

10 June 2024

# World Crude Methodology

**Expiry date of this methodology document: 1 June 2025**



## List of contents

- Introduction to World Crude Report (WCR)
- General methodology
- Rationale for crude oil methodology
  - Rationale
  - Delivery locations
  - Grade specifications
  - Unit prices and credit terms
  - Volumes
- Recent changes to this methodology
- Price assessments – definitions
  - ICE Futures Brent contract expiry
  - WTI Inclusion in BFOETM assessment
  - BFOETM assessment
    - Freight Adjustment Premium (FAP)
  - North Sea crudes
  - Asia-Pacific
  - Arab Gulf
  - Americas
- Other principles and guidelines
  - Changes to methodology
  - Consistency
  - Data standards
  - Exercise of judgment
  - Exclusion of data
  - Description of data used
  - Key submitter dependency
  - Market communication
  - Market data verification
  - Minimum data threshold
  - Selection of participants
- ICIS contact details



## Introduction to the World Crude Report (WCR)

The World Crude Report (WCR) contains independent assessments of global crude oil benchmark prices. These include North Sea Brent (BFOETM), West Texas Intermediate (WTI), Asian BFOETM and Arab Gulf Dubai, in addition to a raft of associated grades.

The WCR also contains technical analysis of crude prices aligned with forward-looking commentary on global events, macroeconomic drivers, trading activity and daily news.

The WCR is published three times daily on every English working day unless otherwise indicated, with data also available through data feeds. A comprehensive price history database is available.

## General methodology

ICIS continuously develops, reviews and revises its methodologies in consultation with industry participants. The product specifications and trading terms and conditions used are intended to reflect typical working practices in the industry.

ICIS publishes market assessments based on information gathered from market participants about: spot transactions, spot bid and offer levels, contract price negotiations, prices of related commodities, and relevant freight costs.

ICIS does not make retrospective adjustments or changes to price assessments based on information received after publication time or after any cut-off point specified in individual methodology documents.

ICIS regards all arm's-length transactions which meet its specification criteria as carrying equal weight.

ICIS uses proprietary models where necessary to normalise data to the typical specifications for cargo size and date ranges given for each commodity.

Some ICIS assessments are the product of calculation alone, for example in markets where insufficient market activity takes place to permit price assessment, or where a market itself habitually sets prices according to a formula. Such calculated assessments are noted as such in their detailed methodology specifications.

ICIS endeavours to cross-check all the transaction information it gathers. ICIS will not use information for assessment purposes where such checks call into doubt the accuracy of the original information, or where a transaction appears to have occurred under circumstances that render it non-repeatable or otherwise markedly unusual.



## Rationale for crude oil methodology

All ICIS-published assessments in the crude oil market are market closing assessments. They are intended to represent the tradable value of a particular crude grade at the time commonly agreed by the marketplace to represent a daily physical market close.

A closing value price assessment takes into account: confirmed deals, bids and offers; market direction; and market relationships with other like grades and related derivative instruments, where relevant, at the time of the close of business for each region.

The value published is intended to reflect the real transactable value of a commodity at the point of close. As such, bid and offer information at the close would take precedence over transactions done earlier in the day.

Where a confirmed deal is done for the same grade and loading range as confirmed bids and offers, and when all are declared to the market simultaneously, the deal will take precedence over the bids and offers.

ICIS takes into account a wide range of market input in making such choices and reserves the right to exclude from its processes any price information deemed unreliable or unrepresentative of the market. ICIS commits to describing the information it deemed reliable in the daily market comment accompanying its assessments, including transactions, bids, offers and other market information used in making these assessments. This includes instances where ICIS typically assesses based on firm transaction or bid/offer information, but where that information was not available on a given day and alternative evidence was used.

Cargoes partially loading outside of the Assessed Trading Timeframe may be reflected in the assessment but will not typically be used where there is deal/bid/offer information within the assessment period. Prompt loading cargoes will not be taken into consideration. Prompt loading is defined as a cargo with no loading days within the assessment period.

Where ICIS also publishes its single value assessments as a bid/offer, this represents a static range either side of the published single value assessment.

ICIS has adopted this closing methodology based on several decades of market observation and feedback, which have made it clear that market relationships (differentials) are of paramount importance to the smooth functioning of crude markets. Only a single-point-in-time snapshot can accurately map these differentials. Other measurement strategies, for example weighted averaging, are vulnerable to random variation in transaction levels and volume, which can give rise to distortions in the resulting differentials.

In addition, the volume of transactions for any given crude oil each day is unknowable in advance, and a volume-dependent methodology is exposed a) to the charge that lower volumes will result in less accurate prices and b) to the possibility of complete failure in the event that no transactions occur.



The use of closing trade follows from the natural tendency of commodities markets to show higher levels of activity at the close of the day. In addition, the market's knowledge that prices are based on the close provides a virtuous circle incentive for market participants to trade transparently during the same period of time as their competitors.

### **Delivery locations for price assessments**

Locations for ICIS crude assessments are chosen to reflect the concentration of liquidity on the traded markets.

### **Grade specifications**

Specifications are chosen to reflect the concentration of liquidity on the traded markets for each delivery location.

### **Unit prices and credit terms**

All grades of crude are generally traded in US dollars/barrel and therefore all price assessments are quoted on this basis.

Typical credit terms for crude are 30 days from Bill of Lading date.

### **Volumes**

For each crude grade ICIS publishes the standard cargo size, found in the specifications sections of this methodology document. Market information for cargoes conforming to these standards will be fully considered in the assessment process, providing the information conforms to all other specifications and conditions published in this methodology.

If ICIS has market information regarding cargoes outside of these published ranges, it will only be used in the absence of any standard-sized cargo information. In this case, ICIS will seek to establish whether there is a market price premium or discount for the non-standard cargo and apply this for the purpose of making its assessment.

### **Recent changes to this methodology**

| Date     | Assessment                    | Change  |
|----------|-------------------------------|---|
| Nov 2023 | Basrah Medium<br>Basrah Heavy | Minor methodology change to clarify assessment stating use of M1-M3<br>Dubai swap spread to establish pricing |



|          |   |   |
|----------|---|---|
| Jun 2023 | Dated BFOETM (daily assessment)   | US WTI Midland cargoes included in North Sea pricing assessment |
| Mar 2023 | Qatar Land<br>Qatar Marine  | Updates to Qatar Official Selling Prices (OSPs).                |
| Aug 2022 | Addition of Basrah Medium<br>Removal of Basrah Light  | Basrah Light removed, Basrah Medium added                       |
| Aug 2022 | Cash Dubai-Dubai swap<br>Cash Oman-Dubai swap<br>Murban-Dubai swap<br>Das-Dubai swap<br>Upper Zakum-Dubai swap<br>Al Shaheen-Dubai Swap | Addition of swaps   |
| Aug 2022 | Brent-Dubai EFS M1<br>Brent-Dubai EFS M2  | Addition of EFS spreads   |
| Apr 2022 | Med-CIS and West Africa (daily assessments)   | Med-CIS and West African assessments discontinued               |



## ICE Futures Brent contract expiry methodology

The following is the standard methodology used by ICIS to assess the cash market value of the expiring front-month ICE Futures Brent contract.

For assessment purposes, the trading day shall be deemed to commence at 09:00 and finish at 19:30 London time.

ICIS makes five assessments on Expiry Day (as on every other business day):

- London Morning 10:30 London
- London Midday 12:30 London
- London Afternoon 14:30 London
- London Snapshot 16:30 London
- Exchange Close 19:30 London

At each of these assessments, ICIS determines three values:

- The second-month ICE Futures Brent contract
- The EFP (Exchange of Futures for Physical) for such second-month
- The Cash BFOETM (Brent/Forties/Oseberg/Ekofisk/Troll/WTI Midland) front month to second month spread

The value of the second month ICE contract shall be determined by the last trade immediately before each of the first four timestamps. This is called the 'Last Trade Marker' (or the mid-point of the last bid and offer).

The value of the second month ICE contract at the **Exchange Close** at 19:30 shall be determined by the Settlement as published by ICE Futures. This is termed the 'Minute Marker' (two-minute weighted average of all trades prior to the 19:30 bell).

### Example of expiry day assessment

| TIME STAMP  | ICE M2 | M2 EFP | M1-M2 SPREAD | CASH M1 |
|-------------|--------|--------|--------------|---------|
| 10:00-10:30 | 82.74  | 0.12   | 0.40         | 83.26   |
| 12:00-12:30 | 83.13  | 0.13   | 0.40         | 83.66   |
| 14:00-14:30 | 83.69  | 0.13   | 0.40         | 84.22   |
| 16:00-16:30 | 83.58  | 0.13   | 0.51         | 84.22   |
| 19:00-19:30 | 83.45  | 0.13   | 0.50         | 84.08   |

*\*Actual expiry day assessment on 28 February 2023*

The EFP shall be determined by the latest bid, offer or trade value as seen in the market. (Such value will be as reported to ICIS by major market brokers, e.g., PVM, ICAP, Alpha, Tullett-Prebon, Marex and FC Stone and/or oil companies/traders/brokers active in the market).

The spread shall also be determined by the latest bid, offer or trade value as seen in the market.



ICIS endeavours to cross-check all the transaction information it gathers. ICIS will not use information for assessment purposes where such checks call into doubt the accuracy of the original information, or where a transaction appears to have occurred under circumstances that render it non-repeatable or otherwise markedly unusual.

ICIS also reserves the right to discount any bids and offers that are too far apart to accurately indicate the market value of the assessed contract, either EFP or spread.

if the bid-offer spread is too far apart to accurately indicate the market value and the most recent transaction prior to the assessment time is not a reliable indicator of market value at the assessment time, an assessment within the bid-offer spread will be made.

If the most recent transaction prior to the assessment time is a reliable indicator of market value at the assessment time, the assessment will be made in reference to the most recent trade.

If the bid-offer spread is narrow enough to accurately indicate the market value, ICIS will generally assess at the mid-point.

The cash market value of the expiring front-month ICE Futures Brent contract shall be determined as follows:

- The second-month ICE contract
- Plus/minus the EFP for such second-month
- Plus/minus the cash front-month to second month spread

However, in exceptional circumstances, ICIS reserves the right to use other relevant market data in the calculation of its assessment.

ICIS reserves the right to change or amend any window assessment (amid low trading activity) after the 15-minute mark after assessing the window, if we understand that activity later in the day is more reflective of the market.

## North Sea crude oil specifications

| Country | Grade     | API  | Sulphur | Loading port | Terms         | Standard cargo size<br>(barrels) |
|---------|-----------|------|---------|--------------|---------------|----------------------------------|
| UK      | Brent     | 38.0 | 0.45    | Sullom Voe   | FOB           | 700,000                          |
| UK      | Forties   | 38.7 | 0.79    | Hound Point  | FOB           | 700,000                          |
| Norway  | Oseberg   | 37.8 | 0.27    | Sture        | FOB           | 700,000                          |
| Norway  | Ekofisk   | 38.4 | 0.22    | Teesside     | FOB           | 700,000                          |
| Norway  | Statfjord | 39.5 | 0.22    | Platform     | CIF Rotterdam | 800,000-855,000                  |
| Norway  | Asgard    | 47.1 | 0.19    | Platform     | CIF Rotterdam | 800,000-855,000                  |
| Norway  | Gullfaks  | 37.5 | 0.22    | Platform     | CIF Rotterdam | 800,000-855,000                  |





|        |                 |      |      |                   |               |         |
|--------|-----------------|------|------|-------------------|---------------|---------|
| UK     | Flotta          | 36.9 | 0.83 | Flotta            | FOB           | 700,000 |
| Norway | Troll           | 35.9 | 0.14 | Mongstad          | FOB           | 700,000 |
| USA    | WTI Midland     | 42.0 | 0.20 | Weighted average* | FOB           | 700,000 |
| UK     | Brent CIF       | 38.0 | 0.45 | Sullom Voe        | CIF Rotterdam | 700,000 |
| UK     | Forties CIF     | 38.7 | 0.79 | Hound Point       | CIF Rotterdam | 700,000 |
| Norway | Oseberg CIF     | 37.8 | 0.27 | Sture             | CIF Rotterdam | 700,000 |
| Norway | Ekofisk CIF     | 38.4 | 0.22 | Teesside          | CIF Rotterdam | 700,000 |
| Norway | Troll CIF       | 35.9 | 0.14 | Mongstad          | CIF Rotterdam | 700,000 |
| USA    | WTI Midland CIF | 42.0 | 0.20 | Weighted average* | CIF Rotterdam | 700,000 |

*The above specifications for API and sulphur should be taken only as typical for the grade and not a guarantee of quality.*

*\*Weighted average of Sullom Voe, Hound Point, Sture, Mongstad and Teesside*

### **WTI Inclusion in the BFOETM assessment**

Following the inclusion of WTI Midland cargoes in the Dated BFOETM assessment on 1 June 2023, ICIS includes US grade WTI Midland in its assessment of the BFOETM complex, including physical Dated and Cash BFOETM.

ICIS accepts bids, offers and deals of Cash BFOETM where the buyer accepts delivery of WTI Midland, as well as the grades already in the complex.

### **BFOETM measurement**

ICIS assesses the daily value of Cash and Dated BFOETM (Brent, Forties, Oseberg, Ekofisk, Troll and WTI Midland) at 16:30 London time each day as follows: ICIS marks the currently traded value of ICE Brent futures at exactly 16:30 London time.

ICIS adds to or subtracts from the ICE Brent price the prevailing market value for EFP (Exchange of Futures for Physical) to derive a forward Cash Brent price. EFP prices are assessed using market transactions and/or bid and offer levels. ICIS creates an interpolated forward curve for BFOETM Contracts for Difference (CFD) based on the CFD values determined by actual market transactions and/or bid and offer levels and offsets this curve against the forward cash physical price. ICIS then applies the differential to this CFD curve of the cheapest of the components of the BFOETM pool to derive a Dated BFOETM price. This differential is determined by market transactions, bids and offers. (The BFOETM price, by common market consent, is deemed always to be the lowest price among the key crudes in the pool).

The differential of the relevant BFOETM grade against the forward curve is determined using the level of trades, bids and offers at the close of the 16:00-16:30 open market trading window in London, using cargo information on both FOB and CIF.



The inclusion of CIF cargoes of North Sea crude into the Dated BFOETM benchmark is done using a Freight Adjustment Premium (FAP) to convert cargo information on CIF delivered to Rotterdam terms into an FOB equivalent. The purpose is to reflect both FOB and CIF cargoes and balance their respective influence into the Dated BFOETM assessment.

### **Freight Adjustment Premium (FAP)**

The FAP is subtracted from CIF basis bids, offers or trades in the window to convert into FOB terms, and carries a full weight of 100% into the North Sea assessments. ICIS receives cross-UKC 80kt dirty tanker assessments in \$/tonne from industry shipping sources on a daily basis and these include freight and insurance.

The rates on five routes reflect each of the Rotterdam delivered Dated BFOETM grades:

- Brent (Sullom Voe-Rotterdam)
- Forties (Hound Point-Rotterdam)
- Ekofisk (Teesside-Rotterdam)
- Oseberg (Sture-Rotterdam)
- Troll (Mongstad-Rotterdam)
- WTI Midland (Weighted average of the five North Sea terminals-Rotterdam)

The FAP is assessed based on a last 10-day moving average of the \$/barrel freight cost in these individual routes. This \$/barrel FAP is then used to adjust CIF Rotterdam bids, offers or trades for their respective grades in the Dated BFOETM crude oil basket.

Sailing time adjustment is set at one day to allow for journeys from North Sea fields to the port of Rotterdam. The Dated BFOETM price will be set by the lowest physical differential among the BFOETM pool, using all available FOB and CIF information.

On occasion, e.g., prior to a public holiday, the open market trading session may take place at an earlier time, for example 12:00-12:30 London time, in which case ICIS will make clear that its assessments are based on activity during this earlier session. ICIS does not accept market information received after 19:30 London time for these grades for use in its assessments.

Information received after this time may be described in market comments but will not form part of the assessment process.

### **North Sea crudes**

ICIS assesses North Sea crude grades at 16:30 London time. In the absence of market information at that time, ICIS will use market information regarding deals/bids/offers or other evidence closest to that time during the same trading day.



In the assessment of the first five North Sea BFOETM pool grades, namely Brent, Forties, Ekofisk, Oseberg and Troll, ICIS may include information related to the same grade on both FOB and CIF terms. In such a case, ICIS will add or subtract the FAP, as detailed above, and adjust for the sailing time to get an equivalent FOB or CIF value. The differentials of CIF grades in the BFOETM pool will be determined by the final assessment of the FOB differential, including any information on a CIF and FOB basis, plus the FAP.

WTI Midland is reflected in a CIF differential only and is adjusted for freight costs using an equally weighted average of the five North Sea terminals (Sullom Voe, Hound Point, Teesside, Mongstad and Sture). CIF Rotterdam WTI Midland bid and offers are reflected in FOB Dated Brent terms and are included in the North Sea Dated assessment process.

ICIS reserves the right to include any information on a CIF basis when deemed a more accurate reflection of the market. While cargoes offered/sold on a Ship-to-Ship (STS) transfer basis are not covered by the standard methodology, ICIS reserves the right to take these into account in the formulation of its assessments.

The assessments are based on the market differential to Dated BFOETM for each grade applied to the value of the ICIS Dated BFOETM assessment as established in line with the above methodology.

In the absence of any recent information regarding trades, bids and offers for any specific grade, ICIS will assess the differential to Dated BFOETM using recognised market relationships with other like grades.

The Assessed Trading Timeframe is 10 days to one month forward from the date of publication. The end of the Assessed Trading Timeframe will fall on the same day of the month as the assessed date, unless:

1. Publication Day falls on the day before an English weekend or public holiday, in which case the timeframe lengthens by the number of ensuing weekend/public holiday days
2. M+1 is shorter than M0 and does not contain a day of the month corresponding to the publication day, in which case the timeframe ends on the second to last day of M+1
3. The end of the trading timeframe would fall on the last day of M+1, in which case it shortens to the second to last day of M+1
4. Publication Day is the last working day of month, and M+1 contains more days than the current month, in which case the assessed trading timeframe lengthens to the second to last day of M+1.

ICIS does not accept market information received after 19:30 London time for these grades for use in its assessments. Information received after this time may be described in market comments but will not form part of the assessment process.



## Asia-Pacific crude oil specifications

| Country   | Grade               | API<br>(°) | Sulphur<br>(%) | Loading port                      | Terms | Standard Cargo<br>Size (barrels) |
|-----------|---------------------|------------|----------------|-----------------------------------|-------|----------------------------------|
| Australia | Cossack             | 48.2       | 0.04           | Cossack FPSO Pioneer              | FOB   | 500,000-650,000                  |
| Indonesia | Duri                | 20.3       | 0.21           | Dumai Terminal                    | FOB   | 100,000-200,000                  |
| Russia    | ESPO Blend          | 34.5       | 0.60           | Kozmino                           | FOB   | 700,000-750,000                  |
| Indonesia | Minas               | 33.9       | 0.09           | Dumai Terminal                    | FOB   | 100,000-200,000                  |
| Australia | NW Condensate Shelf | 62.3       | 0.01           | Dampier Terminal                  | FOB   | 500,000-650,000                  |
| Malaysia  | Tapis               | 45.0       | 0.02           | Kerteh TCOT                       | FOB   | 300,000-600,000                  |
| Malaysia  | Kimanis             | 38.6       | 0.06           | Sabah Oil and Gas Terminal (SOGT) | FOB   | 300,000-600,000                  |
| Malaysia  | Labuan              | 29.9       | 0.08           | Labuan Crude Oil Terminal (LCOT)  | FOB   | 300,000-600,000                  |
| Vietnam   | Chim Sao            | 38.5       | 0.03           | Chim Sao Marine Terminal(FPSO)    | FOB   | 200,000-600,000                  |

ICIS reserves the right to include in its assessments pricing information for cargoes loading from other ports when originating from the countries listed above when deemed an accurate reflection of the market.

The above API and sulphur specifications should be taken only as typical for the grade and not a guarantee of quality.

Asia Pacific crude grades are assessed at 16:30 Singapore time. In the absence of market information at that time, ICIS will use market information regarding deals/bids/offers or other evidence closest to that time during the same trading day.

With the exception of ESPO Blend, such assessments will be based on the market differential to Dated BFOETM for each grade, applied to the value of the ICIS Asian Dated BFOETM assessment.

ICIS assessments for Asian Dated BFOETM are established at 16:30 Singapore time.

On occasion, e.g. on a public holiday, the open market trading session may take place at an earlier time, for example 12:00-12:30 Singapore time, in which case ICIS will note in the relevant trading overview section that its assessments are based on activity during this earlier session.

The Assessed Trading Timeframe for Asian grades is based on the full calendar month, two months ahead of the date of publication.

ICIS does not accept market information received after 20:00 Singapore time for these grades for use in its assessments. Information received after this time may be described in market comments but will not form part of the assessment process.



### **Asian Dated BFOETM**

The Asian Dated BFOETM assessment is calculated by applying the Dated to forward month BFOETM differential established for the North Sea section in the previous session to the value of the relevant forward month BFOETM value at the Singapore 16:30 Close.

In the absence of any recent information regarding trades, bids and offers for any specific grade, ICIS will assess the differential to Asian Dated BFOETM using typical market relationships with other like grades.

### **ESPO Blend**

The ICIS assessment for ESPO Blend is for cargoes trading two months forward. It is based on the current front month Dubai swap price (third month (M3) Dubai forward price) plus the grade's current market differential to front month Dubai swaps (M3 Dubai forward price), as established in line with the Dubai measurement (see Arab Gulf section below). ICIS establishes the market differential based on available transaction/bid/offer information. During periods of low liquidity particularly in the first half of the month trades, bids and offers for cargoes for loading one month forward may be used in the assessment. They will be converted to equivalent value for cargoes loading two months forward using the relevant M2-M3 intermonth Dubai spread.



## Arab Gulf crude oil specifications

| Country   | Grade         | API<br>(°) | Sulphur<br>(%) | Loading port              | Terms | Standard Cargo<br>Size (barrels) |
|-----------|---------------|------------|----------------|---------------------------|-------|----------------------------------|
| Dubai     | Dubai         | 30.4       | 2.13           | Fateh                     | FOB   | 25,000-500,000**                 |
| Oman      | Oman          | 31.3       | 1.14           | Mina al Fahal             | FOB   | 1,000-500,000**                  |
| Abu Dhabi | Murban        | 40.5       | 0.74           | Jebel Dhanna,<br>Fujairah | FOB   | 500,000                          |
| Abu Dhabi | Das           | 39.1       | 1.14           | Das Island                | FOB   | 500,000                          |
| Abu Dhabi | Upper Zakum   | 33.9       | 1.74           | Zirku Island              | FOB   | 500,000                          |
| Qatar     | Qatar Land    | 40.0       | 1.35           | Mesaieed                  | FOB   | 500,000                          |
| Qatar     | Qatar Marine  | 31.5       | 2.17           | Halul Island              | FOB   | 500,000                          |
| Qatar     | Al Shaheen    | 29.5       | 2.31           | FSO Asia / FSO<br>Africa  | FOB   | 500,000                          |
| Iraq      | Basrah Medium | 29.0       | 3.00           | ABOT/KAAOT*               | FOB   | 1m–2m                            |
| Iraq      | Basrah Heavy  | 24.0       | 3.83           | ABOT/KAAOT*               | FOB   | 1m–2m                            |

\*ABOT - Al Basra Oil Terminal, KAAOT - Khor al-Amaya Oil Terminal

\*\*Due to liquidity issues in the physical market, assessments for Oman and Dubai are based predominately on business activity in the derivatives markets rather than for full 500,000 barrels cargoes. These derivative products used in assessments include 25,000 barrels Dubai and Oman partials and 1,000 barrels lots of DME Oman futures

ICIS reserves the right to include in its assessments pricing information for cargoes loading from other ports when originating from the countries listed above when deemed an accurate reflection of the market.

The above specifications for API and Sulphur should be taken only as typical for the grade and not a guarantee of quality.

Arab Gulf crude grades are assessed at 16:30 Singapore time.

On occasion, e.g. on a public holiday, the open market trading session may take place at an earlier time, for example 12:00-12:30 Singapore time, in which case ICIS will clarify in its trading overview section that its assessments are based on activity during this earlier session.

In the absence of market information at that time, ICIS will use market information regarding deals/bids/offers or other evidence closest to that time during the same trading day.

In the absence of any recent information regarding trades, bids and offers for any specific grade, ICIS will assess the price using recognised market relationships with other like grades.

The Assessed Trading Timeframe for Dubai, Oman and other Arab Gulf cargoes is based on the full calendar month, two months forward of the date of publication.

ICIS does not accept market information received after 20:00 Singapore time for these grades for use in its assessments. Information received after this time



may be described in market comments but will not form part of the assessment process.

## Dubai

ICIS price assessments for Dubai cover three forward months, i.e. the front trading month plus two successive forward months, with the front trading month being the calendar month two months ahead of the date of publication. For example, in September, ICIS will assess November (M1), December (M2) and January Dubai (M3). The assessed months will roll forward on the 1st of each calendar month, or on the next working day should the 1st fall on a weekend or a holiday.

ICIS assesses the daily value of Cash Dubai at 16:30 Singapore time.

On occasion, e.g. on a working day prior to a public holiday, the open market trading session may take place at an earlier time, for example 12:00-12:30 Singapore time, in which case ICIS will clarify in its trading overview section that its assessments are based on activity during this earlier session.

The ICIS front month cash/physical Dubai contract assessment reflects primarily deals, bids and offers for 25,000 barrels Dubai partial cargoes during open market trading, due to limited number of full 500,000 barrels cargo trades. Full 500,000 barrels cargoes of Dubai, which usually trade at differential to front month Dubai swaps (M3 Dubai forward), can also be taken into consideration when information is available.

In the absence of market information at the assessment time, ICIS will use market information regarding deals/bids/offers or other evidence closest to the assessment time during the same trading day. In the absence of Dubai partials information, for example on Singapore public holidays, the front month physical Dubai assessment will be based on the spread with front month physical Oman established in the previous session.

In order to calculate the Dubai forward market values, ICIS first marks the currently traded value of ICE Brent futures at the aforementioned times.

ICIS subtracts from the front month ICE Brent price the prevailing market value for front month Brent-Dubai EFS (Exchange of Futures for Swaps) as determined by transactions and/or bid and offer levels in order to derive a Dubai swap value. ICIS then creates a forward curve for Dubai based on inter-month Dubai swap spreads determined by actual market transactions and/or bid and offer levels.

Dubai swaps will settle against the front month Dubai Cash assessment two months forward from the date of the trade. A given month's Dubai swaps prices is therefore deemed to be the equivalent to the cash price for two months forward.





In the absence of Dubai intermonth swap spread data, for example on Singapore public holidays, the M2 and M3 Dubai forward prices will be based on the intermonth spreads established in the previous session.

### **Front month Dubai Cash versus Dubai swaps**

Front month Cash Dubai is also assessed as a spread differential versus Dubai. This spread differential is calculated by subtracting the front month Dubai swaps (ICIS M3 Dubai forward) assessment from the ICIS assessment for front month Dubai Cash (ICIS M1 Dubai).

### **Brent-Dubai Exchange of Futures for Swaps (EFS)**

Front month Brent-Dubai Exchange of Futures for Swaps (EFS) and second month Brent-Dubai EFS values are also assessed by ICIS. These are based around market information on transactions and/or bid and offer levels.

### **Oman**

ICIS assessments for Oman crude cover the front trading month plus the succeeding forward month, with the front trading month being the calendar month two months ahead of the date of publication. For example, in September, ICIS will assess November (M1) and December Oman (M2). The assessed months will roll forward on the 1st of each calendar month, or on the next working day should the 1st fall on a weekend or a holiday.

ICIS assesses the daily value of forward Oman months at 16:30 Singapore time.

On occasion, e.g. on a public holiday, the open market trading session may take place at an earlier time, for example 12:00-12:30 Singapore time, in which case ICIS will clarify in its trading overview section that its assessments are based on activity during this earlier session.

The ICIS physical Oman contract assessments are based on the expected Official Selling Price (OSP) issued by Oman's Ministry of Oil and Gas (MOG). The Oman OSP is calculated from the monthly average DME Oman futures assessments for the front month contract using the 16.30 Singapore marker values for DME Oman futures. Therefore, the daily 16.30 Singapore marker values for DME Oman futures are used primarily to set the ICIS Oman assessment. The DME Oman futures contract size is 1,000 barrels.

For the front month physical Oman contract assessment, information regarding deals, bids and offers for 25,000 barrels Oman partial cargoes during open market trading can also be taken into consideration as can trade information on full 500,000 barrels cargoes when available particularly during periods of low liquidity on the DME.





In the absence of market information at that time, ICIS will use market information regarding deals/bids/offers or other evidence closest to that time during the same trading day.

### **Front month Oman Cash versus Dubai**

Front month Cash Oman is also assessed as a spread differential versus Dubai. This spread differential is calculated by subtracting the front month Dubai swaps (ICIS M3 Dubai forward) assessment from the ICIS assessment for front month ICIS M1 Oman.

### **Murban, Das and Upper Zakum**

The ICIS assessment for Murban is calculated using the 16.30 Singapore IFAD front-month Murban crude marker and the spot market premium or discount to the anticipated Murban Official Selling Price (OSP).

The ICIS assessments for Das and Upper Zakum are calculated using the 16.30 Singapore IFAD front month crude marker together with the most recent Das and Upper Zakum OSP differentials and the spot market premiums or discounts to the anticipated Official Selling Price (OSP) for each grade.

On occasion, for example on a public holiday, the open market trading session may take place at an earlier time and close at 12:30 Singapore time, in which case ICIS will clarify in its trading overview section that its assessments are based on activity during this earlier session.

### **Murban, Das and Upper Zakum Price Assessments versus Dubai**

Murban, Das and Upper Zakum are also assessed as spread differentials versus Dubai. These spread differentials are calculated by subtracting the front month Dubai swaps (ICIS M3 Dubai forward) assessment from the ICIS assessments for Murban, Das and Upper Zakum.

### **Qatar Land and Qatar Marine**

The ICIS assessments for Qatar Land and Qatar Marine are based on the most recent Official Selling Price differential for the individual grade, plus the current market differential to the anticipated OSP for the month of loading, plus the price for the front month Dubai swaps.

### **Al Shaheen**

The ICIS assessment for Al Shaheen is based on the front month Dubai swap price (M3 Dubai forward), plus the grade's current market differential to front month Dubai swaps (M3 Dubai forward).



## Al Shaheen Price Assessment versus Dubai

Al Shaheen are also assessed as a spread differential versus Dubai. This spread differential is calculated by subtracting the front month Dubai swaps (ICIS M3 Dubai forward) assessment from the ICIS assessment for Al Shaheen.

## Iraq: Basrah Medium and Basrah Heavy

The ICIS assessment basis for Basrah Medium and Basrah Heavy are based on the most recent Official Selling Price differential for the individual grade, plus the current market differential to the upcoming OSP for the month of loading, plus the average price for front month Oman Cash minus M1-M3 Dubai spread and front month Dubai swaps (ICIS M3 Dubai Forward).

ICIS assessments for Basrah Medium and Basrah Heavy are for cargoes loading two months forward. Trades, bids and offers for cargoes for loading one month forward may be used in the assessment. They will be converted to equivalent value for cargoes loading two months forward using the relevant M2-M3 intermonth Dubai spread.

## Americas crude oil specifications

| Grade                         | API<br>(°) | Sulphur<br>(%) | Delivery Point       | Terms | Standard<br>Cargo<br>Size (barrels) |
|-------------------------------|------------|----------------|----------------------|-------|-------------------------------------|
| West Texas Intermediate (WTI) | 38-40      | 0.3            | Cushing, Oklahoma    | FIP   | Pipeline                            |
| West Texas Intermediate (WTI) | 38-40      | 0.3            | Midland, Texas       | FIP   | Pipeline                            |
| West Texas Sour (WTS)         | 32.8       | 1.98           | Midland, Texas       | FIP   | Pipeline                            |
| Light Louisiana Sweet (LLS)   | 35-40      | 0.4            | St. James, Louisiana | FIP   | Pipeline                            |
| Heavy Louisiana Sweet (HLS)   | 32-33      | 0.3            | Empire, Louisiana    | FIP   | Pipeline                            |
| Mars                          | 28.9       | 1.8            | Clovelly, Louisiana  | FIP   | Pipeline                            |
| Thunder Horse                 | 33.7       | 0.7            | Clovelly, Louisiana  | FIP   | Pipeline                            |
| Magellan East Houston (MEH)   | 40-44      | 0.4            | East Houston, Texas  | FIP   | Pipeline                            |
| Southern Green Canyon (SGC)   | 28.7       | 1.81           | Nederland, Texas     | FIP   | Pipeline                            |

The above specifications for API and sulphur should be taken only as typical for the grade and not a guarantee of quality.



The benchmark West Texas Intermediate (WTI) at Cushing, Oklahoma consists of two front months' daily assessments rolled forward on the 25th or following business day of every month.

ICIS physical market assessment for WTI is based on the settlement value of the NYMEX futures contract at the Cushing, Oklahoma delivery hub, at 13:30 Houston time.

ICIS assesses Americas crude grades based on information gathered from market sources. The differential to WTI for each grade is applied to the value of the ICIS WTI Cushing assessment in order to obtain an outright value.

In the absence of market information (deal evidence), ICIS will use bids/offers or other evidence such as a spreads (conversion) between grades and will be documented in the commentary.

In the event of a public holiday in the US, NYMEX WTI does not settle as usual at 13.30 Houston time. To generate assessments for Americas grades, ICIS uses the settlement from the previous business day as the reference point on US public holidays.

For three days following the expiration of the spot NYMEX futures contract and before pipeline scheduling, ICIS will calculate the front-month value based on the spread (roll) to the second month obtained from market sources.

ICIS does not accept market information received after 17:00 Houston time for these grades for use in its assessments. Information received after this time may be described in market commentary but will not form part of the assessment process.

## Other principles and guidelines

### Changes to methodology

All markets evolve and ICIS has a duty to ensure its methodologies for market-reporting evolve in step with markets.

ICIS therefore regularly conducts internal reviews of the appropriateness of its methodologies.

Draft changes are then made public and comment requested from industry participants, with a minimum one-month notice period, except where, exceptionally a *force majeure* event (natural disaster, war, bankruptcy of a trading exchange etc.) makes necessary a shorter notice period.

ICIS is committed to reviewing all comments on proposed methodology changes, but in some cases may find it necessary to alter its methodologies against the wishes of some market participants.

In addition, ICIS has a formal methodology consultation process. The company commits to holding this consultation every three years for the World Crude



Report. The date of the last consultation launched and the expiry date by which the company commits to conducting the next consultation can be seen at the top of the methodology document.

Please also refer to the Methodology Consultation Process section of the company's Compliance Manual. This contains detailed flow charts documenting the internal and external review and consultation process.

## **Consistency**

ICIS achieves consistency between its assessors in exercising their judgement by requiring all assessors to follow this detailed methodology as well as the company's Editorial Standards document. In addition, ICIS reporters are required to complete standard training before undertaking the work of a market reporter. Every reporter's work is peer reviewed and spot checked.

## **Data standards**

ICIS has a public Data Standards Policy which covers the type and quality of information we ask market participants to report.

The following principles relate to ICIS crude market assessments and commentaries:

- Where possible, please allow access to active market traders and allow them to comment on active news stories.
- Where possible, please provide market data from both front- and back-office functions.
- Where possible, please provide complete data and not a subsection.
- Flag inter-affiliate transactions.
- Flag sleeve trades.
- Flag spread trades.
- When a source or contact leaves the organisation please connect ICIS to the replacement (ICIS requests that both the source and the organisation contacts them).
- Where information is not validated by the source (i.e. rumour) please indicate as such.

## **Exercise of judgement**

Apart from instances where data may be excluded (see below), ICIS will typically exercise judgement where market information about firm bids and offers or transactions is not available.

In most cases this will involve the application of spread trade information or prevailing market relationships, detailed in the specifications section for each grade in this document.



ICIS will also exercise judgement where only a bid or offer is available, or where a bid/offer spread is so wide as to be unhelpful in establishing tradable value. In both instances, spreads to other grades or prevailing market relationships will typically be used to assess the price. In these cases the assessment will still fall above the highest firm bid and below the lowest firm offer, as long as the bid and/or offer information meets all other criteria specified in this methodology.

### **Exclusion of data**

In line with its Editorial Standards policy, ICIS reporters actively seek to identify anomalous market information and exclude it from the assessment process. For crude market assessments, this is done by the daily information gathering and verification process carried out by reporters, whereby market transaction, bid and offer information is confirmed and verified by multiple sources.

In assessing crude oil markets, ICIS takes into consideration only arms-length transactions between non-affiliated parties.

ICIS does not accept bids or offers that are not firm. Any bid or offer which is demonstrably not firm will be disregarded and further bids or offers from the same counterparty may also be disregarded.

ICIS also excludes from its assessments transactions where ICIS market reporters have reasonable grounds to doubt that a transaction is representative of typical market behaviour: for example, where a deal is concluded disregarding the best bid or offer on the market; where there is evidence that a market participant has disclosed only part of its market activity to ICIS; or where a transaction lies outside the prevailing range of typical market activity.

ICIS records instances of anomalous data and reviews these instances on a regular basis with a view to determining if a pattern exists.

Where market reporters have concerns over the behaviour of a market participant, this will be escalated using the ICIS Escalation Process for Compliance and Regulatory Issues. This can be found in the company's Compliance Manual.

### **Description of data used**

For each assessment published in the World Crude Report, ICIS gives a concise description of which type of market data was used to form the assessment. This is done using a standardised key code. A single letter published alongside the assessment denotes the type of information used as the primary basis for the assessment. Any other type of information ICIS may have gathered for that grade can be considered as supporting and of secondary importance in the formation of the assessment.



The types of information used in the crude oil assessments are as follows:

- a) Transaction data
- b) Bids/Offers
- c) Other market data
- d) Official Selling Prices (OSP)
- e) Relationship with other grade assessments
- f) No new data, assessment unchanged

### **Key submitter dependency**

Because of the sometimes thinly traded nature of certain crude oils, and the existence of markets where there are a limited pool of active counterparties, ICIS does not employ minimum rules on the number of submitters.

### **Market communication**

ICIS communicates with a broad range of market participants – traders, brokers, back-office employees, supply managers, operations personnel and company executives – to obtain market information.

ICIS communicates with participants by telephone, email, instant messenger and face to face. All instant messenger, email communication and notes of any face-to-face communication are archived and details of telephone communication are logged and data-based.

ICIS does not accept instant messenger communication from unknown parties, and reporters are required to verify a market participant's identity prior to using IM communication.

ICIS does not regard in any way as binding attempts by market participant companies to restrict ICIS communication with their employees. ICIS has a duty to its subscribers to obtain the maximum possible amount of market information. ICIS treats all communication from market participants as confidential.

ICIS reporters are bound by a Code of Conduct to report to their superiors any coercive or threatening communication from market participants, or any offers of inducements of any kind intended to influence an assessment.

Where improper communication appears to have taken place, ICIS will communicate in the first instance with senior management at the company or companies involved, and if necessary, with relevant market authorities.

ICIS expects the highest standards of propriety from all market participants and regards all communications from market participants as representative of the views of an individual's employer.

ICIS is committed to the highest levels of customer service, and has a formal feedback and complaints policy, which can be viewed [here](#):



<http://www.icis.com/about/icis-feedback-policy>

### **Market data verification**

ICIS will always make best endeavours to confirm bids, offers and transactions with the relevant party/parties. ICIS attempts to cross-check all market data received from a buy or sell-side participant with a participant's trading counterparty.

Where both counterparties to a transaction cannot or will not confirm the data, ICIS seeks corroboration from other market sources.

Where transaction or bid/offer information has been received from a trader rather than from a company's back office, ICIS always seeks confirmation from other sources.

Where ICIS has grounds to doubt an item of market data, it may request further evidence that a transaction has taken place, including documentary evidence.

ICIS treats transaction data received from active brokerages as confirmed.

On occasion, in markets with low liquidity and a low number of counterparties, ICIS may choose to use unconfirmed data, but only in so far as it is aligned with other market information and comes from a source deemed reliable by ICIS based on previous interactions.

### **Minimum data threshold**

Because of the sometimes thinly traded nature of some crude oil grades, ICIS does not have a minimum data threshold for its assessment methodologies in these markets. ICIS' crude oil methodology is designed to function accurately under all market conditions and to make use of parallel data where no direct transaction or bid/offer data is available.

Parallel data used is typically spread trade to other grades or, where this does not exist, prevailing market relationships with other grades. These procedures are explained within the specific grade methodologies above.

ICIS makes clear in its daily market comments whether it has assessed a price based on transaction or bid/offer data or whether it has used other forms of evidence or calculation.

### **Selection of participants**

ICIS policy on general market data is that we welcome all information regardless of source or constitution as long as it is provided in good faith as true.

However, only active market participants verified as such by existing active industry participants and verified as a viable business by ICIS investigations will



be allowed to contribute price data to ICIS for the purpose of assessing tradable market value under this methodology.

### **ICIS contact details**

To comment on this document or request further information please contact:

Barney Gray  
Global crude oil editor  
[barney.gray@icis.com](mailto:barney.gray@icis.com)  
+44 (0)7773 653 896

For regulatory or compliance issues please contact:

Richard Street  
Head of Regulation and Compliance  
[Richard.Street@icis.com](mailto:Richard.Street@icis.com)  
+44 207 9111427