METHODOLOGY AND SPECIFICATIONS GUIDE

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ARGUS MARINE FUELS

Contents:

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The most up-to-date *Argus Marine Fuels* methodology is available on www.argusmedia.com

Methodology overview

Methodology rationale
Argus strives to construct methodologies that reflect the way the market trades. Argus aims to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, the specific currencies, volume units, locations and other particulars of an assessment are determined by industry conventions.

In the marine fuels markets, Argus publishes physical market prices in the open market as laid out in the specifications and methodology guide. Argus uses the trading period deemed by Argus to be most appropriate, in consultation with industry, to capture market liquidity.

In order to be included in the assessment process, deals must meet the minimum volume, delivery, timing and specification requirements in our methodology. In illiquid markets, and in other cases where deemed appropriate, Argus assesses the range within which product could have traded by applying a strict process outlined later in this methodology.

Survey process
Argus price assessments are informed by information received from a wide cross section of market participants, including producers, consumers and intermediaries. Argus reporters engage with the industry by proactively polling participants for market data. Argus will contact and accept market data from all credible market sources including front and back office of market participants and brokers. Argus will also receive market data from electronic trading platforms and directly from the back offices of market participants. Argus will accept market data by telephone, instant messenger, email or other means.

Argus encourages all sources of market data to submit all market data to which they are a party that falls within the Argus stated methodological criteria for the relevant assessment. Argus encourages all sources of market data to submit transaction data from back office functions.

Throughout all markets, Argus is constantly seeking to increase the number of companies willing to provide market data. Reporters are mentored and held accountable for expanding their pool of contacts. The number of entities providing market data can vary significantly from day to day based on market conditions.

For certain price assessments identified by local management, if more than 50pc of the market data involved in arriving at a price assessment is sourced from a single party the supervising editor will engage in an analysis of the market data with the primary reporter to ensure that the quality and integrity of the assessment has not been affected.

Market data usage
In each market, Argus uses the methodological approach deemed to be the most reliable and representative for that market. Argus will utilise various types of market data in its methodologies, to include:

- Transactions
- Bids and offers
- Other market information, to include spread values between grades, locations, timings, and many other data.

In many markets, the relevant methodology will assign a relatively higher importance to transactions over bids and offers, and a relatively higher importance to bids and offers over other market information. Certain markets however will exist for which such a hierarchy would produce unreliable and non-representative price assessments, and so the methodology must assign a different relative importance in order to ensure the quality and integrity of the price assessment. And even in markets for which the hierarchy normally applies, certain market situations will at times emerge for which the strict hierarchy would produce non-representative prices, requiring Argus to adapt in order to publish representative prices.

Verification of transaction data
Reporters carefully analyse all data submitted to the price assessment process. These data include transactions, bids, offers, volumes, counterparties, specifications and any other information that contributes materially to the determination of price. This high level of care described applies regardless of the methodology employed. Specific to transactions, bids, and offers, reporters seek to verify the price, the volume, the specifications, location basis, and counterparty. In some transactional average methodologies, reporters also examine the full array of transactions to match counterparties and arrive at a list of unique transactions. In some transactional average methodologies, full details of the transactions verified are published electronically and are accessible by subscribers. The deals are also published in the daily report.

Several tests are applied by reporters in all markets to transactional data to determine if it should be subjected to further scrutiny. If a transaction has been identified as failing such a test, it will receive further scrutiny. For assessments used to settle derivatives and for many other assessments, Argus has established internal procedures that involve escalation of inquiry within the source's company and escalating review within Argus management. Should this process determine that a transaction should be excluded from the price assessment process, the supervising editor will initiate approval and, if necessary, documentation procedures.

Primary tests applied by reporters
- Transactions not transacted at arm's length, including deals between related parties or affiliates.
- Transaction prices that deviate significantly from the mean of all transactions submitted for that day.
- Transaction prices that fall outside of the generally observed lows and highs that operated throughout the trading day.
- Transactions that are suspected to be a leg of another transaction or in some way contingent on an unknown transaction.
- Single deal volumes that significantly exceed the typical transaction volume for that market.
- Transaction details that are identified by other market participants as being for any reason potentially anomalous and perceived by Argus to be as such.

- Transaction details that are reported by one counterparty differently than the other counterparty.
- Any transaction details that appear to the reporter to be illogical or to stray from the norms of trading behaviour. This could include but is not limited to divergent specifications, unusual delivery location and counterparties not typically seen.
- Transactions that involve the same counterparties, the same price and delivery dates are checked to see that they are separate deals and not one deal duplicated in Argus records.

Secondary tests applied by editors for transactions identified for further scrutiny

Transaction tests

- The impact of linkage of the deal to possible other transactions such as contingent legs, exchanges, options, swaps, or other derivative instruments. This will include a review of transactions in markets that the reporter may not be covering.
- The nature of disagreement between counterparties on transactional details.
- The possibility that a deal is directly linked to an offsetting transaction that is not publicly known, for example a “wash trade” which has the purpose of influencing the published price.
- The impact of non-market factors on price or volume, including distressed delivery, credit issues, scheduling issues, demurrage, or containment.

Source tests

- The credibility of the explanation provided for the outlying nature of the transaction.
- The track record of the source. Sources will be deemed more credible if they
  - Regularly provide transaction data with few errors.
  - Provide data by Argus’ established deadline.
  - Quickly respond to queries from Argus reporters.
  - Have staff designated to respond to such queries.
- How close the information receipt is to the deadline for information, and the impact of that proximity on the validation process.

Assessment guidelines

When insufficient, inadequate, or no transaction information exists, or when Argus concludes that a transaction based methodology will not produce representative prices, Argus reporters will make an assessment of market value by applying intelligent judgement based on a broad array of factual market information. Reporters must use a high degree of care in gathering and validating all market data used in determining price assessments, a degree of care equal to that applying to gathering and validating transactions. The information used to form an assessment could include deals done, bids, offers, tenders, spread trades, exchange trades, fundamental supply and demand information and other inputs.

The assessment process employing judgement is rigorous, replicable, and uses widely accepted valuation metrics. These valuation metrics mirror the process used by physical commodity traders to internally assess value prior to entering the market with a bid or offer. Applying these valuation metrics along with sound judgement significantly narrows the band within which a commodity can be assessed, and greatly increases the accuracy and consistency of the price series. The application of judgement is conducted jointly with the supervising editor, in order to be sure that guidelines below are being followed. Valuation metrics include the following:

Relative value transactions

Frequently transactions occur which instead of being an outright purchase or sale of a single commodity, are instead exchanges of commodities. Such transactions allow reporters to value less liquid markets against more liquid ones and establish a strong basis for the exercise of judgment.

- Exchange one commodity for a different commodity in the same market at a negotiated value.
- Exchange delivery dates for the same commodity at a negotiated value.
- Exchange a commodity in one location for the same commodity at another location at a negotiated value.

Bids and offers

If a sufficient number of bids and offers populate the market, then in most cases the highest bid and the lowest offer can be assumed to define the boundaries between which a deal could be transacted.

Comparative metrics

The relative values between compared commodities are readily discussed in the market and can be discovered through dialogue with market participants. These discussions are the precursor to negotiation and conclusion of transactions.

- Comparison to the same commodity in another market centre.
- Comparison to a more actively traded but slightly different specification commodity in the same market centre.
- Comparison to the same commodity traded for a different delivery timing.
- Comparison to the commodity’s primary feedstock or primary derived product(s).
- Comparison to trade in the same commodity but in a different modality (as in barge versus oceangoing vessel) or in a different total volume (as in full cargo load versus partial cargo load).

Volume minimums and transaction data thresholds

Argus typically does not establish thresholds strictly on the basis of a count of transactions, as this could lead to unreliable and non-representative assessments and because of the varying transportation infrastructure found in all commodity markets. Instead, minimum volumes are typically established which may apply to each transaction accepted, to the aggregate of transactions, to transactions which set a low or high assessment or to other volumetrically relevant parameters.

For price assessments used to settle derivatives, Argus will seek to establish minimum transaction data thresholds and when no such threshold can be established Argus will explain the reasons. These thresholds will often reflect the minimum volumes necessary to produce a transaction-based methodology, but may also establish minimum deal parameters for use by a methodology that is based primarily on judgement.

Should no transaction threshold exist, or should submitted data fall below this methodology's stated transaction data threshold for any reason, Argus will follow the procedures outlined elsewhere in this document regarding the exercise of judgement in the price assessment process.

Transparency
Argus values transparency in energy markets. As a result, where available, we publish lists of deals in our reports that include price, basis, counterparty and volume information. The deal tables allow subscribers to cross check and verify the deals against the prices. Argus feels transparency and openness is vital to developing confidence in the price assessment process.

Swaps and forwards markets
Argus publishes forward assessments for numerous markets. These include forward market contracts that can allow physical delivery and swaps contracts that swap a fixed price for the average of a floating published price. Argus looks at forward swaps to inform physical assessments but places primary emphasis on the physical markets.

Publications and price data
Marine fuels prices are published in the Argus Marine Fuels report. Subsets of these prices appear in other Argus market reports and newsletters in various forms. The price data are available independent of the text-based report in electronic files that can feed into various databases. These price data are also supplied through various third-party data integrators. The Argus website also provides access to prices, reports and news with various web-based tools. All Argus prices are kept in a historical database and available for purchase. Contact your local Argus office for information.

A publication schedule is available at www.argusmedia.com

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. We make our best effort to assess markets based on the information we gather during the trading day assessed.

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 sub-scribers, 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).

Consistency in the assessment process
Argus recognises the need to have judgement consistently applied by reporters covering separate markets, and by reporters replacing existing reporters in the assessment process. In order to ensure this consistency, Argus has developed a programme of training and oversight of reporters. This programme includes:

- A global price reporting manual describing among other things the guidelines for the exercise of judgement
- Cross-training of staff between markets to ensure proper holiday and sick leave backup. Editors that float between markets to monitor staff application of best practices
- Experienced editors overseeing reporting teams are involved in daily mentoring and assisting in the application of judgement for illiquid markets
- Editors are required to sign-off on all price assessments each day, thus ensuring the consistent application of judgement.

Review of methodology
The overriding objective of any methodology is to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, Argus editors and reporters are regularly examining our methodologies and are in regular dialogue with the industry in order to ensure that the methodologies are representative of the market being assessed. This process is integral with reporting on a given market. In addition to this ongoing review of methodology, Argus conducts reviews of all of its methodologies and methodology documents on at least an annual basis.

Argus market report editors and management will periodically and as merited initiate reviews of market coverage based on a qualitative analysis that includes measurements of liquidity, visibility of market data, consistency of market data, quality of market data and industry usage of the assessments. Report editors will review:

- Appropriateness of the methodology of existing assessments
- Termination of existing assessments
- Initiation of new assessments.

The report editor will initiate an informal process to examine viability. This process includes:

- Informal discussions with market participants
- Informal discussions with other stakeholders
- Internal review of market data

Should changes, terminations, or initiations be merited, the report editor will submit an internal proposal to management for review and approval. Should changes or terminations of existing assessments be approved, then formal procedures for external consultation are begun.

Changes to methodology

Formal proposals to change methodologies typically emerge out of the ongoing process of internal and external review of the methodologies. Formal procedures for external consultation regarding material changes to existing methodologies will be initiated with an announcement of the proposed change published in the relevant Argus report. This announcement will include:

- Details on the proposed change and the rationale
- Method for submitting comments with a deadline for submissions
- For prices used in derivatives, notice that all formal comments will be published after the given consultation period unless submitter requests confidentiality.

Argus will provide sufficient opportunity for stakeholders to analyse and comment on changes, but will not allow the time needed to follow these procedures to create a situation wherein unrepresentative or false prices are published, markets are disrupted, or market participants are put at unnecessary risk. Argus will engage with industry throughout this process in order to gain acceptance of proposed changes to methodology. Argus cannot however guarantee universal acceptance and will act for the good order of the market and ensure the continued integrity of its price assessments as an overriding objective.

Following the consultation period, Argus management will commence an internal review and decide on the methodology change. This will be followed by an announcement of the decision, which will be published in the relevant Argus report and include a date for implementation. For prices used in derivatives, publication of stakeholders' formal comments that are not subject to confidentiality and Argus' response to those comments will also take place.

Introduction

Argus Marine Fuels is a daily report on the retail market for marine fuels, commonly known as bunkers or bunker fuels. It features price assessments for key vessel refuelling locations, and for the bunker fuels typically marketed in those locations.

Means of assessment

Low-high assessments

Price assessments are based on transactions in the open spot market provided there is sufficient liquidity. The Argus low represents the lowest price transacted, and the high represents the highest price transacted. Assessments are based on transactions that meet strict volume, timing, and quality criteria (*see tables below*). Deals must be considered representative to have a bearing on Argus assessments.

Argus reserves the right to exclude deals from the range of trade. If a reported deal falls well outside of the generally observed highs and lows that operated throughout the trading day or raises other concerns, Argus will analyse the transaction in light of other market data in order to determine if the deal should be excluded. This process is critical to ensuring that the Argus range of trade is accurate and representative.

In the absence of sufficient transactions, Argus assesses the range within which the product could have traded, based on bids and offers, movements in similar grades, and other market data gathered through extensive polling of market participants. In addition to data about physical prices, Argus may look at forward swaps, formula-priced deals, and market fundamentals to inform assessments but places primary emphasis on physical market data.

Argus does not publish counterparty names in Americas marine fuels markets. Many Americas companies can only reveal deals to the press if confidentiality is maintained. Maintaining confidentiality allows Argus to gather more information and create more robust Americas assessments.

All prices are assessed and published in US dollars/metric tonne.

Volume-weighted averages

Price assessments are based on trades, bids and offers and other market information. If more than two assessment-relevant trades meeting the volume, timing and specification criteria and taking place on the assessment date are reported for a given market, the assessment will be published as the volume-weighted average of those trades.

Where two reported trades appear to be identical one will be removed to avoid double counting unless it can be established that they are separate trades.

Submitted trade data will be subject to a statistical analysis to remove outliers before the volume-weighted average is calculated.

Volume-weighted average marine fuels prices are published as single values in US dollars/metric tonne.

The total volume of reported trades is published for each grade for which a volume-weighted average assessment is produced. Those volumes include trades excluded from the volume-weighted average calculation as not meeting size or timing requirements, as well as those at outlying prices that fail the statistical analysis described above.

Volume-weighted averages are published for

Singapore delivered

Trades received after 7pm Singapore time may not be considered for inclusion in the assessment.
- HS 380cst
- LSFO 0.5%S
- MGO 0.1%S

Hong Kong delivered

Trades received after 7pm China time may not be considered for inclusion in the assessment.

- 0.5%S 380cst

Shanghai delivered

Trades received after 7pm China time may not be considered for inclusion in the assessment.

- 0.5%S 380cst

Fujairah delivered

Trades received after 5pm Dubai time may not be considered for inclusion in the assessment.

- 0.5%S 380cst
- HS 380cst
- MGO 0.1%S

Note: Argus assessments of Fujairah-delivered high sulphur (HS) 180cst and 0.5%S 380cst are assessed on the basis of relevant market information including but not limited to trades, bids and offers and spreads to more liquid grades.

Zhoushan Bunker Index

Trades received after 7pm China time may not be considered for inclusion in the assessment.

- HS 380cst
- LSFO 0.5%S
- MGO 0.1%S

Amsterdam-Rotterdam-Antwerp (ARA)

Trades received after 5:45pm London time may not be considered for inclusion in the assessment.

- 0.5%S 380cst
- MGO 0.1%S

Prices are also published separately for Rotterdam and Antwerp based on bids, offers, trades and other relevant market information. Market information at other Dutch ports may be considered for inclusion in the Rotterdam price and information at other Belgian ports may be considered for inclusion in the Antwerp price.

Gibraltar-Algeciras-Ceuta

Trades received after 5:45pm London time may not be considered for inclusion in the assessment.

- 0.5%S 380cst
- MGO 0.1%S

Delivery terms

Argus assesses marine fuels on an ex-wharf and on a delivered-on-board basis depending on the port.

Ex-wharf assessments are the price of fuel delivered to the wharf and do not include the cost of barging the fuel to the buyer's vessel if it is not at the wharf.

Delivered-on-board assessments are the price of fuel delivered to a vessel not at the wharf and include the cost of barging the fuel to the buyer's vessel.

Bunker assessments — quality criteria

Parameter	Unit	Limit	HS 500cst	HS 380cst	HS 180cst	Gasoil bunker (MGO)	ECA	0.5% Fuel oil
Sulphur	%	Max	3.5	3.5	3.5	*	0.1	0.5
Density at 15°C	kg/m³	Max	1,010	991	991	890	980	
Viscosity at 50°C	cst	Max	500	380	180		50-80	**
Viscosity at 40°C	cst	Max				6		
Viscosity at 40°C	cst	Min				2		
Flash point	°C	Min	60	60	60	60	60	60
Pour point summer	°C	Max	30	30	30	0	30	30
Pour point winter	°C	Max	30	30	30	-6	30	30
Ash	% m/m	Max	0.15	0.1	0.07	0.01	0.1	0.1
Vanadium	ppm	Max	450	350	150			350
Aluminum plus Silicon	ppm	Max	60	60	50			60
Water	% V/V	Max	0.5	0.5	0.5			0.5
Calculated cetane index		Min				40		

**see Bunker assessments — volume and delivery parameters table*

*** the maximum viscosity of 0.5%S fuel oil bunkers differs by port. See the volume and delivery parameters table below. No maximum viscosity is specified for Russian ports, the port of New Orleans in the US and the ports of Guayaquil and La Libertad in Ecuador, where viscosity can vary widely.*

Conventional marine fuels

Quality criteria

Argus Marine Fuels bunker assessments reflect the price of fuels meeting the following quality parameters.

Volume and delivery criteria

Argus marine fuels assessments are of the price of fuel delivered according to the following parameters (*see Bunker assessments — volume and delivery parameters table*).

**Note: Argus Marine Fuels includes 0.1pc sulphur ECA fuel assessments on a dob basis in Istanbul, Rotterdam, St Petersburg and Ust Luga. In Rotterdam the volume and delivery parameters are the same as for ARA MGO (see Bunker assessments — volume and delivery parameters table). For St Petersburg and Ust-Luga volume and delivery timing see the Argus Heavy Oil Products and Marine Fuels methodology. Quality criteria for ECA fuel assessments are listed above.*

Posted bunker prices

Argus publishes posted prices for some ports. Posted prices are reported to Argus directly by the seller or indirectly by market participants. Argus confirms posted prices reported to it indirectly with market participants.

Posted prices are updated in Argus Marine Fuels on the date when the new prices take effect. Prices are valid for the entire day on the day of publication, unless otherwise stated in Argus Marine Fuels. Where a supplier posts more than one set of prices in a single trade day, Argus will publish whichever set is valid for the largest part of the trade day.

Posted prices							
	HS 380cst	HS 180cst	0.5pcS*	0.5pcS 380cst	0.5pcS 180cst	MGO	Bio blends
Pemex in Mexico (ex-terminal)							
Pajaritos		x					
Lazaro Cardenas		x					
Salina Cruz		x					
Progreso		x					
Madero		x					
Trafigura in Argentina (delivered)							
Bahia Blanca			x			x	
Petrobras in Brazil (delivered)							
Rio Grande							B40 Adv.FAME 0/ VLSFO
PdV in Venezuela (ex-wharf/ex-pipe)							
Venezuela	x	x				x	
Colonial Oil Industries in the US (ex-wharf)							
Charleston						x	
Savannah						x	
Saudi Aramco in Saudi Arabia (delivered)							
Saudi Arabia western	x			x		x	
Saudi Arabia eastern	x			x		x	
CPC in Taiwan (delivered)							
Hualien, Suao					x	x	
Keelung					x	x	
Taichung					x	x	
Kaohsiung	x				x	x	
Pertamina in Indonesia (delivered, ocean-going vessels)							
Jakarta		x	x			x	B40 MGO
Surabaya		x	x			x	B40 MGO
Balikpapan		x	x				B40 MGO
Benoa						x	B40 MGO
Batam						x	B40 MGO
Cigading			x				B40 MGO
**Note: viscosity varies by port, BX is a Xpc biofuel blend (B40 is 40pc biofuel, etc.)*							

Index-linked bunker prices

In addition to an outright price assessment, Argus publishes an Amsterdam-Rotterdam-Antwerp marine gasoil (MGO) assessment expressed as a differential to Ice gasoil. Differential assessments are based on deals, bids and offers transacted at a differential to Ice gasoil. In the absence of index-linked trade, differentials will be calculated by subtracting the same day's front-month Ice gasoil settlement price from Argus' outright price assessment for Amsterdam-Rotterdam-Antwerp MGO.

Weekly, monthly and quarterly averages

A series of working week, calendar month and calendar quarter averages are published for the fuel oil bunker 380cst spot Los Angeles market.

These are calculated as the average of the midpoints published for the assessment during the working week, calendar month or calendar quarter ending on the day of publication.

Bulk fuel oil assessments

Argus Marine Fuels includes a number of bulk fuel oil price assessments. Methodologies for these assessments can be found in the following locations:

Northwest Europe
- 0.5pc fuel oil fob barge
- 0.1pc MGO fob barge
- 1pc fuel oil fob barge
- 3.5pc RMG fuel oil fob barge
- 3.5pc RMK fuel oil fob barge

See the Argus European Products methodology

Gulf coast
- 0.5pc fuel oil fob barge, $/t
- 0.5pc fuel oil fob barge, $/bl
- 3pc fuel oil fob barge, $/bl
- RMG 3.5pc fuel oil fob barge, $/bl

New York
- 0.5pc fuel oil delivered barge, $/t
- 0.5pc fuel oil delivered barge, $/bl
- 0.5pc sulphur MGO fob barge, ¢/USG
- 1pc fuel oil delivered barge, $/bl

See the Argus US Products methodology

Singapore
- 0.5pc min 30cst fuel oil fob cargo
- 3.5pc 180cst fuel oil fob cargo
- 3.5pc 380cst fuel oil fob cargo

See the Argus Asia-Pacific Products methodology

Fujairah
- 0.5pc 380cst fuel oil fob barge

See the Argus Mideast Gulf and Indian Ocean Products methodology

CO2 emissions assessments

Argus Marine Fuels includes the price of EU CO2 emissions allowances and adjusted bunker fuel prices. Prices are published on Mondays. If Monday is a non-publishing day for Argus Carbon, prices are published on the next Argus Carbon publishing day.

EU ETS spot allowances

A Thursday snapshot of assessments published in Argus Carbon, converted to $/t of CO2 on the day of assessment.
See the Argus Carbon methodology.

CO2-adjusted marine fuel

Thursday snapshots, published in $/metric tonne (t), of fuel oil, MGO, LNG, biodiesel blends or methanol calculated by adding to the price of fuel the price of EU ETS spot allowances for the amount of CO2 emitted by burning 1t of fuel, assuming

- 1t of 0.5%S fuel oil emits 3.114t of CO2
- 1t of MGO emits 3.206t of CO2
- 1t of LNG emits 2.750t of CO2
- 1t of methanol emits 1.375t of CO2
- 100pc of the cost of EU ETS allowances

Prices including CO2 costs are published for

- Amsterdam-Rotterdam-Antwerp 0.5%S fuel oil
- Amsterdam-Rotterdam-Antwerp MGO
- Northwest Europe LNG bunker fuel dob
- Northwest Europe small-scale LNG fot (free on truck)
- B30 (advanced Fame and VLSFO) blend
- Rotterdam methanol

Alternate marine fuels

Argus Marine Fuels includes LNG and ammonia price assessments as well as the price of conventional bunker fuels converted to common units of measurement for comparison.

Biofuels

B24 marine UCOME dob Singapore

Used cooking oil methyl ester meeting EN14214 (24pc) and 0.5%S 380cst fuel oil (76pc) blend meeting ISO 8217. Published in US dollars/tonne, $/t VLSFO-equivalent, $/t MGO-equivalent, $/t HSFO-equivalent and $/mn Btu. See the Argus Biofuels methodology.

B30 marine UCOME dob Singapore

Used cooking oil methyl ester meeting EN14214 (30pc) and 0.5%S 380cst fuel oil (70pc) blend meeting ISO 8217. Published in US dollars/tonne, $/t VLSFO-equivalent, $/t MGO-equivalent, $/t HSFO-equivalent and $/mn Btu. See the Argus Biofuels methodology.

B24 marine UCOME dob Guangzhou

Used cooking oil methyl ester meeting EN14214 (24pc) and 0.5%S 380cst fuel oil (76pc) blend meeting ISO 8217. Published in US dollars/tonne, $/t VLSFO-equivalent, $/t MGO-equivalent and $/mn Btu. See the Argus Biofuels methodology.

RED UCOME fob southeast China bulk

Published as a weekly average in the last Argus Marine Fuels report of the weekn $/mn Btu and $/t VLSFO and MGO equivalents. See the Argus Biofuels methodology.

B24 marine UCOME dob Fujairah

Calculated as the B24 marine UCOME dob Singapore assessment plus freight costs from Singapore calculated as the distance-adjusted Argus 40,000t Singapore/Malaysia-ARA specialised IMO2 coated tanker freight rate for biodiesel/HVO. Published in US dollars/tonne. See the Argus Tanker Freight methodology.

B24 marine UCOME dob Algeciras-Gibraltar

Used cooking oil methyl ester meeting EN14214 (24pc) and 0.5%S 380cst fuel oil (76pc) blend meeting ISO 8217. Published in US dollars/tonne, $/t VLSFO-equivalent, $/t MGO-equivalent and $/mn Btu. See the Argus Biofuels methodology.

RED B30 Advanced Fame and VLSFO dob Netherlands

Advanced Fatty acid methyl ester meeting EN14214 (30pc) and 0.5%S 380cst fuel oil (70pc) blend meeting ISO 8217. Published in US dollars/tonne. See the Argus Biofuels methodology.

RED B30 Advanced Fame and MGO dob Netherlands

Advanced Fatty acid methyl ester meeting EN14214 (30pc) and 0.1%S MGO (70pc) blend meeting ISO 8217. Published in US dollars/tonne. See the Argus Biofuels methodology.

RED B100 Advanced Fame dob Netherlands

Advanced Fatty acid methyl ester meeting EN14214. Published in US dollars/tonne. See the Argus Biofuels methodology.

RED marine Advanced Fame 0°C CFPP dob ARA range

Calculated and published in US dollars/tonne, $/t VLSFO-equivalent, $/t MGO-equivalent and $/mn Btu as B30 and B100 blend ratios of biodiesel and 0.5%S 380cst fuel oil including transport and logistics fees. See the Argus Biofuels methodology.

RED B30 marine UCOME dob ARA range

Published in $/mn Btu and $/t VLSFO and MGO equivalents. See the Argus Biofuels methodology.

Renewable diesel R99, spot, head of pipeline Los Angeles

Published daily in $/mn Btu, $/t VLSFO and MGO equivalents. See the Argus Americas Biofuels methodology.

B30 marine dob Houston

Calculated as a B30 blend ratio of US Gulf coast biodiesel B99 and US Gulf coast ULSD plus storage, throughput, blending and barging costs. Published daily in $/mn Btu, $/t VLSFO and $/t MGO equivalents. See the Argus Americas Biofuels and in the US Products methodology.

B30 marine UCOME dob Houston

Calculated as a B30 blend ratio for ocean-going vessels of a derived Houston UCOME (30pc) value and the Argus Houston 0.5%S 380cst fuel oil assessment (70pc) plus storage, throughout, blending a barging costs. Published daily in $/metric tonnes (t), $/mn Btu, $/t

VLSFO and $/t MGO equivalents. See the Argus Americas Biofuels methodology.

B30 marine dob New York

Calculated as a B30 blend ratio of New York Harbor biodiesel B99 and New York Harbor ULSD plus storage, throughput, blending and barging costs. Published daily in $/mn Btu, $/t VLSFO and $/t MGO equivalents. See the Argus Americas Biofuels and in the US Products methodology.

B30 marine UCOME dob Los Angeles

Calculated as a B30 blend ratio for ocean-going vessels of a derived Los Angeles UCOME (30pc) value and the Argus Los Angeles 0.5%S 380cst fuel oil assessment (70pc) plus storage, throughout, blending a barging costs. Published daily in $/metric tonnes (t), $/mn Btu, $/t VLSFO and $/t MGO equivalents. See the Argus Americas Biofuels methodology.

B24/B30 marine UCOME dob south Brazil

Calculated and published separately as B24 and B30 blends based on the fob ARA UCOME assessment (24 or 30pc) less biodiesel freight from south Brazil to ARA and the average of dob Rio Grande and Santos VLSFO bunker prices (76 or 70pc) plus storage, throughput, blending and barging costs. See the Argus Biofuels and Argus Specialised Freight methodologies.

B24/B30 marine soya OME dob south Brazil

Calculated and published separately as B24 and B30 blends based on the fob ARA soya OME assessment (24 or 30pc) less biodiesel freight from south Brazil to ARA and the average of dob Rio Grande and Santos VLSFO bunker prices (76 or 70pc) plus storage, throughput, blending and barging costs. See the Argus Biofuels and Argus Specialised Freight methodologies.

FuelEU costs

The cost of abating a tonne of CO2-equivalent (CO2e) GHG emissions by fuelling a vessel with one fuel rather than another.

FuelEU abatement costs are also calculated for each pair of fuels listed below less the spot market value of EU ETS emissions allowances that need no longer be purchased because of the described fuel substitution.

FuelEU abatement costs are published in €/t CO2e and $/tCO2e.

See the Argus Biofuels methodology.

- FuelEU Ucome-MGO abatement
- FuelEU Ucome-VLSFO abatement
- FuelEU Advanced Fame-MGO
- FuelEU Bio-LNG (manure)-fossil LNG abatement
- FuelEU Bio-LNG (waste)-fossil LNG abatement

FuelEU MGO penalty

The €/tCO2e and $/tCO2e penalty price of failing to meet CO2e abatement requirements under FuelEU Maritime regulations by fuelling a vessel with MGO. See the Argus Biofuels methodology.

FuelEU VLSFO penalty

The €/tCO2e and $/tCO2e penalty price of failing to meet CO2e abatement requirements under FuelEU Maritime regulations by fuelling a vessel with VLSFO. See the Argus Biofuels methodology.

FuelEU maritime pooling

The price of FuelEU maritime compliance surplus for a given reporting period, traded by joining a pool under its pooling flexibility mechanism to meet compliance requirements. See the Argus Biofuels methodology.

EU ETS (maritime sector)

The spot EU ETS price. The history of the series shows the phased extension of the EU ETS to the maritime transport sector. See the Argus Carbon methodology.

LNG

- US Gulf coast LNG fob – published daily in $/mn Btu and $/t VLSFO and MGO equivalents
- des southeast Asia (ASEA) – a weekly average of daily first-half month price assessments published in $/mn Btu and $/t of HSFO, VLSFO and MGO equivalents. Weekly averages are published in the first Argus Marine Fuels report of the week and are an average of the previous week's daily prices. Prices are in net calorific value energy terms, converted as the published LNG price / 0.9
- delivered LNG China – a weekly average of daily first-half month price assessments published in $/mn Btu and $/t of VLSFO and MGO equivalents. Weekly averages are published in the first Argus Marine Fuels report of the week and are an average of the previous week's daily prices. Prices are in net calorific value energy terms, converted as the published LNG price / 0.9
- Japanese LNG Cocktail Index (Argus JLC) (preliminary) – Japanese monthly import prices published in $/mn Btu and $/t of VLSFO equivalent. Prices are in net calorific value energy terms, converted as the published LNG price / 0.9
- dob northwest Europe bio-LNG bunker fuel, subsidised and unsubsidised – published weekly in $/mn Btu, $/t VLSFO and MGO equivalents. Assumes 1t of heavy fuel oil contains 38.3866mn Btu and 1t of MGO contains 40.4718mn Btu, based on EU Regulation 2023/1805
- dob west Mediterranean bio-LNG bunker fuel, subsidised and unsubsidised – published weekly in $/mn Btu, $/t VLSFO and MGO equivalents. Assumes 1t of heavy fuel oil contains 38.3866mn Btu and 1t of MGO contains 40.4718mn Btu, based on EU Regulation 2023/1805
- dob northwest Europe LNG bunker fuel – published weekly in $/mn Btu and $/t VLSFO and MGO equivalents
- fot (free on truck) northwest Europe small-scale LNG – published weekly in $/mn Btu and $/t VLSFO and MGO equivalents
- dob Singapore LNG bunker fuel – published daily in $/mn Btu and $/t VLSFO equivalent

See the Argus LNG Daily methodology.

Hydrogen

Regional average prices published as a differential to VLSFO in $/t VLSFO. See the Argus Hydrogen and Future Fuels methodology

- Green hydrogen no-C North America as a differential to Los Angeles 0.5%S fuel oil
- Green hydrogen no-C northwest Europe as a differential to Amsterdam-Rotterdam-Antwerp 0.5%S fuel oil
- Green hydrogen no-C net exporter average as a differential to Singapore 0.5%S fuel oil

Ammonia

Published in $/mn Btu and $/t VLSFO and MGO equivalents

- cfr northwest Europe – weekly
- fob Middle East spot - weekly average
- cfr east Asia (excl Taiwan) cfr - weekly average (also published in $/t HSFO equivalent)
- cfr US Gulf spot - weekly
- Green ammonia Middle East delivered northwest Europe – monthly
- Green ammonia Australia delivered east Asia – monthly

See the Argus Ammonia methodology.

- Blue ammonia ex-works northwest Europe (BAT +, SMR + CCS) – weekly

See the Argus Hydrogen and Future Fuels methodology.

Methanol

Weekly methanol assessments including barge delivery costs are published in $/mn Btu and $/t VLSFO and MGO equivalents.

- Methanol Rotterdam T2 spot
- Methanol southeast Asia (also published in $/t HSFO equivalent)
- Methanol barge US Gulf coast
- Low-carbon methanol US Gulf coast

Methanol delivery costs are assessed every six months. See the Argus Methanol methodology.

Biomethanol

Northwest Europe

A Thursday snapshot of the RED biomethanol ARA range netback price plus barge delivery costs, published in $/mn Btu and $/t VLSFO and MGO equivalents. Methanol delivery costs are assessed every six months. See the Argus Biofuels methodology.

China

A Friday snapshot of the RED biomethanol delivered on board east China price published in $/mn Btu and $/t VLSFO and MGO equivalents. See the Argus Biofuels methodology.

Canada CFR cost for MGO

The cost of complying with Canadian clean fuel regulations (CFR) for MGO. Published in $/t.

See the Argus Air Daily methodology.

Conventional bunker fuels

Published in $/mn Btu. Weekly averages are published in the last Argus Marine Fuels report of the week and are an average of the week's daily prices. Monthly averages are published in the first Argus Marine Fuels report of the month and are an average of the previous month's daily prices.

Weekly averages of daily assessments

- Amsterdam-Rotterdam-Antwerp 0.1%S MGO delivered
- Amsterdam-Rotterdam-Antwerp 0.5%S 380cst fuel oil delivered
- Fujairah 0.5%S 380cst fuel oil delivered
- Fujairah 0.1%S MGO delivered
- Singapore 0.1%S MGO delivered
- Singapore 0.5%S 380cst fuel oil delivered
- Singapore 3.5%S 380cst fuel oil delivered
- Zhoushan Bunker Index 0.5%S 380cst delivered
- Zhoushan Bunker Index 0.1%S MGO delivered

Monthly averages of daily assessments

- Tokyo 0.5%S 180cst fuel oil delivered

Daily assessments

- Houston MGO ex-wharf
- Houston MGO delivered
- Houston 0.5%S fuel oil ex-wharf
- Houston 0.5%S fuel oil delivered
- New Orleans MGO ex-wharf
- New Orleans MGO delivered
- New Orleans 0.5%S fuel oil ex-wharf

Conversion factors

Where noted, conversion factors are drawn from the EU and IMO depending on product and location.

Conversion factors for all European ports, for RED biodiesel products globally and for LNG globally are drawn from EU regulation 2023/1805 and 2018/2001 where available. Conversion factors for all other products and locations are drawn from IMO resolution MEPC.391(81) where available.

- Europe, Asia, Middle East and US MGO assume 40.4718mn Btu/t (EU/IMO)
- Europe 0.5%S fuel oil assumes 38.3866mn Btu/t (EU)
- Asia, Middle East, Europe and US 0.5%S and 3.5%S fuel oil assume 38.1022mn Btu/t (IMO)
- US B99 assumes 35.0179mn Btu/t
- US ULSD assumes 39.7390mn Btu/t
- ammonia assumes 17.6mn Btu/t
- hydrogen assumes 113.7mn Btu/t
- RED Advanced Fame 0C CFPP assumes 35.0692mn Btu/t (EU)
- Los Angeles renewable diesel R99 assumes 41.684mn Btu/t
- methanol and biomethanol assume net calorific value of 18.8616mn Btu/t
- LNG assumes net calorific value of 46.5378mn Btu/t (EU)

Conventional bunker assessments — volume and delivery parameters

		Delivery size *t*							MGO max sulphur %	Timing (days forward)
	Delivery point	HS 500cst	HS 380cst	HS 180cst	0.5%S 380cst	0.5%S 180cst	0.1%S 80cst	MGO		
Asia-Pacific										
South Korea	delivered on board		300-1,000		300-1,000			50-100	0.1	3-10
South Korea includes Busan, Ulsan, Yeosu, Onsan, and Gwangyang										
Guangzhou	delivered on board				300-3,000					4-12
Hong Kong	delivered on board		300-3,000		300-3,000			50-500	0.05	4-12
Qingdao	delivered on board		300-3,000		300-3,000					4-12
Shanghai	delivered on board		300-3,000		300-3,000			50-500	0.1	4-12
Zhoushan Bunker Index	delivered on board		300-3,000		300-3,000			50-500	0.1	4-12
Zhoushan	ex-wharf barge				1,000-10,000					4-12
Singapore	delivered on board	500-3,000	500-3,000		500-3,000			100-500	0.1	4-12
Port Klang	delivered on board				200-2,000			50-150	0.1	4-12
Sydney	delivered on board		100-500		100-500			20-100	0.1	3-10
Tokyo Bay	delivered on board		300-1,000			300-1,000				3-10
Tokyo Bay assessments include Tokyo Metropolitan, Kanagawa, Chiba, Kawasaki, and Yokohama										
Russian far east	Prices are published for HS 380cst, 0.1%S MGO and 0.5%S IMO 2020 compliant fuels. See the Argus Heavy Oil Products and Marine Fuels methodology									
Mideast Gulf and Indian Ocean										
Fujairah	delivered on board, includes Khor Fakkan		500-3,000		500-3,000			50-500	0.1	4-12
Mumbai	delivered on board		500-1,000					50-100	0.1	3-7
Mumbai	delivered on board				200-800					4-12
Mediterranean/Black Sea										
Algeciras	delivered on board		200-2,000		200-2,000			20-500	0.1	1-9
Arkhangelsk	Prices are published for 0.1%S MGO and 0.5%S IMO 2020 compliant fuels. See the Argus Heavy Oil Products and Marine Fuels methodology									
Barcelona	delivered on board		50-1,000		500-1,000			20-500	0.1	1-9
Genoa	ex-wharf		300-2,500		300-2,500			20-500	0.1	1-9
Gibraltar	delivered on board		200-2,000		200-2,000			20-500	0.1	1-9
Gibraltar-Algeciras-Ceuta	delivered on board				100/200-2,000*		100-500	20-500	0.1	1-9
Istanbul	ex-wharf		100-1,000		100-1,000			20-500	0.1	1-9
Malta	delivered on board		300-2,500		300-2,500			20-500	0.1	1-9
Krasnodar region	Prices are published for HS 380cst, 0.1%S MGO and 0.5%S IMO 2020 compliant fuels. SSee the Argus Heavy Oil Products and Marine Fuels methodology									
Piraeus	delivered on board		300-1,000		300-1,000			20-500	0.1	1-9
**Ceuta 0.5%S 380cst includes 100-2,000t deliveries. Gibraltar and Algeciras 0.5%S 380cst include 200-2,000t deliveries*										
North Europe										
Hamburg	delivered on board		200-1,000		200-1,000			20-300	0.1	1-9
Murmansk	Prices are published for 0.1%S MGO and 0.5%S IMO 2020 compliant fuels. See the Argus Heavy Oil Products and Marine Fuels methodology									
Antwerp	delivered on board				300-2,500			20-300	0.1	1-9
Rotterdam	delivered on board				300-2,500			20-300	0.1	1-9
Amsterdam-Rotterdam-Antwerp	delivered on board		300-2,500		300-2,500			20-300	0.1	1-9
Skaw-Gothenburg	delivered on board		200-2,000		200-2,000			20-300	0.1	1-9
St Petersburg	Prices are published for 3.5%S 380cst, 0.1%S MGO, 0.1%S ECA and 0.5%S IMO 2020 compliant fuels. See the Argus Heavy Oil Products and Marine Fuels methodology									
Ust-Luga	Prices are published for 3.5%S 380cst, 0.1%S MGO, 0.1%S ECA and 0.5%S IMO 2020 compliant fuels. See the Argus Heavy Oil Products and Marine Fuels methodology									
Africa										
Canary islands	delivered on board		350-2,000		350-2,000			20-200	0.1	1-9
Cape Town	delivered on board					100-2,000		50-150	0.5	4-14
Durban	delivered on board			100-2,000		100-2,000				4-14
Lome	delivered on board				200-2,000			20-200	0.1	1-9
Port Louis	delivered on board				100-1,000			50-300	0.1	4-14
Port Said	delivered on board		250-2,000		250-2,000			50-300	0.1	3-9
Suez	delivered on board		200-2,000		200-2,000			50-300	0.1	1-9
North America Atlantic coast										
Baltimore	ex-wharf				500-2,000			75-400	0.1	2-7
Halifax	ex-wharf							50-150	0.1	2-7
Montreal	delivered on board		300-500		300-500			35-200	0.1	2-7
New York	ex-wharf		500-2,000		500-2,000			100-300	0.1	2-7
Philadelphia	ex-wharf		500-2,000		500-2,000			75-400	0.1	2-7
US Gulf										
Houston	ex-wharf		500-2,000		500-2,000			100-300	0.1	2-7
Houston	delivered on board				700-3,000			100-300	0.1	2-7
New Orleans	ex-wharf		200-1,500		200-1,500*			100-300	0.1	2-7
New Orleans	delivered on board							100-300	0.1	2-7
**New Orleans 0.5%S ex-wharf product viscosity is unspecified*										
North America west coast										
Los Angeles	ex-wharf		500-3,000		500-3,000			100-400	0.1	2-7
Los Angeles	delivered on board		500-3,000		500-3,000			100-400	0.1	2-7
Portland	ex-wharf							100-300	0.1	2-7

Conventional bunker assessments — volume and delivery parameters

		Delivery size *t*							MGO max sulphur %	Timing (days forward)
	Delivery point	HS 500cst	HS 380cst	HS 180cst	0.5%S 380cst	0.5%S 180cst	0.1%S 80cst	MGO		
Portland	delivered on board							100-300	0.1	2-7
San Francisco	ex-wharf		600-3,000		600-3,000			100-400	0.1	2-7
San Francisco	delivered on board		600-3,000		600-3,000			100-400	0.1	2-7
Seattle	ex-wharf	500-1,500	500-2,000		500-2,000			100-400	0.1	2-7
Seattle	delivered on board	500-1,500	500-2,000		500-2,000			100-400	0.1	2-7
Vancouver	ex-wharf		200-1,000			200-1,000		100-300	0.1	2-7
South America Atlantic coast										
Belem	delivered on board				200-1,200*			50-350	0.5	3-15
Buenos Aires	delivered on board				800-1,500			50-200	0.1	4-8
Montevideo	delivered on board				150-1,500			30-500	0.1	3-7
Paranagua	delivered on board				200-1,200*			50-350	0.1	3-15
Rio de Janeiro	delivered on board				200-1,200*			50-350	0.5	3-15
Rio de Janeiro	delivered on board							50-350	0.1	3-15
Rio Grande	delivered on board				200-1,200*			50-350	0.1	3-15
Santos	delivered on board				200-1,200*			50-350	0.1	3-15
Caribbean										
Cartagena	delivered on board		250-1,500		250-1,500			50-300	0.1	3-7
Panama	ex-wharf		200-1,200		200-1,000			100-400	0.1	3-7
South America Pacific coast										
El Callao	delivered on board				400-1,500			100-750	0.1	1-10
Guayaquil	delivered on board		150-1,500		150-1,500*			100-600	0.5	4-7
La Libertad	delivered on board		150-1,500		150-1,500*			100-600	0.5	4-7
Quintero/Valparaiso	delivered on board		300-1,500			300-1,500		100-300	0.1	3-7
San Antonio	delivered on board		300-1,500			300-1,500		100-300	0.1	3-7

**0.5%S delivered-on-board product viscosity is unspecified*