a giant pulling force on every gas market that is connected to the water.

Assumptions and curve modeling

In the short-term, there are market assessed values for JKM – those prices are maintained, with only adjustments for seasonality. For the longer term, other driving markets are used to model the price level. The current model separates the determination of overall price level and seasonality. First, the general trend level of prices at any point is determined, then seasonality is applied to those levels.

Curve level determination

The overall trend level is determined by the 12-month centered moving average of prices. At the front of the curve until the end of the assessed period, the editorially assessed JKM value determines the price level. After this, a sigmoid-shaped transition over to the modelled long-term price level is implemented. The long-term price level model assumes that the main two driving markets for LNG price movements are natural gas and oil:

Natural Gas: The two largest consumers of LNG are the Japan area and Northwest Europe, and so, the model assumes that players will send their gas to the market with the best netback. A European netback assessment is considered using TTF forward prices and Platts' assessed shipping rates between northwest Europe and the Mideast, and between the Mideast and JKM. This establishes a floor for prices in the JKM region from TTF i.e. If JKM consumers bid any lower than that floor, they will lose cargos to Europe.

Oil: Most consuming markets in the JKM region have oil/gas switching capability, and prior to the rise of the merchant LNG supplier and gas-on-gas competition in JKM, most contracts were executed on a slope to oil, customarily Brent. This dynamic persists in the region, though not as strongly as previously. The model considers the slope to Brent as a general driver to the long-term price and ceiling to the long-term price.

Seasonality

Seasonality can be defined as the ratio between the price in a market and the average price, and that is what is used. The JKM market exhibits seasonality similar to TTF and hence TTF seasonality is implemented in the model.

JKM expiry and front month

The model accounts for the fact that JKM, Brent, and TTF have different front months and expiry days. In addition, the JKM forward curve expires on 15th of each month. For example, on September 15th, JKM Mo01 is November. On the September 16th it rolls over so that JKM Mo01 is December.

Symbols

The following symbols can be used to return a single price assessment.

JKM at Singapore Close

MDC	Assessment type	Relative / Absolute	Symbol	Suffix	Symbol Description
DLF	Market based[1]	Relative Months	LJKMO01 LJKMO02 LJKMO03 LJKQR01 LJKQR02 LJKSN01 LJKSN02 LJKYR01 LJKYR02 LJKYR03	N/A	LNG Japan/Korea swap $/Mmbtu Mo01 LNG Japan/Korea swap $/Mmbtu Mo02 LNG Japan/Korea swap $/Mmbtu Mo03 LNG Japan/Korea swap $/Mmbtu Qr01 LNG Japan/Korea swap $/Mmbtu Qr02 LNG Japan/Korea swap $/Mmbtu Sn01 LNG Japan/Korea swap $/Mmbtu Sn02 LNG Japan/Korea swap $/Mmbtu Cal Yr01 LNG Japan/Korea swap $/Mmbtu Cal Yr02 LNG Japan/Korea swap $/Mmbtu Cal Yr03
DLF	M2M model	Relative Months	QJKMOxx	[*xx* = 04 – 99]	LNG Japan/Korea M2M Financial $/Mmbtu Moxx [xx = 04 – 99]
DLF	M2M model	Relative Months	QJKMxxx	[xxx=100-240]	LNG Japan/Korea M2M Financial $/Mmbtu Moxx [xxx = 100 – 240]
DLF	M2M model	Absolute months	QJKMxyy	x is the code month yy is the code year	LNG Japan/Korea M2M Financial $/Mmbtu mmm-yy Code – Month: F - Jan, G - Feb, H - Mar, J - Apr, K - May, M - Jun, N - Jul, Q - Aug, U - Sep, V - Oct, X - Nov, Z - Dec

1 This is for information only. This document does not describe methodology of symbols that belong to Editorial Assessments

JKM at London Close

MDC	Assessment type	Relative / Absolute	Symbol	Suffix	Symbol Description
DLF	Market based†	Relative Months	JKLMO01 JKLMO02 JKLMO03 JKLMO04 JKLMO05 JKLMO06 JKLMO07 JKLMO08 JKLMO09 JKLMO10 JKLQR01 JKLQR02 JKLSN01 JKLSN02 JKLYR01 JKLYR02 JKLYR03	N/A	LNG Japan/Korea at London MOC $/Mmbtu Mo01 LNG Japan/Korea at London MOC $/Mmbtu Mo02 LNG Japan/Korea at London MOC $/Mmbtu Mo03 LNG Japan/Korea at London MOC $/Mmbtu Mo04 LNG Japan/Korea at London MOC $/Mmbtu Mo05 LNG Japan/Korea at London MOC $/Mmbtu Mo06 LNG Japan/Korea at London MOC $/Mmbtu Mo07 LNG Japan/Korea at London MOC $/Mmbtu Mo08 LNG Japan/Korea at London MOC $/Mmbtu Mo09 LNG Japan/Korea at London MOC $/Mmbtu Mo10 LNG Japan/Korea at London MOC $/Mmbtu Qr01 LNG Japan/Korea at London MOC $/Mmbtu Qr02 LNG Japan/Korea at London MOC $/Mmbtu Sn01 LNG Japan/Korea at London MOC $/Mmbtu Sn02 LNG Japan/Korea at London MOC $/Mmbtu Cal Yr01 LNG Japan/Korea at London MOC $/Mmbtu Cal Yr02 LNG Japan/Korea at London MOC $/Mmbtu Cal Yr03
DLF	M2M model	Relative Months	QJKLOxx	[*xx* = 04 – 99]	LNG Japan/Korea M2M at London MOC Financial $/Mmbtu Moxx [xx = 04 – 99]
DLF	M2M model	Relative Months	QJKLxxx	[xxx=100-240]	LNG Japan/Korea M2M at London MOC Financial $/Mmbtu Moxx [xxx = 100 – 240]
DLF	M2M model	Absolute months	QJKLxyy	x is the code month yy is the code year	LNG Japan/Korea M2M at London MOC Financial $/Mmbtu mmm-yy Code – Month: F - Jan, G - Feb, H - Mar, J - Apr, K - May, M - Jun, N - Jul, Q - Aug, U - Sep, V - Oct, X - Nov, Z - Dec

WIM forward curve

The main driving market for WIM price movements is the JKM, the two markets are highly correlated—although both have their own distinct demand and supply fundamentals. One notable difference is that WIM winter demand is lower than the JKM market, meaning a reduced summer/winter spread is observed. This is accounted for in the model.

Assumptions and curve modeling

In the short-term, there are market assessed values for WIM – those prices are maintained, with only adjustments for seasonality. For the longer term, other driving markets are used to model the price level. The current model separates the determination of overall price level and seasonality. First, the general trend level of prices at any point is determined, then seasonality is applied to those levels.

Curve level determination

The overall trend level is determined by the 12-month centered moving average of prices. At the front of the curve until the end of the assessed period, the editorially assessed JKM value determines the price level. After this, a sigmoid-shaped transition over to the modelled long-term price level, which follows the JKM Long term price trend.

Seasonality

Seasonality can be defined as the ratio between the price in a market and the average price, and that is what we use. Increasingly, the WIM market exhibits seasonality similar to JKM, however, there is a reduced variance in seasonality due to WIM winter demand being lower than the JKM market, so the summer/winter spread is modelled as less for WIM than JKM.

WIM expiry and front month

The WIM forward curve expires on 15th of each month. The valuation periods match the JKM valuation periods.

WIM symbols

The following symbols can be used to return a single price assessment.

MDC	Assessment type	Relative / Absolute	Symbol	Suffix	Symbol Description
DLF	Market based†	Relative Months	MIRMO01 MIRMO02 MIRMO03 MIRMq01 MIRMq02 MIRSN01 MIRSN02 MIRMy01 MIRMy02 MIRMy03	N/A	LNG Japan/Korea swap $/Mmbtu Mo01 LNG Japan/Korea swap $/Mmbtu Mo02 LNG Japan/Korea swap $/Mmbtu Mo03 LNG Japan/Korea swap $/Mmbtu Qr01 LNG Japan/Korea swap $/Mmbtu Qr02 LNG Japan/Korea swap $/Mmbtu Sn01 LNG Japan/Korea swap $/Mmbtu Sn02 LNG Japan/Korea swap $/Mmbtu Cal Yr01 LNG Japan/Korea swap $/Mmbtu Cal Yr02 LNG Japan/Korea swap $/Mmbtu Cal Yr03
DLF	M2M model	Relative Months	QWIMOxx	[*xx* = 04 – 72]	LNG Japan/Korea M2M Financial $/Mmbtu Moxx [xx = 04 – 72]
DLF	M2M model	Absolute months	QWIMxyy	x is the code month yy is the code year	LNG Japan/Korea M2M Financial $/Mmbtu mmm-yy Code – Month: F - Jan, G - Feb, H - Mar, J - Apr, K - May, M - Jun, N - Jul, Q - Aug, U - Sep, V - Oct, X - Nov, Z - Dec

GCM forward curve

Whilst the LNG FOB Gulf Coast Spot cargos are actively trading, and hence editorially assessed, there is not currently an active US LNG derivatives market to help us to evaluate our USGC LNG forward price assessments. Due to the level of LNG being exported by the US, the FOB rate of Henry Hub plus approximate liquefaction charges is clearly an insufficient representation of the current market value of LNG originating on the USGC. Therefore, we use a destination minus freight, best-netback model to represent the value of the LNG in the USGC.

Assumptions and curve modeling

There are three major markets that will form the bulk of the destinations for USGC cargos for the foreseeable future: Japan area, Northwest Europe, and Latin America. Unfortunately, there are no forward markets to give us price signals in Latin America, so we must rely on the other two markets for sufficient pricing.

Specifically, the LNG Gulf Coast Marker Quantitative Forward Curve is computed as highest netback value (destination LNG minus freight costs) of the Gas forward curves below, and calculated freight rates.

Route	Freight Forward curve	Destination LNG curve
USGC-Japan	Sabine to Japan via Best Route	JKM Swap
USGC-NWE	Sabine to NWE	DES NWE Swap

Where the Best Route is the minimum shipping cost via the Panama Canal, the Suez Canal and Cape Horn.

Freight model

Each freight forward curve uses Platts' assessed values for shipping for each of the noted routes.

Destination LNG curves

Platts publishes a JKM Swap quantitative forward curve, described above. For DES NWE, Platts publishes 11 months forward of editorial assessments this is extended using TTF plus a liquefaction constant. These curves are used as input to compute the highest netback forward value.

GCM expiry and front month

The LNG GCM forward curve expires on the last business day of the month. The published front month corresponds to the month following the valuation date. For example, on September 20th, Mo01 is October.

GCM symbols

The following symbols can be used to return a single price assessment.

MDC	Relative / Absolute	Symbol	Suffix	Symbol Description
DLF	Relative Months	QGCSMxx	[*xx* = 01 – 48]	LNG FOB Gulf Coast Cargo $/Mmbtu Moxx [xx = 01 – 48]
DLF	Absolute months	QGCMxyy	x is the code month yy is the code year	LNG FOB Gulf Coast Cargo $/Mmbtu mmm-yy Code – Month: F - Jan, G - Feb, H - Mar, J - Apr, K - May, M - Jun, N - Jul, Q - Aug, U - Sep, V - Oct, X - Nov, Z - Dec

Curve codes

For completeness' sake, all curves available as part of LNG Risk Market Data are included. This includes the editorially assessed market-based curves, for which the methodology is not described in this document.

Curve	Curve code
LNG DES NWE Financial $/MMBtu	CN3CM
LNG DES NWE Financial Spread $/MMBtu	CN3CO
LNG DES NWE Financial vs Dutch TTF $/MMBtu	CN3CN
LNG FOB USGC Cargo Financial Abs	CN0NT
LNG FOB USGC Cargo Financial Rel	CN06I
LNG Japan/Korea at London MOC Financial Abs	CN1BZ
LNG Japan/Korea at London MOC Financial Rel	CN06K
LNG Japan/Korea Financial Abs	CN0NU
LNG Japan/Korea Financial Rel	CN06J
LNG JKM Financial vs DES NWE Financial $/MMBtu	CN3DI
LNG JKM Tokyo Baseload Spark Spread $/MMBtu	CN3E0
LNG JKM Tokyo Baseload Spark Spread Yen/kWh	CN3EN
LNG West India Financial Abs	CN2VE
LNG West India Financial Rel	CN2VD

Revision history

June 2024: General review. Add WIM and curve codes table

Mar 2022: Extended JKM curve to 240 months

May 2020: For JKM, added new assessments, changed long term trend methodology, extended curve to 72 months

January 2020: Renamed the guide to make a clear distinction between the methodology underpinning assessed curves and assessments versus quantitatively modelled curves

Aug 2019: Minor edits, clarifications.

Mar 2019: Added scope to make clear that this describes quantitative curves only. Minor edits.

Feb 2019: JKM complete rewrite to accommodate new, simplified methodology. GCM explanation edits, no changes to model.

July 2018: Add GCM methodology