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Methodology and Specifications Guide

Crude Oil

LATEST UPDATE: DECEMBER 2004

INTRODUCTION

The following crude specifications guide for 2003 contains the primary specifications and methodologies for Platts crude oil cargo and pipeline 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. Platts is committed to providing as much help as possible to its subscribers. Should you need any additional editorial information please feel free to contact our editorial or sales offices by phone or by using the free "Ask Us" editorial questions email service that can be found on our web site at www.platts.com. You can also reach our sales team by email at info@platts.com.

NORTH SEA

The window of assessment for North Sea crude grades, is 10-21/23 days from date of publication (10-21 days Monday-Thursday, and 10-23 days on Friday). Most North Sea crude grades are traded as a differential to dated Brent or as a differential to cash BFO.

BRENT

Physical Brent crude oil represents commingled crude from the Brent and Ninian systems, slated to load at the Sullom Voe terminal. The API gravity is estimated at 38.5 degrees with a sulfur content of 0.36% sulfur.

Platts no longer assesses a Brent-only price, due to problems created by its overlapping role as a key benchmark crude as its output declined. Beginning in mid-2002, Platts substituted for straight Brent a combination of Brent/Forties/Oseberg known as BFO. However, the nomenclature for Brent did not change, and Platts still refers to its key wet assessment as Dated Brent, and its key paper assessment as Brent.

Platts makes three forward assessments for 21-day cash BFO, which represent Platts forward Brent assessments. 21-day cash BFO is also commonly known as cash BFO or paper BFO and the assessment reflects the value of a cargo with physical delivery within the month specified in the contract. The name 21-day Brent name stems from the practice of notifying buyers of the loading dates for their cargoes 21 days in advance of the delivery. The assessed level reflects the tradeable value for full and partial cargoes on the 21-day BFO market.

The Platts assessment for the front-line 21-day BFO assessment expires on the last business day of the calendar month. For example, July 21-day BFO will last be assessed on June 30. On July 1, August BFO becomes the first month, September BFO becomes the second month, and October BFO is added as the third month. The process will repeat itself on July 31.

For more information on the Market on Close methodology used to assess BFO, please see the section below.

DATED BRENT

A rolling assessment that reflects the price of physical, wet Brent-Forties-Oseberg cargoes loading no less than ten days forward. Specifically, dated Brent cargoes loading 10-21 days forward will be taken into account Monday through Thursday. On Friday, dated Brent cargoes loading 10-23 days forward will be taken into account. Deals done, as well as bids and offers, may be taken into account for assessment purposes. Changes in spread trade may also be considered. The cargoes are loaded FOB terminal.

PLATTS CASH BFO ASSESSMENT METHODOLOGY

In July 2002, Platts broadened its definition of Brent crude oil and included market activity in Forties and Oseberg crude markets in the Platts Dated Brent assessment and the Platts forward cash Brent assessment. Platts daily spot price assessments for forward cash Brent months include activity in all three North Sea grades, Brent, Forties and Oseberg (BFO). All aspects of the BFO assessment methodology were developed by Platts and are proprietary to Platts.

Platts continues to assess separate spot values for Oseberg and Forties.

Rationale for the BFO combination: The production of Brent has been falling, and combined with its role as a key benchmark, its price increasingly has become disconnected from that of other similar grades. Platts conducted extensive consultations with the industry, and came to the conclusion that its Brent assessment will be more reflective of market fundamentals in the North Sea if the assessment was broadened to include Oseberg and Forties crude oil.

Platts' Brent assessments incorporate the values of Brent, Oseberg and Forties with the most competitive grade setting the price at the margin. If Brent is the most competitive grade then Brent will be the most important factor setting the assessment. Brent has historically been the most competitive grade, with Oseberg and Forties typically trading above Brent on a flat price basis. The methodology operates as a relief valve, with the other grades, Oseberg and Forties, influencing the assessment only if the price of Brent disconnects from those of other North Sea grades.

Most grades in the North Sea are light and low in sulfur, with Oseberg and Forties fairly close in quality, price and geographical location to Brent. Platts felt that merging more crude grades into its assessments, such as Ekofisk, could make the resulting market unnecessarily complex. Oseberg and Forties are considered the closest grades, will add substantial volume, can load in VLCC tankers, and historically have been worth more than Brent. This will allow them to act as a "price cap" on upward squeezes in the Brent market without causing any flat price distortions in Brent.

Methodology: The most competitive grade at the margin will under typical circumstances be the grade reflected in the assessment. Under normal market conditions, the most competitive grade has been Brent. Therefore the inclusion of Forties and Oseberg should not alter the prevailing price of Brent. Platts' change in methodology neither adds nor subtracts barrels from the crude oil marketplace. Supply and demand remain unchanged.

Platts does not average the price of Brent, Oseberg and Forties to set its Dated Brent assessment. The most competitive grade at the margin will have the greatest degree of influence in the assessment.

Timing: Backwardation and contango will still be captured in the range. If a company offers a cheap cargo loading 10 days forward, the offer would only influence at the most the Platts assessment for cargoes loading 10 days forward. Platts would still need to assess days 11 through 21 and publish an assessment that is inclusive of market value from 10-21 days forward. The range stretches to 23 days for Friday assessments.

Platts previously had a 7-15 day range. But most other North Sea grades trade with loading dates further into the future than Brent. Platts' objective was to bring its Dated Brent assessments more in line with market practice in the North Sea. Hence, Platts implemented a change to reflect cargoes with loading dates up to 21 days forward, Monday to Thursday. Platts' research with industry players indicates that cargoes loading too prompt, e.g. 7 days forward, no longer reflect typical demand and trading patterns for North Sea grades. A cargo loading 7 days forward would almost be considered distressed under typical market conditions. Hence, Platts only reflects cargoes loading not earlier than 10 days forward.

Operational tolerance: Platts reflects in its assessments cargoes loading 'within' 1% plus or minus operational tolerance. In the event that Platts would encounter transactions with a 1% plus or minus commercial tolerance defined before the cargo loads and transactions with a 1% plus or minus operational tolerance due to normal terminal operations, Platts would reflect the latter. Platts believes that cargoes trading with pre- known tolerances ahead of the actual cargo loading include an option value that distorts the true value of the assessed commodity.

An example:

- *Forties loading 16-18 July sold at Dated Brent plus 0.10*
- *Brent loading 16-18 July sold at August Brent plus $0.10/bbl*

In order to assess these transactions Platts would need to determine the value of August Brent and the value of the underlying Brent swap, also known as the CFD, covering the loading period for the Forties cargo. (For more information on CFDs, see the section entitled Brent CFDs). If as an example, the value of August Brent is $25.00, then the Brent loading 16-18 July would be assessed at $25.10/bbl. For the Forties assessment Platts would then determine the flat price value of the dated Brent CFD covering the loading/pricing.

In this example, the dated Brent CFD for the pricing period (week of July 15-19) was valued at August Brent minus 10 cts/bbl to an equivalent of $24.90/bbl. Platts would then add/subtract the differential at which the Forties cargo was sold. In this case Forties was sold at a positive differential of $0.10/bbl, leading to a fixed price equivalent of $25.00/bbl. The most competitive grade in this example is Forties and the assessed value for Platts dated Brent would be $25.00/bbl for cargoes loading around July 17. Platts would still need to assess all the other days in the 10-21 day range used for the assessment.

Terms & Conditions: Offers/bids/transactions for forward Brent, Oseberg, Forties or BFO, as previously announced, are used for assessment purposes in the forward daily Brent monthly Platts assessments. The bids/offers and transactions are recognised for assessment purposes provided they meet the following conditions:

- Cargo date nominations are declared 21 days in advance.
- Cargoes load under normal terms and conditions. Normally, Forties cargoes are loaded under BP's terms and conditions, Brent is loaded under Shell's terms and conditions, Oseberg is loaded under Statoil's terms and conditions.
- Any partials that are not fully and satisfactorily recombined into full cargoes of 500,000 bbl for Brent and 600,000 bbl for Oseberg and Forties would need to be booked out under normal terms and conditions currently prevailing for a Brent book out. If a partial is not commercially booked out, then the partial would need to be priced out on the Brent assessments on the same basis as Brent partials are booked out.
- If Brent, Oseberg or Forties is delivered under a BFO basis, each cargo size shall be 600,000 bbl.

BRENT CFDS

Brent CFDs (Contract For Difference) are relatively short–term swaps, quoted by Platts for each of eight weeks ahead of the current date at any one time. They also are traded for bi-monthly and monthly periods in the marketplace. They represent the market differential in price between the Dated Brent (BFO) assessment and a forward month cash contract, i.e. forward month "BFO" (Brent-Forties-Oseburg) cash contract, over the period of the swap.

The first weekly balance is on a forward week basis on Thursday and Friday, and becomes a balance week quotation between Monday and Wednesday. It is rolled forward every Thursday.

Second week onward assessments are all forward week assessments. Assessments are quoted as a differential to the second BFO cash contract month, e.g on July 23rd, the assessment would be against September cash BFO. The relevant cash month rolls on the first day of the month of each month e.g. June will become the basis month on April 1.

CFDs are a means for holders of long or short BFO cash positions to hedge against or speculate in movements in the dated Brent market. The CFD swap is between the uncertain or "floating" price of the dated Brent differential and a certain or "fixed" differential price, which generally is Platts' daily dated Brent crude assessment. CFDs are priced using averages of a particular week's worth of daily price assessments as quoted by Platts.

Each trade is an exchange of a fixed for a floating risk in the Dated to BFO cash differential.

CFDs are generally traded in clips of 50 to 100 lots, i.e. 50,000 or 100,000/bbl. In addition to Dated Brent (BFO), CFDs are also used to price crudes which are sold at a differential to Dated Brent e.g. Norwegian Ekofisk, Iranian Heavy and Russian Urals.

OTHER NORTH SEA GRADES

Forties: API gravity is 45 degrees. The sulfur content is 0.18%. It is priced FOB Hound Point, UK. The assessment reflects values for cargoes loading 10-30 days forward.

Oseberg: The price is for barrels loading FOB Sture, Norway. The API gravity is 37.7, and the sulfur is 0.24%. The assessment reflects values for cargoes loading 10-30 days forward.

North Sea Basket: This is a straight average of the price of Dated Brent, Forties and Oseberg.
Flotta: The price is for barrels loading FOB at the Flotta terminal in the North Sea. The API is 37, and the sulfur content is 1.0%. Assessments reflect values for cargoes loading 10-30 days forward.

Ekofisk: The assessment is based FOB Teesside, UK. The API is 37.8, and the sulfur content is 0.25%. The assessment reflects values for cargoes loading 10-30 days forward.

Statfjord: The assessment is FOB platform based with a fixed freight element. The API is 38.3, and the sulfur content is 0.25%. Assessments reflect values for cargoes loading 10-30 days forward.

Flotta: API gravity is 36.9 degrees, and the sulfur content is 1%. The assessment reflects values for cargoes loading 10-30 days forward.

BRENT-RELATED CRUDES, AND THE FORWARD CURVE

Before 2002, Platts assessed Brent-related crudes from the North Sea, Africa and the Mediterranean at a differential to the assessment published for dated Brent on the day. As an example, if Bonny Light was assessed at dated Brent plus $1.00/bbl on a particular day, then the assessment for the grade that day would reflect that day's dated Brent assessment plus $1. If the dated price was $30, Bonny Light would have been $31. However, this assessment system does not take into account the timing structure of the market, i.e., the contango or backwardation in the market.

Crude cargoes are traded in the spot market for loading sometime in the near future. Some of the cargoes are traded using a benchmark as a reference for the base price plus or minus a differential. The cargoes typically use Dated Brent as the benchmark for the base pricing. The base is typically an average over specific dates related to the time when the cargo will load in the future. For instance, a cargo of Urals can trade on Jan 2 for loading Jan 15. The Urals cargo can be traded at dated Brent around bill of lading time minus $1.00. Hence, to determine the correct price for Urals it is key to determine the market value of the dated Brent assessments around the bill of lading. As an example, Platts on Jan 2 would need to determine the value of dated Brent, on a forward basis, around the future bill of lading dates. There is a market for the forward Dated Brent assessments, informally known as the CFD market. Platts regularly assesses the value of CFDs on a weekly basis for 8 weeks ahead of the date of publication. This gives it a solid base for producing assessments on Brent-basis cargoes by taking into account the forward pricing curve.

The assessment methodology used since late 2002 for North Sea grades, and early 2003 for West African and Mediterranean grades, takes into account the contango or backwardation in the marketplace. As an example, if the Bonny Light traded at dated Brent plus $1.00/bbl and the cargo was due to price on the assessments published by Platts from April 3-April 14, the assessment would be calculated on the following basis: current dated Brent prices, plus CFD differential for the Apr 3-14 time frame, plus the $1 premium.

Platts will use the future dated Brent value applicable to and typical for each grade. In the case of Mediterranean grades, Platts reflects in its assessments cargoes loading 7-21 days forward. The cargoes typically price 1-5 days after the cargo loads. The average pricing time is therefore 3 days after bill of lading. In this case therefore Platts will need to take into consideration the market value for the dated Brent assessments for days 7-21 plus an additional 3 days. This results in a dated Brent strip of 10-24 days forward. For Angolan grades, the window of assessments is 15-45 days forward with the cargoes pricing 5 days around bill of lading. Therefore the dated Brent strip Platts needs to take into account is 15-45 days forward. For Nigerian grades, the assessment window is 15-45 days forward, but typically cargoes price in the period 1-5 days from date of loading. Thus the applicable dated strip for Nigerian grades is 18-48 days forward. For Canadian cargo-grades, the assessment window is 28-42 days forward, but typically cargoes price in the period of 1-5 days from the date of loading. Thus the applicable dated strip for Canadian cargo-grades is 31-45 days forward.

Platts assesses three forward months of Brent/BFO EFPs (exchange for physical). The relevant assessment deltas refers to the corresponding month of Platts Brent/BFO spot price assessments.

Platts assesses three forward months of Brent/WTI cash spreads. The assessments are based on the London market close at 5:30 p.m. local London time.

MARKET ON CLOSE

In establishing its daily assessment for 21-day cash BFO and cash West Texas Intermediate (WTI), Platts utilizes a system commonly known as Market on Close (MOC).

The MOC system seeks to reflect transactable values prevailing at the respective market close on a normal working day: 5:30 PM local London time for 21-day cash BFO, and 3:15 PM local NY time for cash WTI. Platts derives these values by tracking market evolution during the respective assessment window and by making assessments that reflect the value at which a deal could or did take place at the close of the market. To do this, Platts takes into account representative, arms-length, openly negotiated transactions occurring during the assessment window and additionally taking into account the evolution of the bid-offer spread during this period. Platts, prior to January 2001, produced its assessment from an arithmetic weighted average of deals done during this period. Instead it is using the deals, at whatever time they occur within the window, as a basis for extrapolation to the market-on-close (MOC) assessment.

In the Brent window, bids/offers for physical cargoes must be submitted by 5:10 p.m., and final physical numbers must be submitted by 5:25 p.m. (London time). Previously, Platts guidelines called for players to “freeze” their numbers in the last 5 minutes of the window. However, following industry consultation, that rule has been withdrawn. However, Platts’ guidelines still require a company whose bid or offer is accepted by a counterparty to complete the transaction.

The minimum volume that Platts takes into consideration for cash BFO assessment is 50,000 bbl with a maximum of 600,000 bbl per transaction. For WTI the minimum is 25,000 bbl with a maximum of 600,000 bbl per transaction. These minimums and maximums are a reflection of standard market practices and may be subject to review if market conditions change.

Platts will assess the market as per the respective London and New York close, and would use in its assessments any information deemed reliable and provided on a transparent basis. In the absence of trade, Platts can use several other indicators, including bids and offers or spread relationships versus other crudes such as WTI.

Platts will use in its assessments any transaction concluded between parties that have expressed their intention to buy or sell on a transparent basis. Typically, the later a player signals their intention to buy or sell, the greater is the possibility that any eventual transaction they engage in is not open or transparent. Platts’ confidence in trades evolving from buy-sell intentions signaled before the start of the assessment window will be much greater than its confidence in trades concluded abruptly from late arriving bids and offers, and late signals will therefore be evaluated on a case-by-case basis.

The philosophy behind MOC is that market values can change dramatically in a span of 15 minutes. Platts came to the conclusion that an averaging system for price determination could result in assessments that lag actual market levels, as deals done early in an assessment period, at a level that is not repeatable, could mathematically drag prices down or up.

With an MOC procedure, Platts can reflect market conditions up to the minute. A methodology that works well in a period of low or high volatility, and in periods of high or low contango or backwardation, is a good methodology. A market on close methodology helps achieve those goals.

The prior practice in the Brent and WTI markets of averaging can lead to distortions when the price of one commodity is compared with the price of another, or a price for one month is compared with that for other months.

As an example, Brent/BFO crude oil has a value, WTI has a value and the Brent/BFO versus WTI spread has a value, and all three make sense when measured on a same-time basis. By contrast, a system of averages can lead to distortions in the Brent/BFO versus WTI spread if the distribution of deals done for WTI and Brent/BFO differs over the averaging period. Thus if WTI trades actively at the beginning of the assessment window and Brent trades actively at the end of the window in a rising market, the assessed spread value resulting from an averaging process will not be reflective of actual market values.

In a falling market, the averaging would result in a widening of the apparent spread. This distortion can arise even if the value of spread trades in their own right has remained constant. The market on close approach drastically reduces the possibility of such distortions.

Platts follows several other basic price-reporting principles in its MOC system:

- If a deal is done on a non-transparent basis or in circumstances where questions may arise as to why a buyer/seller did not deal in an open environment, where counterparties had enough time to react, or where questions may have arisen as to the time of execution, Platts believes it must take precautions generally to not take such a deal into account. But Platts does recognize that there may be market circumstances in which a player that did not originally intend to trade during the Platts window finds that rapidly changing market conditions make it advisable, or even necessary, to enter the market after the start of the window.

- Platts editors always seek direct verification from the principals to a bid/offer/deal, and will not disintermediate the actual market-maker, whether a deal is done on- or off-line.

- If only one player is active in the market, Platts would only use information from that player if the intention to bid or offer was made on a transparent basis and within the timing guidelines. Under these circumstances, such a player's bids or offers would clearly be available for execution by any other potential trading counter party.

- Platts is always concerned about the potential effects of "one-off" deals on the market's perception of transactable value. It is common practice among some traders to effect non-repeatable deals at below- or above-market levels in the hope that such deals will influence others' perceptions of value and ultimately in the hope that these deals will affect Platts assessments. A variant on this action is the practice by supposed sellers of "gapping down" their offer to a point well below where a trade might be expected to occur, or of supposed buyers "gapping up" their bids. The test that Platts uses is a process of inquiry to find whether, for example, an unusually high buyer is willing to pay the same amount again and again until all the supply created by his high bid is exhausted. On the reverse side, a seller would need to supply more barrels until he satisfies all the demand generated by a low offer. If buyer or seller fails to satisfy the demand or supply generated in the entire market place, the transaction could be considered non-market and would not be used for the assessment.

- A player can move its bids/offers by any increments it believes fits their trading objectives. However, Platts can only take into consideration those changes in bids and offers, which occur sequentially and with increments that are in line with current market practices. In markets with low volatility, players typically move prices at increments ranging from 1-5 cts/bbl per step, with the increments typically growing as the volatility increases. A market participant can withdraw at any time. However, if a market participant withdraws after a trading counter party has indicated that it has interest to buy or sell into the bid/offer, it would become evident that the original buyer/seller actually had no interest to trade. Platts views spurious bids and offers of this kind with concern, and it takes seriously its responsibility to publish information only from sources deemed credible.

WEST AFRICA

Beginning in 2003, Platts began taking into account backwardation/contango in the underlying Dated Brent market. Prior to the change, Platts West African and Mediterranean grade price assessments were established by adding/subtracting the prevailing market differential against the daily Dated Brent assessment and did not take into account backwardation or contango. Platts incorporated the market structure into all its Dated Brent related spot price assessments by correlating respective loading dates with the corresponding Dated Brent value. The corresponding Dated Brent value is established through trading activity in the Brent/BFO swap market.

West African grades are assessed for cargoes loading 15-45 days after date of publication. While a cargo size of 950,000 bbl is the standard in the daily-assessed grades, part-cargoes are occasionally traded and may be factored into the assessment process. Underlying market dynamics may also play a role in determining the value of grades. Market backwardation and contango within the 15-45 day window will be taken into account for assessment purposes in Angolan grades and within a 15-48 day window for Nigerian crude. All West African assessments are on an FOB basis, for loading at each grade's specific terminal.

GRADES

Bonny Light: The API gravity for Bonny Light is 35 degrees and the sulfur content is 0.2%. The typical cargo size for this FOB assessment is 950,000 bbl and the grade loads at the Shell-operated Bonny Terminal. The current bbl/mt conversion factor for Bonny Light crude oil is 7.526 and typical output is around 540,000 barrels per day.

Qua Iboe: The API gravity for Qua Ibo is 36 degrees and the sulfur content is 0.1%. The Qua Iboe terminal is operated by ExxonMobil and output is typically around 520,000 b/d. The current bbl/mt conversion factor for Qua Iboe crude oil is 7.45.

Brass River: The API gravity for Brass River is 43.0-43.5 degrees and the sulfur content is 0.08%. This gasoline-rich grade loads at the Brass terminal, operated by Agip. The current bbl/mt conversion factor for Brass River crude oil is 7.753

Escravos: API gravity of 33.0-33.5 degrees and a sulfur content of 0.17-0.18%. The Escravos terminal is operated by ChevronTexaco and the standard output is 475,000 b/d. The current bbl/mt conversion factor for Escravos crude oil is 7.471.

Forcados: This crude has a larger distillate refining profile. Its API gravity is 30 degrees and has a sulfur content of 0.2% and it loads at the Shell-operated Forcados Terminal on the Niger Delta. The current bbl/mt conversion factor for Forcados crude oil is 7.223. Standard output is around 425,000 b/d but have often led the level to be nearer 290,000 b/d.

Cabinda: This medium sweet Angolan crude represents commingled material from the Takula and Malongo systems. Its API gravity is 32.0 with a sulfur content of 0.2%. Cargoes load from the ChevronTexaco Malongo terminal, which also delivers Nemba, a weekly-assessed grade. The typical Cabinda output from Malongo is approximately 350,000 b/d. The current bbl/mt conversion factor for Cabinda crude oil is 7.28.

MEDITERRANEAN

TIMING

Beginning in 2003, Platts' Mediterranean crude assessments began taking into account backwardation/contango in the underlying Dated Brent market. Platts incorporated the market structure into all its Dated Brent related spot price assessments by correlating respective loading dates with the corresponding Dated Brent value. The corresponding Dated Brent value is established through trading activity in the Brent/BFO swap market. Mediterranean crude grades are assessed 7 to 21 days out, and the forward pricing period applied for Mediterranean market by means of the forward Med strip is 10 to 24 days out. (Please refer to the section on "Strips" for detailed description of the strips for the Mediterranean.) Prior to the change, Platts West African and Mediterranean grade price assessments were established by adding/subtracting the prevailing market differential against the daily Dated Brent assessment and did not take into account backwardation or contango.

GRADES

Urals Med (CIF Augusta): This daily spot price assessment takes into account cargoes loading from Black Sea ports of Novorossiisk, Odessa, Theodosia, Kavkaz, Yuzhny and Kerch for delivery into the Mediterranean. The assessment basis is CIF Augusta, Sicily/Italy. Cargoes delivered to other ports in the Mediterranean can also be considered, with freight costs taken into account. Cargoes for delivery within the Black Sea are not considered. Cargoes of approximately 80-140,000mt are used for the assessment. The typical pricing period for cargoes is either three days after bill of lading or five days after bill of lading. Cargoes pricing on a different basis can be included in the assessment after an adjustment. Gravity is approximately 31-33 degrees, with a sulfur content of 1.3%. The current bbl/mt conversion factor for Urals crude oil is 7.240-7.329.

Urals "Recombined" (RCMB) CIF Augusta: This daily spot price is an outright price for Urals CIF Augusta and does not take into account backwardation or contango. This price is produced by adding or subtracting the prevailing market differential for CIF August Urals against the daily Dated Brent assessment. No further adjustments are made. This assessment is published as an outright price only. The differential is assessed according to the methodology in the paragraph above. This quotation for Urals CIF Augusta Recombined was first published March 1, 2003.

Urals ex-Novorossiisk (FOB): This daily spot assessment takes into account cargoes traded on a FOB basis at the Black Sea port of Novorossiisk. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. Delivered prices may be used in the assessment once adjusted for freight costs. In periods of spot market illiquidity in both the delivered and the FOB markets, Platts typically uses freight rates of a 135,000mt cargo (standard Suezmax) to provide a guide for the FOB level, using Platts spot freight assessments in Dirty Tankerwire report. After the introduction of the so-called "Bosporus clause" in November, 2002, restricting passage for crude oil tankers to the daytime hours and thereby creating waiting time at the Bosporus and Dardanellas Straits, the estimated extra demurrage cost is taken into consideration. The API gravity is approximately 31-33 degrees, with a sulfur content of 1.3%. The current bbl/mt conversion factor for Urals crude oil is 7.240-7.329.

Urals Rotterdam (CIF Rotterdam): This daily spot assessment takes into account cargoes loading from Baltic Sea ports of Ventspils and Butinge, Russia's Primorsk, Estonia's Tallinn, Germany's Rostock and Poland's Gdansk. Cargoes loading in Russia's Barents Sea port of Murmansk may be taken into account adjusting for the freight difference. The assessment basis is CIF Rotterdam/Netherlands. The typical cargo size is 100,000mt, but both small and large cargoes are taken into account (approximately 80-140,000mt). Cargoes delivered into other ports in North-West Europe or the East Coast of North America can be considered with freight costs taken into account. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. The API gravity is approximately 31-33 degrees, with a sulfur content of 1.3%. The current bbl/mt conversion assessment is expressed as a high and a low.

Urals ex-Baltic Sea (FOB): Effective December 16, 2002 Platts widened the range of Baltic Sea load ports reflected in its FOB assessment in the north to include Ventspils, Butinge and Tallinn. The changes were introduced because of a steep decline in the numbers of crude oil cargoes lifting from Ventspils. Despite a similar sharp increase of cargoes loading from the Russian port Primorsk, the steep climb of Worldscale rates in the winter season for cargoes loading from Primorsk has necessitated the exclusion of Primorsk in this context. This daily assessment is based on the 100kt cargo size. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. Delivered prices may be used in the assessment once adjusted for freight costs. In periods of spot market illiquidity in both the delivered market and the FOB markets, Platts typically uses freight rates of an 100,000mt-loader to provide a guide for FOB level, using Platts spot freight assessments in Dirty Tankerwire report. The API is approximately 31-33 degrees, with a sulfur content of 1.3%. The current bbl/mt conversion factor for Urals crude oil is 7.240-7.329.

Kirkuk ex-Ceyhan (FOB): This daily spot assessment takes into account Iraqi Kirkuk crude loading at Ceyhan in Turkey. Prices are assessed on an FOB basis. The typical cargo size is 140,000mt, but both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. In periods of spot market illiquidity, Kirkuk is valued as a differential or occasionally a premium to Mediterranean sour crude benchmark Urals CIF Augusta, netbacked from Augusta to Ceyhan using the freight rates for the 135,000mt cargo size as published in *Platts Dirty Tankerwire*. The API gravity for Kirkuk is 35-36 degrees and the sulfur content is 2.0%. The bbl/mt conversion factor is 7.418-7.463.

Es Sider (FOB Es Sider): This daily spot assessment takes into account cargoes loading from the Libyan port of Es Sider for delivery into the Mediterranean. Since March 2000, in the absence of any spot market information, Platts has assessed this crude in relation to its Official Selling Price as set by Libya's National Oil Company. Libyan official selling prices are set as a differential to Dated Brent. This Libyan crude has an API gravity of 36-37 degrees and a sulfur content of 0.40-0.42%. The bbl/mt conversion factor is 7.463-7.507.

Iran Heavy (FOB Sidi Kerir: This daily spot assessment takes into account cargoes loading from the Egyptian port of Sidi Kerir for delivery into the Mediterranean. Since Mar 15, 2001, in the absence of any spot market information, Platts has assessed Iranian crudes in relation to their Official Selling Prices (OSPs). Iranian OSPs, set monthly by the National Iranian Oil Company, NIOC, are related to the IPE's Brent weighted average (BWAVE) and Platts uses dated to frontline (DFL) swaps in order to obtain a conversion value between BWAVE and Dated Brent. The API is 31-32 and the sulfur content is 1.8%. The bbl/mt conversion factor is 7.240-7.284.

Iran Light (FOB Sidi Kerir): This daily spot assessment is daily and takes into account cargoes loading from the Egyptian port of Sidi Kerir for delivery into the Mediterranean. Since Mar 15, 2001, in the absence of any spot market information, Platts has assessed Iranian crudes in relation to their Official Selling Prices (OSPs). Iranian OSPs, set monthly by the National Iranian Oil Company, NIOC, are related to the IPE's Brent weighted average (BWAVE) and Platts uses dated to frontline (DFL) swaps in order to obtain a conversion value between BWAVE and dated Brent. The API is 33.5-34.0 and the sulfur content is 1.4%. The bbl/mt conversion factor is 7.351-7.374.

Suez Blend (FOB Ras Sukheir): The spot assessment of this Egyptian crude is made on a daily basis. Spot cargoes of Suez Blend may be sold Brent-related FOB Ras Sukheir. The API is 32-33 degrees and the sulfur content is 1.7%. In periods of spot market illiquidity the price assessment for Suez Blend will be valued as a differential to Mediterranean sour crude benchmark Urals CIF Med, taking into account the freight and quality difference between the two crudes. The bbl/mt conversion factor is 7.284-7.329.

Siberian Light (CIF Augusta): This daily spot assessment takes into account cargoes loading from Black Sea ports for delivery into the Mediterranean. The assessment basis is CIF Augusta, Sicily/Italy. Both small and large cargoes are used for the assessment (approximately 50-140,000mt). Cargoes delivered to other ports in the Mediterranean can also be considered, with freight costs taken into account. Cargoes for delivery within the Black Sea are not taken into account, but may be considered as a guide in periods of spot market illiquidity. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. The API gravity for Siberian Light is 35-36 degrees and the sulfur content is 0.6%. The bbl/mt conversion factor is 7.418-7.463.

CPC Blend (CIF Augusta): This daily spot assessment takes into account cargoes loading from Black Sea port CPC Terminal for delivery into the Mediterranean. The assessment basis is CIF Augusta, Sicily/Italy. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). Cargoes delivered to other ports in the Mediterranean can also be considered with freight costs taken into account. Cargoes for delivery within the Black Sea are not taken into account. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account.

After other crude grades were led into the CPC pipeline system in July, 2003 the quality of CPC Blend changed and was expected to change further in course of the following six months after the Karachaganak oil field in Northern Kazakhstan was hooked onto the pipeline system August 1. The gravity was expected to decrease probably down to around 42 API from the initial 46 API, while the sulfur content was expected to increase slightly up from the initial 0.45%. As off early August, the API gravity for CPC Blend is 45 degrees and the sulfur content is 0.6%. The bbl/mt conversion factor is 7.864.

CPC Blend FOB (CPC Terminal): This daily spot assessment takes into account cargoes loading from the CPC terminal on the Black Sea. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. Delivered prices may be used in the assessment once adjusted for freight costs. In periods of spot market illiquidity in both the delivered and the FOB markets, Platts typically uses freight rates of a 135,000mt cargo (standard Suezmax) to provide a guide for the FOB level, using Platts spot freight assessments in the Dirty Tankerwire. After the introduction of the so-called "Bosporus clause" in November, 2002, restricting passage for crude oil tankers to the day hours and thereby creating occasional waiting time at the Bosporus and Dardanellas Straits, the estimated demurrage is taken into consideration.

Port charges are incurred in the pipeline charge. The assessment was first published August 1, 2003.

Azeri Light (CIF Augusta): This daily spot assessment of Azerbaijan's Azeri Light akes into account cargoes of Azeri Light sold from the Black Sea port of Supsa into the Mediterranean on a CIF Augusta basis. Cargoes delivered to other ports in the Mediterranean will also be considered with freight costs taken into account. Cargoes for delivery within the Black Sea are not taken into account. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. The API for Azeri Light is 34-34.5 degrees and the sulfur content is 0.143-0.15%. The bbl/mt conversion factor is 7.374-7.395.

Azeri Light FOB Supsa: This daily spot assessment takes into account cargoes loading from the Black Sea port of Supsa. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. Delivered prices may be used in the assessment once adjusted for freight costs. In periods of spot market illiquidity in both the delivered and the FOB markets, Platts typically uses freight rates of a 135,000mt cargo (standard Suezmax) to provide a guide for the FOB level, using Platts spot freight assessments in the Dirty Tankerwire report. After the introduction of the so-called "Bosporus clause" in November, 2002, restricting passage for crude oil tankers to the day hours and thereby creating occasional waiting time at the Bosporus and Dardanellas Straits, the estimated demurrage is taken into consideration. The assessment was first published August 1, 2003. The API for Azeri Light is 34-34.5 degrees and the sulfur content is 0.143-0.15%. The bbl/mt conversion factor is 7.374-7.395. The assessment is expressed as a high and a low.

Saharan Blend (FOB): This daily spot assessment takes into account cargoes loading from Algerian ports Skikda and Arzew. Prices are assessed on an FOB basis. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three of five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. The API gravity for Saharan Blend is 45-46 degrees and the sulfur content is 0.1%. The bbl/mt conversion factor is 7.864-7.909.

Syrian Light: This daily spot assessment takes into account cargoes loading from Banias in Syria. Prices are assessed on an FOB basis. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. . In April 2003, Syria cut exports by approximately 40 percent, which has made the market less liquid. So in periods of spot market illiquidity the price assessment for Syrian Light will be valued as a differential to Mediterranean sour crude benchmark, Urals CIF Med, taking into account the quality difference between the two crudes. As of February 2002 Syria's state oil company Sytrol changed the API baseline from 35.70-36.30 to 37.40- 38.0 degrees, with sulfur content of 0.8%. The bbl/mt conversion factor is 7.525-7.552.

Syrian Heavy (Souedie): This daily spot assessment takes into account cargoes loading from Tartous in Syria. Prices are assessed on an FOB basis. Both small and large cargoes are used for the assessment (approximately 80-140,000mt). The typical pricing period for cargoes is either three of five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. In April 2003, Syria cut exports by approximately 40 percent, which has made the market less liquid. So in periods of spot market illiquidity the price assessment for Syrian Heavy will be valued as a differential to Mediterranean sour crude benchmark, Urals CIF Med, taking into account the quality difference between the two crudes. The API gravity for Souedie is 23-24 degrees and the sulfur content is 4.2%. The bbl/mt conversion factor is 6.883-6.927.

Zarzaitine: This daily spot assessment takes into account cargoes loading from La Skhirra in Tunisia, though the origin of the crude itself is Algerian. Prices are assessed on an FOB basis. Both small and large cargoes are used for the assessment (approximately 60-140,000mt). The pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. In periods of spot market illiquidity the price assessment for Zarzaitine will be valued as a premium to Algeria's Saharan Blend, taking into account the quality difference between the two crudes. The API gravity for this grade is 42-43 degrees and the sulfur content is 0.1%. The bbl/mt conversion factor is 7.730-7.775.

Kumkol: This daily spot assessment takes into account cargoes of Kumkol delivered into the Mediterranean on a CIF Augusta basis. Both small and large cargoes are taken into account (approximately 30-100,000 mt). Cargoes delivered to other ports in the Mediterranean will also be considered with freight costs taken into account. Cargoes for delivery within the Black Sea are not typically taken into account, but may be considered as a guide in periods of spot market illiquidity. The typical pricing period for cargoes is either three or five days after bill of lading. Cargoes pricing on a different basis can be included with the pricing period taken into account. The API is 40-41 degrees and the sulfur content is 0.1-0.2%. The bbl/mt conversion factor is 7.641-7.686.

PERSIAN GULF

DUBAI AND OMAN

Dubai and Oman assessments, as well as all other Platts daily Persian Gulf crude assessments, are established following the completion of a half-hour pricing window conducted out of Singapore between 5 p.m. and 5:30 p.m. local Singapore time.

For a discussion of how Platts assesses markets in a half-hour Market on Close window, please see the section in this document entitled Market on Close.

Platts assesses physical Dubai and Oman for three forward months. For instance, in April, Platts will assess June, July and August liftings for both Dubai and Oman. In May, Platts assessed July, August and September Dubai and Oman. The rollover of the assessment coverage occurs on the first working day of the month. For instance, Platts would assess June Dubai and Oman on April 30, but would roll the coverage of Dubai and Oman from June to July on May 1.

Oman accepted for delivery: Platts Dubai assessments reflect market activity in which the Dubai buyer will accept alternative delivery of an Oman cargo. Hence, the activity of any Dubai market player will be taken into account only if such trader is willing to accept an Oman cargo delivery in lieu of Dubai. The activity of any Dubai/Oman seller will be taken into account only if the seller is willing to declare the grade (Dubai or Oman) to be lifted by the buyer. Such declaration of grade must be made at the point of executing the transaction.

Size: The Dubai assessments reflect 500,000 bbl parcels. Spot premiums for partial cargoes may be considered or factored into the assessment concerned. Platts is in the process of evaluating the merits of reducing the parcel for Dubai from 500,000 to increments of 50,000 bbls but has not reached a final decision on the issue.

Oman specifications: Platts will evaluate all market relevant data to arrive at its Oman assessments. Oman may trade at a differential versus Dubai or more commonly versus its official selling price set by the Ministry of Oil and Gas (MOG). Platts assesses spot Oman two months forward. For example, during March, Oman loading in May will be assessed through March 31. On April 1, Oman loading in June will be assessed. The spot price differential versus the MOG official price and its relationship to Dubai may be taken into account to determine the spot price of Oman. Oman can be assessed by tracking Brent/Oman spreads, MOG swaps plus the spot MOG premium or discount. The API gravity is 37 degrees and the sulfur content is 1.08%.

The assessment for Oman MOG represents a differential to Oman's retroactive monthly official selling price. Cargoes will sell on a differential to the expected assessment two to three months before the price is actually released. Platts' Oman MOG assessment represents the differential as quoted in the spot market. Deals may take place MOG-related (Ministry of Oil & Gas official selling price), fixed price, or related to any other basis. All these deals will be related to a fixed price equivalent. Oman's value reflects the market on close value at 1730 Singapore local time or 0930 GMT.

Example: In trade on March 1, the front-month spot Oman trading month was for barrels loading in May. Spot Oman was trading at around flat to the May MOG official selling price. The spot fixed price front-month Oman assessment is derived as follows: MAY DUBAI SWAPS + MAY MOG/DUBAI SWAPS SPREAD + MAY SPOT MOG DIFFERENTIAL

MOG/Dubai spread: The MOG/Dubai spread is a derivative instrument and is settled by measuring the differential between Oman's official selling price and Dubai for the month concerned. This spread is traded in the "over-the-counter" market and has no physical delivery.

Derivatives/swaps: Platts assesses three forward months for Dubai swaps. The swaps price out on the Platts Dubai front-month cash assessments. Dubai swaps typically trade on a monthly calendar basis, but unlike physical assessments, the swaps are assessed only one month forward. In January, for example, the first month swap assessed is February, but the first month physical assessed is March. The rollover date for the Dubai swaps is the 1st of every calendar month. These swaps are used for hedging and speculative purposes. The Dubai swaps contract has no physical delivery. The Dubai swap fully prices out versus the Platts Dubai assessments.

DUBAI/OMAN PARTIALS ASSESSMENT METHODOLOGY

Trading volumes assessed: Platts assessments for Dubai and Oman will be based on a minimum of 25,000 bbl partial cargo bid/offered or traded, with the market price derived from increments of 25,000 bbl. Smaller parcels bid/offered will be considered for assessment over larger parcel sizes.

Trading periods assessed: Platts will continue to assess Dubai and Oman two months forward from date of publication, with the roll-over date for assessment on the first working day of each calendar month. For example, the last day that April 2004 Dubai and Oman partials will be taken into consideration for the April assessment will be Friday, February 27. Assessments are made at the close of the Singapore day at 1730 local time (0930 GMT).

Cash settlement: Any position amounting to less than 475,000 bbl by the calendar month's end is understood to be cash settled, unless both counterparties mutually agree to deliver/take delivery of a smaller top-up cargo. Partial contracts will be settled based on Platts assessments published on the last working day of each calendar month.

Convergence of partials to a full cargo: Once a principal acquires nineteen 25,000 bbl parcels of the same grade (Dubai or Oman) from a single seller within the calendar month, the partials automatically converge into a physical cargo of 475,000 bbl. This is equivalent to a full cargo of 500,000 bbl with commercial tolerance of minus 5%. Neither the seller nor the buyer have the right to deny delivery or refuse lifting. However, both parties may mutually agree to book out of the contract on the basis of the Dubai or Oman assessment published on the last working day of the calendar month.

Pricing of terminal operational tolerance: The deviation of up to 1,000 bbl in operational tolerance, which is subject to terminal performance for cargoes delivered FOB Fateh terminal, Dubai will be priced on Dubai assessments published on the last working day of each calendar month. For example, the operational tolerance for cargoes loading in April will be priced off the assessment of Feb 27. The deviation of up to 1,000 bbl in operational tolerance for cargoes delivered FOB Mina Al Fahal terminal, Oman will be priced on Oman assessments published on the last working day of each calendar month.

Optionality of Oman delivery: Platts Dubai assessments reflect market activity in which the Dubai buyer will accept alternative delivery of an Oman cargo. The existing optionality to deliver Oman into a Dubai bid is unchanged for partials trading. The seller must declare the grade (Dubai or Oman) at the time of each partial transaction.

Terms and conditions: Terms and conditions must be declared at seller's option upon transaction of the nineteenth partial. Only Oman's MOG GT&C or Shell's General Terms and Conditions (GT&C) may be declared for Oman cargoes, as is standard practice in the physical cargo market. ConocoPhillips' GT&C are required for Dubai cargoes. Any of these terms and conditions, however, should not allow for further optionality over cargo size. A physical cargo created by nineteen partial cargoes would be 475,000 bbl min/max (excluding 1,000 bbl in operational tolerance).

Loading date nominations: Buyers should nominate loading dates for Dubai or Oman cargoes prior to the last three days of the calendar month of trading, unless both parties mutually agree otherwise. This is to avoid B/L slippage (the risk that end-month loading dates of a cargo will spill over into the next month with different pricing implications.) Dubai and Oman partials contracts leading to a full cargo delivery should contain an assurance of delivery for the month originally specified. Buyers of nineteen partials retain the flexibility to negotiate with a seller for differing volumes for loading in part-cargoes, or to request a book-out of some or the entire volume, subject to mutual agreement.

Trading counterparties: Closely-related trading parties will be deemed part of the same parent company for partials trading considerations. Platts will apply its editorial judgement to determine whether a transaction is suitably arms-length. If subsidiaries/offshore entities of parent company "A" trade with company "B", those partials will be added and considered as part of the total partials trading position of parent company "A".

Price assessment: To arrive at its Dubai and Oman assessments, Platts will take into account fixed-price bid/offers for partial and full cargoes where applicable; inter-month Dubai or Oman spreads; Dubai or Oman swaps; MOG/Dubai spreads (differentials to the retroactive monthly official selling price set by Oman's Ministry of Oil and Gas); spot Dubai and MOG premia/discounts; EFPs or spreads to crude grades such as Brent; and spreads to published benchmarks.

In the event of a wide bid/offer spread, Platts will not average the bid and offer. Platts will evaluate market conditions and establish an assessment that in its editorial judgment reflects the transactable level of Dubai and Oman. Unusually high or low price deals will be scrutinized by Platts to discern whether the deal is fit for assessment purposes.

Editorial guidelines for assessments of partials in the Singapore trading window:

Platts assessments take into consideration bids and offers made up to no later than 1700 hours Singapore time (0900 GMT). Bids and offers with unusual terms and conditions will not be taken into account. Platts should be informed prior to the assessment window of any counterparty with which a principal cannot trade for financial or legal reasons. Bids and offers made by counterparties unable to trade with each other may cross, allowing other traders to arbitrage the difference. Platts should be informed by the principal prior to the assessment window if a broking house is submitting a bid or offer on the principal's behalf. Representative broking houses will have similar execution responsibilities and bear similar exposures as their principals for non-performance of trading instruments, whether cash settled or physically delivered.

Platts will take into account changes in price, but not changes to volume/date/terms & conditions, made to bids and offers up to 1725 hours Singapore time (0925 GMT). Platts' assessment guidelines governing the incrementability of price changes for bids and offers, and the repeatability of deals, will continue to apply as for all market-on-close assessments (see <www.platts.com>oil>specifications> for more details on MOC methodology). Platts does not take into consideration deals done between company affiliates or between companies with close working trading relationships.

Platts will only consider for assessment bids and offers that are firm until 1730 hours Singapore time (0930 GMT) and that are executable by any creditworthy counterparty. Players can withdraw their bid/offer at any time, provided no prior interest has been expressed for this bid or offer. Any such intention to execute expressed to the counterparty or to Platts before 1730 hours would be seen as a valid intention to transact even if the deal was fully finalized after 1730. The deal would be used for assessment purposes.

Further Questions: In Singapore, you can contact Tom Enger at +65 6530 6504, Tom_Enger@platts.com, or Esa Ramasamy at +65 6530 6556, Esa_Ramasamy@platts.com

In London, you can contact Jorge Montepeque at +44 208 545 6136, Jorge_Montepeque@platts.com

In New York, you can contact Gerald Bueshel at +1 212 904 2928, Gerald_Bueshel@platts.com

OTHER PERSIAN GULF CRUDES

Platts publishes spot assessments for other Persian Gulf crudes in addition to Dubai and Oman: Murban, Lower Zakum, Qatar Land, Qatar Marine and Banoco Arab Medium crudes.

Front-month assessments for the Persian/Arab Gulf grades reflect cargoes loading two calendar months from date of publication. For example, in March, the front-month assessments reflect barrels loading in May. On the first working day of April, the front-month assessments will rollover to reflect barrels loading in June.

The assessments in the Persian/Arab Gulf reflect 500,000 bbl parcels. Spot premiums for partial cargoes may be considered or factored into the assessment concerned. Platts assessments for all Persian/Arab Gulf grades are based on a market on close principle at 17:30:00 Singapore time or 0930 GMT.

Platts does not take into consideration “deals” done between company affiliates or between companies with close working trading relationships.

Murban and Lower Zakum: These are crudes from Abu Dhabi of the United Arab Emirates. These two crudes, typically, trade at a differential to Abu Dhabi National Oil Co’s official selling price for the month concerned. That is a May loading Murban or Lower Zakum parcel would trade at a differential to ADNOC’s May OSP.

ADNOC’s OSP for Murban and Lower Zakum, however, are based on a differential to Dubai.

The equation used to arrive at a Murban or Lower Zakum assessment for May barrels is as follows: May Dubai swaps + Existing Murban OSP/Dubai spread + May spot Murban differentials + expected ADNOC adjustments.

This principle also applies to Lower Zakum.

Qatar Land and Qatar Marine: These crudes typically trade at a differential to Qatar Petroleum’s official selling price. Qatar’s OSP is announced on a retroactive basis and is based on a differential to Oman’s OSP. The equation to derive Qatar Land and Qatar Marine’s assessment for barrels lifting in May is as follows: May Oman MOG swaps + existing OSP/Oman OSP spread + spot differentials + expected OSP adjustments

Banoco Arab Medium: This crude comes from Bahrain, but is identical in structure to Saudi Arab Medium. None of the Saudi crudes trade on the spot market, but Arab Medium from Bahrain does, marketed by the Bahrain National Oil Co (Banoco).

Banoco Arab Medium trades at a differential to Saudi Aramco’s Arabian Medium official selling price. Aramco’s Arabian Medium OSP is announced one month forward and is based on the average of front-month Dubai/Oman assessements plus a differential. The Aramco’s May OSP is announced in early April. The equation used to derive Banoco Arab Medium’s assessment for barrels loading in May is as follows: Average of May Oman & Dubai swaps + existing OSP differential + spot differentials + expected OSP adjustments.

ASIA-PACIFIC

Prices published are assessments based on spot transactions and market information on cargoes and part-cargoes loading 15-45 days from date of publication. But for paper Tapis, the rollover date is the first day of the month.

Assessments also consider bids/offers, and differentials to other actively traded crudes, related paper markets and, in the case of Indonesian crudes, official crude prices (ICPs). Crude markets are assessed at 1730 Singapore time. The following are details of the specifications for the crudes reported including loading ports. Sulfur content and API gravity may vary over time.

Methodology: Platts assesses crude grades on a fixed price basis, and also where appropriate, the spread to the crude grades’ respective benchmarks. Most trade in the Asia Pacific region is conducted on a floating rather than fixed price basis. The fixed price assessment reflects the equivalent in fixed price terms of a floating price transaction. Platts will determine the relevant benchmark and determine the underlying value of the benchmark for the loading dates. In a typical example, a Tapis physical cargo may trade at a premium of 25 cts/bbl over its own benchmark. Platts will then determine in the swaps market what is the hedgeable level of the benchmark for the pricing dates and add the premium transacted. If the paper market around the bill of lading is $25.00/bbl then the fixed price equivalent is $25.25/bbl.

The same approach is used for Indonesian crude grades where they trade in relation to their own ICP, which is only released after the cargo has loaded. However, the fixed price equivalent of the transaction can be determined through the swap market for the ICPs or through values relative to the more liquid crude grades. In a typical example, a Minas cargo loading in April may trade at its own ICP plus 50 cts/bbl. If swap market for April Minas ICPs is at $25.00/bbl, then the fixed price equivalent of Minas is $25.50/bbl.

Spreads versus ICP: Platts assesses differentials to the Indonesian Contractual Prices (ICPs) for the following crudes: Minas, Attaka, Ardjuna, Handil, Cinta, Duri, Widuri, Belida and Lalang. The premium/discounts versus the ICP reflect cargoes loading 15-45 days from the date of publication.

Spreads versus Tapis: Platts assesses market premiums or discounts for several Asian and Australian crudes against Malaysian Tapis. The premiums/discounts assessed are for the following crudes: Thevenard, Griffin, Cossack, Kutubu and Nanhai. The premium/discounts reflect cargoes loading 15-45 days from the date of publication.

Northwest Shelf Condensate: The Northwest Shelf condensate spread is assessed against its own assessment. The spreads (premium or discounts) are assessments based on spot transactions and market information on cargoes and part cargoes loading 15-45 days from date of publication.

Asia-Pacific crudes

Crude	API	Sulfur (%)	Country	Location
Cossack	49	0.04	Australia	North West Australia
Gippsland	48	0.1	Australia	Westernport
Griffin	55	0.03	Australia	Denture, Griffin
Jabiru	42	0.05	Australia	Jabiru Venture, in Timor Sea
North West Shelf	60	0.01	Australia	Dampier
Thevenard	36	0.05	Australia	Thevenard Island
Daqing	32.7	0.1	China	Luda/Dalian in Yellow Sea
Nanhai Light	39.5	0.05	China	Hui Zhou
Shengli	24	0.9	China	Qingdao on Yellow Sea
Ardjuna	35.1	0.13	Indonesia	Ardjuna
Senipah	53.9	0.02	Indonesia	Blanglancang
Attaka	44.7	0.04	Indonesia	Santan, off Balikpapan
Belida	46.2	0.02	Indonesia	Belida
Cinta	32.7	0.11	Indonesia	Cinta
Duri	21.5	0.14	Indonesia	Dumai, Sumatra
Handil	33.8	0.07	Indonesia	Senipah, off Balikpapan
Minas	36	0.08	Indonesia	Dumai, Sumatra
Widuri	33.3	0.07	Indonesia	Widuri
Lalang	39.7	00.5	Indonesia	Lalang
Labuan	31.5	0.08	Malaysia	Labuan Island, off Sabah
Miri	31.9	0.08	Malaysia	Lutong in Sarawak, near Miri
Tapis	46	0.03	Malaysia	Kerteh, off Trengganu
Kutubu	44	0.04	New Guinea	Kumul terminal
Bach Ho	38.6	0.04	Vietnam	Bach Ho terminal

Ras Gas condensate & Al Shaheen crude: Platts will assess Qatar's Ras Gas condensate and Al Shaheen crude beginning Jan 3, 2005. Spot assessments will reflect barrels loading two calendar months from the date of publication. For example, on Jan 3, barrels loading in March will be assessed. These assessments will roll over on the first working day of the month. Spot assessments of Ras Gas and Al Shaheen will consist of a fixed-price assessment and an assessment of the spot market differential againsT Platts Dubai quotes. Assessments will take into consideration Ras Gas traded in typical 500,000 bbl cargoes, and Al Shaheen traded in typical 600,000 bbl cargoes. The Ras Gas and Al-Shaheen assessments will be published on Platts Global Alert page 440, Platts Crude Oil Marketwire and Platts Oilgram Price Report.

Bach Ho & Nile Blend: Platts will publish premium/discount assessments for Vietnam's Bach Ho crude and Sudan's Nile Blend crude beginning Jan 3, 2005. The FOB Bach Ho spot differential is a spread to its official selling price while FOB Nile Blend's spot differential is a spread to ICP Minas. FOB Nile Blend will also have a fixed-price assessment. Both these assessments will be for barrels lifting 15-45 days from date of publication and would take into account typical cargo sizes Bach Ho (600- 650,000 bbl) and Nile Blend (600-650,000 bbl). These assessments will be published on Platts Global Alert page 165, Platts Crude Oil Marketwire and Platts Oilgram Price Report.

UNITED STATES

TIMING

The spot month for all US domestic pipeline barrels changes on the first business day after the 25th of the calendar month except for Alaska North Slope, a US West Coast cargo market, and except for WTI Calendar Delta. It does not roll with the expiration of the front month of light sweet crude on the New York Mercantile Exchange. Rather, it continues for the three trading days in which the just-expired month continues to trade in the cash WTI market.

For US domestic pipeline barrels, the roll-over date coincides with the date US crude oil pipelines require scheduling to be completed for deliveries in the following month. For instance, from Jan 26 through Feb 25, the front-month out for all US domestic pipeline barrels is March. On Feb 26, the front-month out for all US domestic pipeline barrels switches to April. If the 26th falls on a weekend or holiday, the next business day marks the beginning of the new scheduling month. But if the 25th is a Saturday or Sunday, scheduling is not extended; it closes on the last business day prior to the 25th. This practice also is followed for California pipeline crudes.

The roll date for ANS crude is the 1st of the month,. In February, the assessment reflects March values. On March 1, the assessment will roll to April barrels.

GRADES

West Texas Intermediate (WTI): Platts has two separate WTI assessments: one at Cushing, Oklahoma, and the other at Midland, Texas. Platts assesses three months of WTI-Cushing barrels; Cushing assessments note the delivery month, such as WTI (Dec). Midland prices are noted as WTI (Mid). The delivery month assessed for WTI-Midland is the same as the first month assessed for WTI-Cushing.

API gravity is typically 38-40 degrees with sulfur content approximately 0.3%. The assessment for WTI-Cushing reflects market on close values at 3:15 PM EST. The rollover is the 1st business day after the 25th of every calendar month.

WTI-Cushing is assessed on a Market on Close basis. An explanation of MOC methodology can be found elsewhere in this document. Please check the table of contents.

Other WTI grades are assessed as a weighted average of the market differentials done during the day, until the end of the cash WTI window. That weighted average is then applied against the WTI-Cushing assessment.

Mars MOC and Mars: Platts assesses two sets of Mars quotes based on different sets of methodology.

Mars MOC, launched on September 26, 2003, is assessed on a Market-On-Close basis, reflecting the value of the grade at 3:15 PM EST, taking into account information received/observed during a 30-minute assessment window. The assessment reflects barrels for delivery into Clovelly, Louisiana, for three months forward. API gravity is typically 29, and the sulfur content is 2.00%. The minimum trading volume recognized for assessment purposes is 500 barrels/day. Both flat-priced and differential-based positions are considered for assessment purposes, as the latter can be converted into a fixed and flat price equivalent.

The long-established regular Mars assessment reflects the trade-weighted average of deals done throughout the day until the close of business at 3:15 PM EST. The assessment reflects barrels for delivery into Clovelly, Louisiana, for three months forward. The minimum trading volume recognized for assessment purposes is 100 barrels/day.

P-Plus WTI: The assessment reflects the price of WTI sold into Cushing on the basis of “postings plus.” P-plus deals are invoiced at a later date on the basis of a differential to an average of one or more crude oil postings. For example, a deal done at P-plus 75 cts would be invoiced at 75 cts more than the previously agreed-upon postings basis.

WTI Calendar Delta: The assessment reflects the price of WTI crude oil sold into Cushing/Oklahoma on the basis of a delta versus a monthly WTI average. WTI Calendar Delta deals are invoiced at a later date: For instance, March WTI calendar delta transactions would be based on the average of the NYMEX WTI front-month during March, plus or minus a delta, and then versus cash front-month WTI after the NYMEX WTI front-month expiry. The delta fluctuates with first/second and first/third month WTI spreads, and with bids/offers in the market. The Platts WTI Calendar Delta assessment reflects where the delta is traded and/or talked in the market. The WTI calendar delta rolls to the next month after the 25th of the month, like other pipeline grades.

West Texas Sour (WTS): The assessment is for barrels delivered to Midland, Texas, with an API gravity of 33 degrees and a sulfur content of 1.6%.

Light Louisiana Sweet (LLS): The assessment is for barrels delivered to St. James, Louisiana. API gravity is 37 and sulfur content is 0.3%.

Heavy Louisiana Sweet (HLS): The assessment is for barrels delivered to Empire, Louisiana. API gravity is 32-33 and sulfur content is 0.3%.

Eugene Island: The assessment is for barrels delivered to St. James, Louisiana. The API gravity is 34 and the sulfur content is 1.00%.

Wyoming Sweet: The assessment is for barrels delivered to Guernsey, Wyoming, with an API gravity of 39 and a sulfur content of 0.25%.

Bonito: The assessment is for barrels delivered to St James, Louisiana. API gravity is 35.3 and sulfur content is 0.8%.

Mars: The assessment is for barrels delivered to Clovelly, Louisiana. API gravity is 29 and sulfur content is 2.00%.

Poseidon: The assessment is for barrels delivered to Houma, Louisiana. API gravity is 30 and sulfur content is 1.7%.

Basrah Light: The assessment is for waterborne barrels of Iraqi Basrah Light delivered into the US Gulf. API gravity is 31-35.5 and sulfur content is 2%. Basrah Light barrels are priced off the second month cash WTI assessment.

Alaska North Slope (ANS): California barrels are for delivery to Long Beach, California. API gravity is 29-29.5 and sulfur content is 1.1%.

Line 63: The assessment is for a blend of crude at 28-30 degrees API gravity and sulfur content of 1.02%, delivered at Hynes station, California on Four Corners’ pipeline line 63.

P-Plus Line 63: The assessment reflects the price of Line 63 sold into Hynes Station on Four Corners’ pipeline on the basis of “Posting Plus.” P-Plus deals are invoiced at a later date on the basis of a differential to an average of one or more crude postings for Buena Vista crude.

Thums: The assessment is for barrels delivered to Long Beach, California at 17 degrees API and a sulfur content of 1.5%.

Kern River: The assessment is for barrels delivered commonly to Texaco’s station 31 in Kern County, California, at 13.4 degrees API gravity with sulfur content of 1.1%. The crude is synonymous with San Joaquin Valley (SJV) heavy.

US CRUDE OIL POSTINGS

Platts publishes daily ***US Gulf Coast*** crude oil posted prices on Platts Global Alert (PGA) pages 172 and 179, and in Platts North American CrudeWire, posted by the following companies: ChevronTexaco, ConocoPhilips, Valero, Link, Shell, ExxonMobil, Koch, Murphy, Plains, and Sunoco. Published prices reflect postings as of 5:30 p.m. local New York time.

Platts publishes daily ***US West Coast*** crude oil posted prices on Platts Global Alert (PGA) pages 159 and 446, posted by the following companies: ChevronTexaco, ExxonMobil, Shell, and Union76. Published prices reflect postings as of 3:15 p.m. local New York time.

LATIN AMERICA

Platts assesses Latin American crude grades and publishes the differentials to their benchmark. Most transactions are concluded on a differential to WTI.

The rollover of the WTI benchmark is done on the first day after the 25th day of every month. Platts uses WTI 2nd line for all Latin crude assessments.

Price assessments for Latin crudes are FOB the loading terminal, and do not include top-off charges. Cargo volumes are 350,000 bbl and up. The assessment window for all Latin American crudes is 15-45 days forward.

Canadon Seco: The assessment is for barrels commonly sold FOB Caleta Olivia, Argentina with API gravity of 26 API and 0.3% sulfur.

Cano Limon: The assessment is for barrels commonly sold FOB Covenas, Colombia with API gravity of 29.5 and 0.5% sulfur.

Cusiana: The assessment is for barrels commonly sold FOB Covenas, Colombia with API gravity of 39.5 and 0.17% sulfur.

Mexican Crude Assessments

Isthmus	0.4(WTS + LLS)	+ 0.2(Dated Brent)	- constant
Maya	0.4(WTS + US Gulf No 6 3%S)	+ 0.10 (LLS + Dtd Brent)	- constant
Olmeca	0.333(WTS+LLS+Dated Brent)		+ constant

Escalante: The assessment is for barrels commonly sold FOB Caleta Cordoba, Argentina with API gravity of 24.1 and 0.2% sulfur.

Loreto: The assessment is for barrels commonly sold FOB Puerto Bayovar, Peru with API gravity of 20.0 and 1.2% sulfur.

Medanito: The assessment is for barrels commonly sold FOB Puerto Rosales, Argentina with API gravity of 35.1 and 0.4% sulfur.

Oriente: The assessment is for barrels commonly sold FOB Esmeraldas, Ecuador with API gravity of 25.0 and 1.3% sulfur.

Vasconia: The assessment is for barrels commonly sold FOB Covenas, Colombia with API gravity of 26.5 and 0.9% sulfur.

Santa Barbara: The assessment is for barrels commonly sold FOB Venezuela with API gravity of 26 and 0.95% sulfur.

Napo: The assessment is for barrels commonly sold FOB Esmeraldas, Ecuador with API gravity of 19 and 2.01% sulfur.

Marlim: The assessment is for barrels commonly sold FOB Sao Sabastiao, Brazil with API gravity of 20 and 0.9% sulfur.

Mesa 30: The assessment is for barrels commonly sold FOB Venezuela, with API gravity of 30 and 0.9% sulfur.

Mexican Crude Assessments: Mexican crude oil term prices to Western destinations are FOB and based on the following formulas:

A calculation of each day's prices can be found on *Platts Global Alert* and in *Platts Latin American Wire*.

CANADA

POSTINGS-BASED

The following Canadian assessments are based on an average of two or more posted prices. These assessments are quoted in both Canadian dollars per cubic meters, and an equivalent price in US dollars per barrel.

Par Crude: The assessment is for sweet crude delivered at Edmonton, Alberta with 40.02 API gravity and 0.3% sulfur. Posted prices from Esso (Imperial), Suncor, Petrocanada and Shell are totaled and averaged for the assessed value of Par crude.

Mixed Light Sour: The assessment is for mixed light sour delivered at Edmonton, Alberta. The posted price for Suncor-with 29.3 API gravity and 1.6% sulfur — and the posted price for Petrocanada-with 31.0 API gravity and 1.0% sulfur — are totaled and averaged for the assessed value of Mixed Light Sour.

Bow River/Hardisty: The assessment is for medium sour crude delivered at Hardisty, Alberta. The posted prices for Petrocanada, Esso, and Flint Hills (formerly Koch) are averaged for the value of Bow River/Hardisty.

Cromer Light Sour: The assessment is for light sour delivered at Cromer. The posted prices for Sunoco, Petrocanada, Esso, Koch and Shell – with an average posted API gravity of 35.05 and an average sulfur rating of 1.2% – are averaged for the assessed value of Cromer Light Sour.

Sour at Edmonton: The assessment is for Koch light sour delivered at Edmonton, Alberta. The posted prices for Petrocanada, Esso, Koch and Shell – with an average posted API gravity of 32.51 and an average sulfur rating of 1.0% – are averaged for the assessed value of Sour at Edmonton.

Cromer – Midale: The assessment is for medium, sour delivered at Cromer. The posted price for Sunoco, Esso, Koch and Shell – with an average posted API gravity of 29.30 and an average sulfur rating of 2.0% – are averaged for the assessed value of Cromer Midale.

SPOT-BASED

The following assessments are calculated on a NYMEX crude oil settlement basis. Crudes will be assessed for injection in the first forward month. The outright assessments will be derived on the basis of the daily NYMEX second-month crude oil settlement plus the daily NYMEX third-month crude oil settlement. Assessments are quoted in US dollars per barrel and Canadian dollars per cubic metre. Platts considers parcels for more than 100 b/d for injection.

Lloyd Blend: The assessment is for barrels injected at Hardisty, Alberta. API gravity is 21.8 and sulfur content is 3.36%.

Mixed Sweet: Injection at Edmonton. Gravity is 38.8 and sulfur content is 0.47%.

Light Sour Blend: Injection at Cromer. API gravity is 34-36 and sulfur content is 1.2-1.4%

Condensates: Injection at Edmonton. API gravity is 50.0 and sulfur content is 0.20%.

The following ***Canadian cargo*** assessments are based on spot transactions for cargoes loading 28 to 42 days forward from the date of publication. The outright price is derived from the forward value of Dated Brent with pricing typically 1-5 days after loading. Each cargo is about 675,000 bbl:

Hibernia: The assessment is for barrels loading FOB terminal basis Whiffenhead, Newfoundland, Canada. The API gravity is 36.0 and the sulfur content is 0.4%.

Terra Nova: The assessment is for barrels loading FOB terminal basis Whiffenhead, Newfoundland, Canada. The API gravity is 32.9-33.4 and the sulfur content is 0.48%.

CANADIAN CRUDE OIL POSTINGS

Platts publishes daily crude oil posted prices on Platts Global Alert (PGA) pages 149 and 435, and in Platts North American CrudeWire, posted by the following companies: Esso (Imperial), Suncor, PetroCanada, Shell, and Flint Hills. Published prices reflect postings as of 3:15 p.m. local New York time. Platts daily Canadian Postings Derived Crude Assessments are derived from the averages of all postings for each crude assessed as of 3:15 p.m. local New York time.

UNSCHEDULED NYMEX CLOSURES

In the event that the New York Mercantile Exchange is closed unexpectedly, all US crude assessments will be produced. Platts believes there will be adequate OTC trade in the Brent/WTI market and the market for grade differentials to produce an accurate assessment. That policy also will apply to Latin American crudes. Based on past history, Platts does not believe there will be adequate flat price OTC trade in the markets for light ends in the US Gulf Coast, US Atlantic Coast and the US Midcontinent to serve as a substitute for an outright NYMEX settlement.

Instead, those markets will be assessed by adjusting the prior day's NYMEX settlement up or down by an amount equivalent to the equalized per gallon price of the $/bbl movement in the Platts' WTI assessment for Gulf Coast and Midcontinent, and its 15-day Brent assessment for the US Atlantic Coast. New assessments of market differentials will then be applied against those prices to determine the final assessment. West Coast light ends, residual fuel, bunker fuel, LPG, MTBE and other blendstocks will be produced as normal.

Platts also reserves the right to suspend assessments should there be a major calamity, such as the events of September 11.

TRADING PLATFORMS

Platts treats firm trading positions and deals from Internet platforms exactly as it does any other information from principals or from intermediaries such as voice brokers. Platts cannot make any guarantee in advance about how and whether the information will be incorporated in its final assessments. All trading positions and deals submitted to Platts need to meet general requirements on openness and transparency. Platts market specialists then make an assessment based on published assessment parameters using all the information available.