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ARGUS EUROPEAN CRUDE OIL FORWARD CURVES

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The most up-to-date Argus European Crude Oil Forward Curves Methodology is available on www.argusmedia.com

Methodology overview

Argus European Crude Oil Forward Curves deliver daily assessments of forward prices for crude oil produced in Europe or regularly delivered to the region, with other grades included for comparison with other markets.

Argus forward curves provide an independent view of forward prices, informed by a variety of data sources for both liquid and illiquid markets. Argus forward curves are not intended to be “predictive” and do not represent a forecast of what a commodity will be worth in future physical prompt markets. Crude oil prices are expressed as outright values, intermonth spreads, and differentials to Ice Brent (London close).

Definitions

Argus European Crude Oil Forward Curves are assessed as forward financial prices (swaps). Forward financial prices reflect the market value of a named swap settling during the named month. Swaps ultimately settle against an average of multiple price assessments published daily during the named period. If a particular market or term does not have financial swaps that trade in the market, the underlying curve value is still calculated using a financial swap calculation methodology.

| Curve length | |
|--------------|----------------------------|
| Period | Number of periods assessed |
| Months | 49 |
| Quarters | 16 |
| Years | Minimum 4 |

Grades of crude covered

The following benchmarks and grades of crude oil are included in Argus European Crude Oil Forward Curves:

- North Sea Dated
- Brent
- Forties
- Oseberg
- Ekofisk
- Saharan Blend
- Es Sider
- Kirkuk
- Urals northwest Europe
- Urals Med 80kt
- Urals fob Primorsk
- Azeri Light
- BTC Blend
- CPC Blend
- Bonny Light
- Girassol
- Dalia

- Hungo
- Dubai
- Oman
- Basrah Light

The futures curves for Ice Brent and CME WTI are also included for reference.

For location and quality specifications of the underlying physical grades, please see the [Argus Crude methodology](#).

Timing

All prices are time-stamped 4:30pm London time.

Source data

Argus uses transactions, bids and offers, locational spreads and time spreads to derive forward prices. Market information is gathered from numerous sources, including brokers, traders, and mid and back offices of energy companies. Information that Argus cannot validate may be excluded from the assessment process. Transactions executed, bids placed, and offers made after the settlement time for the respective basis instrument are not normally considered for that day’s assessments.

Means of assessment

Argus assesses each market at the midpoint of bid-offer spreads, where possible. If the bid-offer spread is unusually wide by historic standards, Argus may assess the market elsewhere within the bid-offer range. If no bid-offer spread exists, Argus may base its assessment on the latest validated transaction. Argus may ignore transactions if they fall outside the bid-offer range prevailing at the timestamp, are above a prevailing offer, or are below a prevailing bid. Argus may use conversion, box and strip transactions to inform its assessments.

In the absence of bid, offer and transactional data, Argus will assess a market on the basis of its relationship to a more liquid market, so long as that relationship shows a historical r2 correlation of over 90pc. Relationships are rechecked for a 90pc r2 correlation at least every two weeks. Argus may assess the illiquid market by:

- Applying the historic spread between the two markets to its assessment of the liquid market
- Applying the liquid market’s day-on-day change to the price at which it assessed the illiquid market on the last business day

If, on a given day, Argus publishes European Crude Oil Forward Curves but not the Argus Crude report, differentials published in Argus European Crude Oil Forward Curves will be unchanged compared with the last business day.

Currency and units of assessment

Assessments are made in US dollars per barrel (\$/bbl).

Corrections to assessments

Argus will on occasion publish corrections to price assessments after the publication date. We will correct errors that arise from clerical mistakes, calculation errors, or a misapplication of our stated methodology. Argus will not retroactively assess markets based on new information learned after the assessments are published.

Ethics and compliance

Argus operates according to the best practices in the publishing field, and maintains thorough compliance procedures throughout the firm. We want to be seen as a preferred provider by our subscribers, who are held to equally high standards, while at the same time maintaining our editorial integrity and independence.

Argus has a strict ethics policy that applies to all staff. The policy can be found on our website at www.argusmedia.com. Included in this policy are restrictions against staff trading in any energy commodity or energy related stocks, and guidelines for accepting gifts. Argus also has strict policies regarding central archiving of email and instant messenger communication, maintenance and archiving of notes, and archiving of spreadsheets and deal lists used in the price assessment process.

Argus publishes prices that report and reflect prevailing levels for open-market arms length transactions (please see the [Argus Global Compliance Policy](#) for a detailed definition of arms length).

Updates to methodology

Argus methodologies are constantly updated and revised. The latest available methodology (which may supersede the one you are reading) is available at www.argusmedia.com.