



Platts Oil Pricing and MOC Methodology Explained

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WHAT IS PLATTS' ROLE IN OIL PRICING?

Platts is a publisher of specialized information on energy and other commodity markets, and helps those markets function with greater transparency and efficiency.

Platts observes market activity and assesses the value of commodities based on strict and publicly available methodologies. With a century of experience and more than 250 experienced market editors positioned in locations in North America, Europe, the Middle East and Asia, Platts has earned a reputation as the industry's most reliable source of pricing benchmarks, market news and analytical information. The prices published by Platts are respected by the market and referenced globally as benchmarks for contract settlement in both physical and financial markets, including crude oil, refined products, petrochemicals and related derivatives.

As a publisher owned by The McGraw-Hill Companies, Platts conducts its editorial and market assessment activities with complete independence and impartiality. Platts has no financial interest in the price of the commodities on which it reports. Platts price-assessment systems have been developed over many decades, are fully open to public view and are overseen by a compliance group independent of the editorial staff. Platts takes very seriously its efforts to maintain the integrity of its pricing methods and to publish price data that reflect market values.

HOW ARE PLATTS' OIL PRICES USED?

Platts daily spot price assessments are used in a variety of ways: (1) for the settlement of floating price deals; (2) under long-term contracts; (3) on a spot basis; (4) for the settlement of derivatives contracts such as swaps; and (5) by futures exchanges. Platts assessments also are used to monitor trader performance, to quantify financially the value of oils transferred from the upstream production departments to the refinery side of the business and then for the transfer to the traders supplying the marketplace. The assessments also are used in decision-making by refiners, for instance in deciding whether to maximize jet fuel production or to minimize diesel fuel, or whether to shut down a refinery altogether.

Platts assessments also are used in long-term financing deals to provide the basis to determine profitability and cost in multi-year projects, including drilling and pipeline projects.

The extent of the usage of Platts prices in spot and term deals, and in derivatives settlements, is very large and a multiple of the world's daily crude oil and refined product output.

Where the price of physical oil is based on Platts assessments, almost invariably the related swaps are also priced out against Platts assessments of the underlying spot market. This is because of the need for convergence between the physical market value and the value at which the swap is settled. Without this linkage, a hedger faces basis risk. If a commodity is sold on a basis other than Platts prices, the related derivative instrument would typically use that basis rather than a Platts assessment.

WHAT IS PLATTS' ROLE IN RELATION TO THE PRICING OF CRUDE OIL?

Since the switch to market-related pricing in the mid 1980s, crude oil pricing has been focused around three key benchmark grades: Dubai for oil moving from the Middle East into Asia; North Sea Brent crude oil for a wide swath of oil from Europe or bound for Europe; and West Texas Intermediate (WTI), for deliveries into and within the Americas. Platts' Dated Brent assessment is believed to be the most widely used international physical oil pricing benchmark. Crude oil produced in Canada, Africa, the North Sea, the Middle East, Russia, central Asia and oils delivered to China, Japan and Korea all reference the Platts Dated Brent assessment. According to industry estimates, Platts' Dated Brent assessment is used to price up to 70% of the crude oil produced worldwide.

Platts recognizes the important role it plays in the marketplace and has continued to evolve and fine-tune its assessment methodologies to reflect changes in the marketplace. Over the years, Platts has made well publicized changes to its assessment methodologies for the key global benchmark crudes, including allowing alternative delivery of other crudes as production volumes of the core benchmarks have declined. For instance, Platts in 2001 introduced Oman and in 2006 added Upper Zakum as alternative delivery grades for Dubai. Separately, in 2002 Platts broadened its definition of Brent crude oil to include Forties and Oseberg as alternative delivery grades, and Ekofisk was added in 2007. The need for alternative delivery grades resulted from declining production of the core benchmark grades.

Platts aims for its methodologies to reflect changes in fundamentals such as crude production or regulatory changes governing product qualities. Its methodologies at times are emulated or adopted by other publishers, with recent examples being adoption of “window” processes in Europe by other publishers and adoption of Platts’ wider definition of Dated Brent by at least one competitor on the exact date of launch announced by Platts.

In the Americas, Platts’ physical crude oil assessments are still widely used by the industry, but the “flat” price formation is originated by the New York Mercantile Exchange (NYMEX). The highly liquid sweet crude futures contract traded on NYMEX provides a visible real-time reference price for the market. In the spot market, therefore, negotiations for physical oils will typically use NYMEX as a reference point, with bids/offers and deals expressed as a differential to the futures price. Using these differentials, Platts makes daily and in some cases intra-day assessments of the price for various physical grades of crude oil, which may be referenced in other spot, term or derivatives deals.

For example, Platts’ American benchmarks are in turn used to price crude oils from Canada and South America, although some are also based on Dated Brent. The multi-faceted complexities of the physical market result in a diversity of pricing mechanisms, as individual buyers and sellers are free to make decisions about the mechanisms they individually employ. Therefore, while NYMEX acts as a barometer of market value, and negotiations for physical oil may reference the futures value, Platts plays a distinct and complementary role to that of the exchange.

WHAT IS THE PLATTS MARKET-ON-CLOSE (MOC) ASSESSMENT PROCESS?

Platts’ Market on Close (MOC) is a price-discovery system designed to yield a price assessment reflective of market values at the close of the typical trading day. Systems of similar nature are very common, with variants seen in the futures markets where the energy and financial exchanges publish daily settlement prices reflective of activity at the close of markets. The MOC process is a very structured system for information gathering that allows transparent and fully verifiable market information to form the basis of the daily price assessment.

MOC is a time-tested method for deriving price benchmarks that reflect market value and Platts has provided these benchmarks to global oil markets across Asia, Europe, the Middle East and Africa for more than a decade.

The MOC pricing system recognizes as a core principle that price is a function of time and MOC enables Platts to have full clarity on the price at the close of business. Because price is a function of time, market assessments reflect values at a defined point in time, allowing both outright and spread values to be properly reflected.

MOC guidelines are designed to avoid distortion of the final assessments by eliminating inputs that are not verifiable, and by disregarding one-offs or unrepeatable transactions, or those that may distort the true market level. Transactions between related parties are, for instance, not considered in the assessment process. Secondary checks are carried out occasionally, in which Platts will request documentation for deals done, which may include contract documentation, and other supporting materials such as loading and inspection documents; if this is not forthcoming, it raises questions about that company’s reliability as a data source, and can result in Platts disregarding that data. The reliability of data is essential to any valid market pricing methodology and Platts does not hesitate to remove market participants from the MOC price formation process when the veracity of data is in doubt.

MOC maintains a robust and structured system that uses only data that Platts editors deem reliable in the assessment process. Rather than taking price information on trust, Platts will consider companies’ information only if the bids and offers are made public, and in real time with full transparency. Companies are named and all the details of their positions are fully available to the view of the entire market. The bids are firm and open to the market at large.

Market participants are expected to perform on any stated position in the MOC process. Time cut-offs for the entry of new bids and offers are applied so that market participants cannot bid or offer late in the process in a way that would not be logistically executable. There are also strict standards defining the increment levels for each bid or offer to ensure orderly price formation, to avoid a scenario in which a market might be “gapped” higher or lower. This system works well across markets, whether they are liquid or illiquid, whether they are commoditized or non-commoditized.

HOW DOES MOC ACTUALLY WORK IN REAL LIFE?

The MOC process is designed so that the published price reflects the market value. Below is a sample of how this process works:

- In a real-life example, a gasoline seller might believe the market value of gasoline to be high and a buyer might believe it to be low. Let's call the seller X and the buyer Y.
- Platts seeks to gauge the true value of gasoline.
- In the MOC process, X might offer to sell at 154.25 cents per gallon (cts/gal) and Y might bid to buy at 152.75 cts/gal.
- X and Y communicate their bids/offers to a Platts market editor. Communication may be via an instant message to a Platts market reporter, who inputs the information internally, or via Platts' electronic eWindow communication tool enabling market participants to input data directly. In either instance, the information is delivered back to the market at large in real time through the Platts Global Alert electronic service.
- Platts at this stage can assess market value between 152.75 and 154.25 cts/gal.
- X and Y can change the price at which they are bidding and offering by small reasonable increments, and each of these price changes is published on the real-time screen as a price alert headline.
- As offers and bids become sharper, as in any negotiation, the strength of each party will determine who acts first, both knowing that other market participants could intervene with a bid or an offer.
- X may gradually move its offer down to 153.00 cts/gal while Y does not budge, and X may eventually sell at 152.75 cts/gal.
- This process gives a very detailed information trail to Platts, and the assessment derived from it is not an opinion that X is right or that Y is right, but a reflection of the fact that either party would be expected to complete a transaction if its counterparty or another market participant met a bid or an offer.
- It is possible that both parties may not trade at all but only remain bidding 152.75 cts/gal and offering at 153.00 cts/gal, in which case the assessment will consider the bid and offer in its assessment process and an assessment will be made based on the factual market data.

- It is important to note that Platts has very strict systems and disregards market gapping activity in its assessments. If, for instance, a market participant were to want to overpay or undersell, by lifting high and unreasonable offers or selling into low and unreasonable bids, such activity would be disregarded. In these cases, the transactions would be ignored and the assessment would take into account the last relevant bid and offer, with an editorial assessment made of value, but the last trade would not be considered to be of value.

WHAT IS THE PLATTS "WINDOW"?

In the oil market, Platts takes into account market information gathered throughout the normal trading day. Platts considers in its assessment process market information including bids, offers and transactions. Bids and offers must be submitted early, ranging from 10 to 60 minutes prior to the close, to ensure that the bids and offers are widely seen and are properly analyzed for logistical and performance issues. Last-minute bids/offers that cannot be logistically executed are excluded from the assessment process. The period when new bids and offers are no longer accepted is what the industry calls the Platts window.

Some observers think erroneously that Platts only assesses the market in the "window." Some also think that Platts only processes new bids and offers in the window. In fact, the opposite is the case. The "window" represents the period of time when new bids and offers are no longer accepted in the assessment process. Bids, offers and transactions may be reported at any time and are reported before the window. The "window" is just a part of the larger "assessment process" that Platts uses to track markets through the day. Platts surveys the market throughout the trading day, including during the last half hour of trading activity, to arrive at its price assessment. Full details of the editorial processes relating to Platts Market on Close assessment are available on the Platts website, www.platts.com.

Platts time stamps the assessment because prices and the value relationships among commodities change constantly with time. If Platts were to assess different commodities at different points in the day, the result would be skewed relationships between commodities. This is also the problem with trade-weighted averages, as these can be skewed if trade in different commodities is spread unevenly over the day. This results in erroneous data such as inverted product values, incorrect product-to-crude spreads and staleprice arbitrage.

If time factors are not evaluated properly, the actual price relationship between commodities may be distorted by publishing old and new prices side by side. The MOC process enables Platts and its subscribers to properly see the ranking of one commodity relative to another by aligning prices at a specified point in time.

DOES PLATTS SET REQUIREMENTS FOR PARTICIPATION IN THE MOC WINDOW PROCESS?

Market inputs from reputable companies with solid performance records and the proven ability to handle logistics are recognized as valid entries for the MOC assessment process. Submission of trading positions can take place via phone, squawk box, instant messenger services such as Yahoo IM, or Platts' eWindow communications tool. All trading positions are firm and fully executable between non-affiliated counterparties, unless a bid or offer is withdrawn prior to being challenged by another principal. The progression of market activity can be viewed by customers of Platts Global Alert via transaction-monitoring pages such as PGA003, PGA005 and PGA190. At the end of trading activity, Platts' market editors analyze the information gathered to derive a time-specific assessment of market value. These assessments are delivered back to the market in a variety of Platts products.

DOES THE MARKET-ON-CLOSE METHOD WORK IN ILLIQUID MARKETS?

The Platts MOC system works well across markets, whether they are liquid or illiquid, whether they are commoditized or non-commoditized. In complex physical markets such as oil, Platts aligns the divergent and segmented market dimensions to those defined in the Platts assessment. This process is called normalization. Specification parameters are defined in Platts' specification guides, editorial guideline documents and subscriber notes, which are published on www.platts.com and in the individual Platts publications.

Physical markets are extremely complex and require an in-depth understanding of logistics, shipping, pipeline schedules, trade financing, payment processes, blending economics and all the support required before and after the trade. Platts excels in this area and its editors are routinely asked to provide seminars on pricing issues. A transaction or the price seen in a transaction needs to be carefully evaluated to understand its relevance, as prices are affected by qualities, volumes, location,

by technical "optionalities" in the contractual terms and/or by non-apparent restrictions. Platts is able to observe direct market activity or the effect of commonly traded commodities on illiquid commodities via spread differentials or via blending and shipping economics.

Platts has editorial protocols that filter out bids or offers that could result in price obscurity or illogical market behavior. The rules of incrementability and repeatability allow evaluation of whether bids/offers are typical and repeatable market values, or outliers designed to mask or obfuscate the market level.

Some market participants have asserted that MOC does not work well in highly liquid markets because there is too much data, or that MOC does not work well in illiquid markets because there is not enough data. Platts believes that having more rather than less market data is positive, and MOC has the added benefit of tending to concentrate liquidity into time frames at the close of the day. Markets in general naturally tend toward concentration mechanisms such as malls or market days or times of day to ensure that buyers and sellers can easily meet. MOC or windows are the modern-day equivalent of market days in an agrarian society. Sophisticated financial markets, including energy exchanges, also concentrate activity around the time of settlement. Some exchanges have settlement systems where they employ the equivalent of window processes lasting generally from one minute to 30 minutes.

PLATTS' PRICING METHODS ARE SOMETIMES CRITICIZED BY INDUSTRY PARTICIPANTS. WHY?

Platts has pioneered transparent price-reporting standards in commodities markets around the world, at times with the support of the industry and at other times without industry support. In the global oil markets, Platts has long held the view that a transparent and time-sensitive assessment process yields the most reliable results. Transparent disclosure of market information to support the robustness of a market assessment is not always welcomed. However, Platts' leadership in markets is not about relying on consensus but rather about committing to publish the best result.

The transparency that Platts brings to markets reflects how seriously it takes its role as a publisher of price assessments. Transparency does not just happen; it is the product of structured and analytical processes. Typically, companies recognize that transparency is in their long-term interest, even if in the short term there are groups of companies, and traders, who resist it.

Platts is not alone in providing information and transparency to markets. Large news agencies as well as specialist price reporting services exist that compete with Platts in delivering timely and high-quality market information to subscribers. Brokers also play a role in disseminating such information as they bring buyers and sellers together, although brokers rely on deal commissions for revenue rather than subscriptions. These competitors also provide price assessments.

Alternative oil pricing methodologies range from reflecting an informed opinion of market value, to approaches such as reflecting the range of deals over a day, the average of deals over a day, the bid/offer spread at the close of business, or the last deal done. All these methodologies, some of which have been tried by Platts in the past, have weaknesses. Averages and high-low ranges can be distorted by outlier deals, a bid/offer spread can be distorted by market participants withdrawing to the side of the ring, last deal done can be impacted by gapping and is vulnerable to stale-price arbitrage, and an informed opinion lacking a clearly stated methodology is simply too subjective to qualify as a valid approach to pricing.

HOW DIFFERENT IS AN ALL-DAY TRADE-WEIGHTED ASSESSMENT FROM A PLATTS MOC ASSESSMENT?

An MOC assessment is based on the fundamental principle that price is a function of time. This principle is critical in today's markets where intra-day volatility may be high. In the crude oil and refined product markets, for example, prices can and do change by in excess of \$1.00/barrel in a matter of minutes. By aligning prices for individual commodities at the market close, Platts' assessments reflect their outright value as well as the price relationships between commodities.

A trade-weighted average assessment may result in an index that is out of step and not reflective of the actual market price prevailing at the close of the day. This would especially be the case on days with high volatility. Trade-weighted averages may also be distorted by the pattern of trading liquidity over the day. To appropriately reflect end-of-day prices, Platts MOC assessments take place in a "window" period of time toward the end of each trading day. These assessments incorporate data gathered during

this window time period, as well as market activity that takes place over the entire trading day. A key weakness in all tradeweighted average assessments is that they will lag the market price. They always reflect a price that "was" rather than the price that "is." To use an analogy, a person purchasing shares of stock would be very unhappy with an information provider who could only supply the price that was or the average price traded rather than the actual price of the shares.

DOES THE LAST BID, OFFER OR TRANSACTION REPRESENT THE ASSESSMENT?

The assessment under an MOC process is the representative market value prevailing at the close of the market. The system is highly structured with price editors monitoring all market activity and publishing only those bids and offers that are representative and in line with market practices and published guidelines. In a market, the value is determined by the activity of market participants via a bidding and offering process where the bid and the offer narrow and eventually converge. Hence the published market assessment is in the space between the bid and the offer, but careful monitoring of market processes will determine exactly where in the space. Last-minute transactions, whether they are acts of market gapping or occur when traders hit or lift bids/offers without narrowing the bid/offer range, are routinely excluded from the assessment process.

HOW DOES PLATTS MAINTAIN THE INTEGRITY OF THE MOC PROCESS?

Platts' only currency is the quality of the information it publishes and it spares no effort in designing and applying rigorous procedures for participation by market principals in price formation. Platts makes every effort to detect anomalous market behaviors and act swiftly to ensure these do not undermine the integrity of its assessments. As a responsible publisher, Platts will only publish information it believes to be reflective of the market. Platts maintains and exercises the right to exclude companies from the price assessment process when they do not adhere to Platts' editorial protocols and guidelines laid out in Platts' price assessment methodologies.

HOW DOES PLATTS COMMUNICATE ASSESSMENT METHODOLOGY MODIFICATIONS?

Platts continually engages in constructive dialogue with market participants as it develops its price assessment methodologies and adapts them to changing market dynamics. Platts consults extensively with the industry in open methodology forums around the world, as well as through one-on-one discussions with senior executives at energy companies, traders, brokers, governmental bodies and financial institutions. The forums are open to industry participants, competing information publishers, regulators, exchanges and anyone who has an interest in the price of energy.

The methodology proposals are also published in the various channels of information, such as printed publications, that Platts delivers to its customers. Methodologies are published and downloadable on Platts' website, www.platts.com. Platts also issue notes to subscribers on methodology changes through the website, the Platts Global Alert electronic service and print publications. Platts welcomes feedback on its price assessment methodologies, which it continually monitors and evaluates with the goal of publishing price assessments that are of the highest value to Platts subscribers and the markets it serves.

WHERE CAN I FIND ADDITIONAL INFORMATION ON THE APPROACH PLATTS USES IN ASSESSING OIL PRICES?

<http://www.platts.com/Oil/Resources/>

<http://www.platts.com/Oil/Resources/Methodology%20&%20Specifications/index.xml>

<http://www.platts.com/Oil/Resources/Market%20Issues/>

http://www.platts.com/Oil/Resources/Market%20Issues/usgd_QA_102406.pdf?S=n

<http://www.platts.com/Oil/Resources/Presentations/>



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