METHODOLOGY AND SPECIFICATIONS GUIDE

argusmedia.com

ARGUS INTERNATIONAL LPG

Contents:

UPDATED: JANUARY 2026

The most up-to-date *Argus International LPG* 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 that are reliable indicators of commodity market values, free from distortion and representative of spot market values. As a result, the specific currencies, volume units, locations and other particulars of an assessment are determined by industry conventions.

In the international LPG markets, Argus publishes physical market prices in the open spot 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 spot liquidity. Additionally, Argus reflects international LPG swap market prices as a bid-offer range over various time ranges depending on the broad regional location of the market, detailed in the methodology below. This approach aligns the financial swap with its underlying regional futures settlement price.

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, 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, Argus Open Markets® (AOM®) and directly from the back offices of market participants. Argus will accept market data by telephone, instant messenger, email, AOM 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. Argus will contact and accept market data from all credible market sources including front and back office of market participants and brokers.

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 transactional average methodologies, full details of the transactions verified are published on electronic bulletin boards that 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 enquiry 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 submitting the data. 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 judgment 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 judgment 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 judgment 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 judgment 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 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.
- Analysis of prices in forward markets for a physically deliverable commodity that allow extrapolation of value into the prompt timing for the commodity assessed.
- 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

Because of the varying transportation infrastructure found in all commodity markets, 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. 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 judgment.

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 judgment in the price assessment process.

Transparency

Argus values transparency in energy markets. As a result, 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

Argus International LPG prices are published in the Argus International LPG report. Subsets of these prices appear in other Argus market reports and newsletters in various forms, such as Argus LPG World. 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.

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 arm's 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 judgment 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 judgment.
- 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 judgment for illiquid markets.
- Editors are required to sign-off on all price assessments each day, thus ensuring the consistent application of judgment.

Review of methodology

The overriding objective of any methodology is to produce price assessments that are reliable indicators of commodity market values, free from distortion and representative of spot market values. 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 physical 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 that 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.

Argus International LPG report

The Argus International LPG report is a daily report that covers the market for internationally or openly traded LPG.

Prices are for contracts under whatever general terms and conditions are accepted as the standard prevailing in that particular market.

Assessments and formulas refer to the price on the day of the published report and published changes are from the previous publication.

All prices are in US dollars per tonne ($/t) unless otherwise stated.

International comparisons

Argus North Sea Index (ANSI™)

Propane

Prices are for the listed month.

ANSI is a monthly index based on the last five days of the previous month Argus large cargo cif ARA assessments for propane, less a freight element which is set on an annual basis. This base level ANSI will be adjusted if the last five days average appears severely out of alignment with prevailing industry sentiment. The freight element is based on average time charter rates for mid-size cargoes on North Sea routes. The freight element change is announced in September and is applied from the October ANSI to the following September ANSI.

Prices are also converted to euro/t using the previous calendar month's average European Central Bank exchange rate.

Butane

Prices are for the listed month.

ANSI is a monthly index based on the last five days of the previous month Argus large cargo cif ARA assessments for butane, less a freight element which is set on an annual basis. This base level ANSI will be adjusted if the last five days average appears severely out of alignment with prevailing industry sentiment. The freight element is based on average time charter rates for mid-size cargoes on North Sea routes. The freight element change is announced in September and is applied from the October ANSI to the following September ANSI.

Prices are also converted to euro/t using the previous calendar month's average European Central Bank exchange rate.

Sonatrach fob Bethioua

Propane

Official selling price of Sonatrach for propane for the listed month.

Butane

Official selling price of Sonatrach for butane for the listed month.

Saudi Aramco

Propane

Official selling prices of Saudi Aramco for propane for the listed month.

Butane

Official selling prices of Saudi Aramco for butane for the listed month.

KPC (Kuwait)

Propane

Official selling prices of Kuwait Petroleum Company for propane for the listed month.

Butane

Official selling prices of Kuwait Petroleum Company for butane for the listed month.

Argus AFEI™ Mideast Gulf netback

Propane

The Argus AFEI™ propane Mideast Gulf netback is computed by subtracting the reported daily Ras Tanura-Chiba freight assessment for VLGC carriers from the Argus Far East Index for propane.

Butane

The Argus AFEI™ butane Mideast Gulf netback is computed by subtracting the reported daily Ras Tanura-Chiba freight assessment for VLGC carriers from the Argus Far East Index for butane.

Naphtha

Argus International LPG includes several naphtha prices from other Argus publications.

- cif northwest Europe
- cif Mediterranean

See the Argus European Products Methodology.

- cfr Japan
- fob Mideast Gulf (LR2)

See the Argus Asia-Pacific Products Methodology.

LPG freight assessments

Argus International LPG includes freight rates republished from Argus Gas Freight.

- VLGC Ras Tanura-Chiba
- VLGC Houston-Chiba propane (via Panama)
- VLGC Houston-Flushing propane

See the Argus Gas Freight methodology.

Northwest Europe and Mediterranean

Northwest Europe and Mediterranean midpoint prices are rounded to the nearest 25¢/t. All prices are assessed at 4.30pm London time.

Propane

cif ARA (large cargoes)

The application of the market data to the methodology Price identification is based primarily on reported transactions, bids and offers, and other market data.

In the case of the large cargo cif ARA propane assessment other market data will be derived from the forward curve for propane, or an assessment, at Argus' discretion, if the forward price data are unavailable.

Argus assesses a representative market value by constructing an average price for the period 10-25 days forward from 'on the day' market data.

In the absence of assessment-relevant trade, and in the event that only assessment-relevant bids or offers are available in the market at the time of assessment or if the spread between assessment-relevant orders is greater than $6/t, Argus will typically include a $6/t spread between bids and offers in the assessment process.

In these cases, Argus may narrow that default $6/t spread for reasons including but not limited to the preservation of the accuracy and/or representativeness of the midpoint price or in consideration of other relevant market information.

Argus assesses the price in the following manner:

Transactions
The price of a large cargo transaction that can be standardised (in Argus' exclusive judgment) to the specifications published in the current ToT (10 days' notice of a three-day delivery window) contract and to any revisions of this contract as accepted by Argus, will be included in the assessment for the period of delivery.

All such transactions will be considered for inclusion in the price identification process.

Argus will make use of swaps market transactions to assist in the evaluation of the outright value of floating prices for deals, bids and offers.

Argus does not establish a minimum transaction data threshold as this would lead to unreliable and non-representative assessments.

The Argus LPG Bulletin Board displays trade details and is available to clients on the Argus website.

Transactions criteria for inclusion
The price is for a transaction:

- on the day
- standardised by Argus to the specifications published in the current ToT contract and to any revisions of this contract as accepted by Argus
- for any days wholly within the delivery period 10-25 days forward
- standardised to Flushing using the ToT freight matrix or ToT freight differential criteria for any alternative discharge port not listed in the matrix
- with a minimum 50pc fixed price element, except in deals done on a naphtha-related basis
- concluded by 4:30pm London time

Bids and offers
Argus will include values from bids and offers in the following manner if unmatched bids are above or unmatched offers below the price of reported trade.

Bids and offers criteria for inclusion
The price is for a bid or offer:

- on the day
- standardised by Argus to the specifications published in the current ToT contract and to any revisions of this contract as accepted by Argus
- bids to have a minimum 5 day delivery range and offers to have a maximum 5 day delivery date range wholly within the 10-25 days forward delivery period
- standardised to Flushing using the ToT freight matrix or ToT freight differential criteria for any alternative discharge port not listed in the matrix
- with a minimum 50pc fixed price element except in deals done on a naphtha-related basis
- that is firm and feasible (in the exclusive judgment of Argus)
- adjusted to a representative value using prevailing and relevant spreads (in the exclusive judgment of Argus)

The highest bids and lowest offers (adjusted to a representative value) prevailing at 4:30pm London time will be used to determine the values for inclusion.

Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

cif ARA (large cargoes) €/t

The cif ARA (large cargoes) propane price converted to €/t at the European Central Bank exchange rate on the day of publication.

fob northwest Europe (small)
Size: small cargoes (coasters) are up to 2,000t
Basis: fob northwest Europe
Timing: cargoes for lifting 3-15 days forward
Specification: the fob northwest Europe small cargo assessment is for pressurised vessels, up to 20pc olefins. Sulphur content of no more than 50ppm.
Floating-price trades will be considered for inclusion in the assessment after conversion to a fixed-price fob basis using the relevant published Argus price assessment on the day of trade and, if necessary, a freight differential to normalise cif trades to a fob northwest Europe basis.

cif ARA (small)
Size: small cargoes (coasters) are up to 2,000t
Basis: cif ARA
Timing: cargoes for delivery 3-15 days forward
Specification: the cif northwest Europe small cargo assessment is for pressurised vessels, up to 20pc olefins. Sulphur content of no more than 50ppm.
Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

fob ARA (barge)
Size: barges are up to 1,300t
Basis: fob ARA
Timing: barges for lifting 2-10 days forward
Specification: the fob barge assessment is for pressurised vessels, up to 20pc olefins. Sulphur content of no more than 50ppm.
Floating-price trades will be considered for inclusion in the assessment after conversion to a fixed-price fob basis using the relevant published Argus price assessment on the day of trade and, if necessary, a freight differential to normalise cif trades to a fob ARA basis.

fca ARA (rail)
Size: rail is for 400-600t
Basis: fca (rail) ARA
Timing: railcars lifting 2-10 days forward
Specification: the fca (rail) ARA assessment includes commercial and ex-terminal material. Sulphur content of no more than 50ppm.

cif Mediterranean (large)
Size: large cargoes are 5,000-20,500t
Basis: cif Lavera
Timing: cargoes for delivery 3-15 days forward
Specification: the large cargo propane assessment is for field grade (95pc) propane, fully refrigerated.
Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

fob Mediterranean (small)
Size: small cargoes (coasters) are up to 4,000t
Basis: fob Lavera
Timing: cargoes for lifting 3-15 days forward
Specification: the small cargo assessment is for commercial grade. Small cargo (coasters) are pressurised vessels.

fca Mediterranean (rail)
Size: rail is 400-600t
Basis: fca (rail) Lavera
Timing: railcars lifting 2-10 days forward
Specification: railcars are for commercial grade

Propane averages

cif ARA large cargo
The Argus cif ARA large cargo assessment is the arithmetic average of the prices published every day in a month.

fob ARA barge
The Argus fob ARA barge assessment is the running average in which the last data point will be assumed to be the data point for the remaining days of the month.

Biopropane
Argus International LPG includes biopropane prices republished from Argus Biofuels. See the Argus Biofuels methodology.

Outright prices are published for biopropane on an fca ARA range basis and as differentials to cif ARA large cargo and fca ARA rail propane prices. Month-to-date and monthly average biopropane price are also published.

Butane

cif ARA (large cargoes)
Size: large butane cargoes are 7,000-12,000t or 22,000t +/- 5pc
Basis: cif ARA
Timing: cargoes for delivery 10-25 days forward, eg: on 1 July the delivery period will be 11-26 July. Bids must have a minimum five-day delivery range and offers must have a maximum five-day delivery range wholly within the 10-25 days forward delivery period.
Specification: The large cargo butane assessment is for field grade mixed butane (minimum 12pc isobutane content) or normal butane, fully refrigerated. Sulphur content of no more than 50ppm.

Argus uses swaps market information to assist in assigning an outright value to floating-price bids offers and trades, and may also assess butane prices on a percentage of naphtha basis.

In the absence of outright price indications for physical cargoes, Argus may include in the assessment process butane swaps market information including transactions, bids and offers, if available.

In the absence of assessment-relevant trade, and in the event that only assessment-relevant bids or offers are available in the market at the time of assessment or if the spread between assessment-relevant orders is greater than $6/t, Argus will typically include a $6/t spread between bids and offers in the assessment process. In these cases, Argus may narrow that default $6/t spread for reasons including but not limited to the preservation of the accuracy and/or representativeness of the midpoint price or in consideration of other relevant market information.

Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

cif ARA (large cargoes) €/t

The cif ARA (large cargoes) butane price converted to □/t at the European Central Bank exchange rate on the day of publication.

fob northwest Europe (small)

Size: small cargoes (coasters) are up to 6,000t
Basis: fob northwest Europe
Timing: cargoes for lifting 3-15 days forward
Specification: the fob northwest Europe small cargo assessment is for pressurised vessels, up to 30pc olefins. Sulphur content of no more than 50ppm. Timestamp is 4:30pm London time.

cif ARA (small)

Size: small cargoes (coasters) are 1,800-2,500t
Basis: cif ARA
Timing: cargoes for delivery 3-15 days forward
Specification: the cif northwest Europe small cargo assessment is for pressurised vessels, up to 30pc olefins. Sulphur content of no more than 50ppm.
Floating-price trades will be considered for inclusion in the assessment after conversion to a fixed-price fob basis using the relevant published Argus price assessment on the day of trade.
Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

fob ARA (barge)

Size: barges are up to 1,200t
Basis: fob ARA
Timing: barges for lifting 2-10 days forward
Specification: the fob barge assessment is for pressurised vessels, up to 20pc olefins. Sulphur content of no more than 50ppm.
Floating-price trades will be considered for inclusion in the assessment after conversion to a fixed-price fob basis using the relevant published Argus price assessment on the day of trade.

fca ARA (rail)

Size: rail is for 400-600t
Basis: fca (rail) ARA
Timing: railcars lifting 2-10 days forward
Specification: the fca (rail) ARA assessment includes commercial and ex-terminal material. Sulphur content of no more than 50ppm.

cif Mediterranean (large)

Size: large cargoes are 5,000-20,500t.
Basis: cif Lavera
Timing: cargoes for delivery 3-15 days forward
Specification: the large cargo butane assessment is for field grade mixed butane (minimum 20pc isobutane content), fully refrigerated.
Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, and which can be reasonably documented as such.

fob Mediterranean (small)

Size: small cargoes (coasters) are up to 4,000t
Basis: fob Lavera
Timing: for cargoes for lifting 3-15 days forward
Specification: small cargo assessments are for commercial grade. Small cargo (coasters) are pressurised vessels.

Butane averages

cif ARA large cargo

The Argus cif ARA large cargo assessment is the arithmetic average of the prices published every day in a month.

fob ARA barge

The Argus fob ARA barge assessment is the running average in which the last data point will be assumed to be the data point for the remaining days of the month.

Crude

Argus North Sea Dated

Prices are in US dollars/barrel. See the Argus Crude methodology.

Ice Brent futures settlement

Prices are in US dollars/barrel. Prices are the settlement prices for the Ice Brent contract for three months forward.

Eastern Europe

fca/fot Polish ports propane

Size: 20-500t
Basis: fot or fca at the Polish ports of Gdansk, Gdynia or Szczecin
Timing: trucks lifting 1-25 days forward
Timestamp: prices are assessed weekly on Wednesday. Market information received after 3:30pm London time may not be considered for inclusion in the assessment
Off-specification or "formula" transactions are not included in the assessment

daf western border Ukraine propane-butane mix

Unit: US dollars/tonne
Volume: railcars, 100-1,000t
Basis: daf western border Ukraine, specifically the borders with Hungary, Poland and Slovakia, but excluding Romania
Timing: railcars lifting 5-30 days forward
Origin: not produced in the Russian Federation or Belarus, not blended with any product that was produced in the Russian Federation or Belarus, not exported from the Russian Federation or Belarus, and which can be reasonably documented as such
Timestamp: prices are assessed weekly on Wednesday. Market information received after 5:30pm Kyiv time may not be considered for inclusion in the assessment
Off-specification or "formula" transactions are not included in the assessment

Argus Polish Domestic Index (APDI™) price:
Basis: fca Plock
Specification: the product contains on average 50pc propane and 50pc butane.

The APDI price is an assessment for the domestic Polish market calculated on deliveries to Poland from the ARA region through sea terminals and by rail from the eastern and former Soviet Union regions. The calculation is as follows:

APDI= [(ADBM*65% + ADBP*10% + (CAL + F)*5%) + (LOG/$)] +20%OG/$, where:

- **ADBM** = average Argus daf Brest for mix
- **ADBP** = average Argus daf Brest for Propane
- **CAL** = average cif ARA for Propane
- **F** = sea freight from ARA to Stettin (is taken for 2016 as $60/mt)
- **LOG** = total average logistics costs from daf and to Plock (is taken for 2016 as 190 PLN/t)
- **$** = exchange rate PLN/USD
- **OG** = Orlen Gaz quotation (with 0 logistics cost)

Logistics and freight costs are revised on an annual basis.

Argus International LPG includes prices republished from Argus Russian LPG and Condensate.

Argus International LPG includes prices for

- fob Black Sea propane
- fob Black Sea butane
- fob Black Sea propane-butane mix
- daf Brest propane-butane mix
- daf Brest propane-butane mix floating premium
- daf Brest propane
- fot Burgas (Lukoil posted) propane-butane mix
- daf Bekabad propane-butane mix
- cpt Galaba propane-butane mix

See the Argus Russian LPG and Condensate methodology.

Asia-Pacific

All prices are assessed at 5pm Singapore time.

Propane

Argus Middle East Index

Timing: period is the timing of lifting The Argus Middle East Index will roll from one month loading to the next on the 1st of the month.
Specificaiton: refrigerated cargoes are of field grade quality
Size: 45,000-47,000t cargoes
Location: loading at Ras Tanura, Yanbu, Ras Laffan, Ruwais, Das Island and Mina al Ahmadi

Gulf CP fob

Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. The fob Mideast Gulf roll date from one month loading to the next will occur on the 1st of the month.
Specification: refrigerated cargoes are of field grade quality.
Size: 45,000-47,000t cargoes
Location: loading at Ras Tanura, Yanbu, Ras Laffan, Ruwais, Das Island and Mina Al Ahmadi

Japan CP cfr

Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For refrigerated cargoes cfr Japan (CP plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 25th of the previous month
Specification: refrigerated cargoes are of field grade quality
Size: 22,000t cargoes
Location: for delivery to Kawasaki/Chiba (Japan)

Argus Far East Index (propane) Japan cfr

The Argus Far East index is for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes are of field grade quality
Size: 23,000t cargoes
Location: for delivery to Kawasaki/Chiba (Japan)
Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.

All bids, offers and deals to be included for Argus assessment are to conform to Ginga standard terms.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

Timing

The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices

Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Far East Index and a fixed price, may be considered for inclusion in the assessment.

Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Note, the Argus Far East Index (propane) and the Argus Japan cfr Propane assessment are identical.

Argus Chiba Index (propane)

The Argus Chiba Index is for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes are of field grade quality
Size: 46,000t cargoes
Location: for delivery to Chiba (Japan)

Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.

All bids, offers and deals to be included for Argus assessment are to conform to Ginga Full Cargo (Ginga II) standard terms.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and it may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating price deals that are reported.

Timing

The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.
A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices

Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Argus Chiba Index and a fixed price, may be considered for inclusion in the assessment.

Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Argus South China cfr Index (propane)

Specification: refrigerated cargoes are as per original supplier's guaranteed specification
Size: 44,000-46,000t cargoes
Location: for delivery into the Pearl River delta (Guangzhou, Zhuhai and Dongguan) of Guangdong province

The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market. Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

The South China cfr assessment considers cargoes of worldwide origin, excluding Iran. The assessment considers bids, offers and deals for a laycan of a minimum of five days within the 25-40 day forward period and a laytime of up to 72 hours for one safe port. The vessel arrival draught shall not exceed 12m and the vessel age shall not exceed 25 years. Payment for the cargo is to be made within 7 days from the vessel's tendered Notice of Readiness (NOR).

Argus Ningbo Index (propane)

The price of propane that traded or could have traded using the Argus cfr Ningbo Contract for delivery 25-40 days forward from the date of assessment.

In making its assessment, Argus considers a wide range of information relevant to the determination of the price of product that traded or could have traded using the Argus cfr Ningbo Contract. That information includes but is not limited to trade, bids and offers, informed market views and activity in other related markets which may include information about trade involving terms other than those of the Argus cfr Ningbo Contract. Note, information about product subject to additional tariffs will be considered for inclusion in the assessment after adjustment to normalise for any price distortion caused by the tariffs.

Size: 44,000-46,000t cargoes

The assessment is an average price for each of the days in the 25-40 day forward period, taking account of the price structure of the physical market. Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

India CP cfr

The propane value of 50:50 propane:butane cargoes
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For refrigerated cargoes cfr India (CP Plus), the roll date from one month delivery to the next will occur on the 1st of the calendar month.
Specification: refrigerated cargoes are of field grade quality
Size: 46,000t cargoes 50:50 propane:butane
Location: cfr to two-ports New Mangalore-Haldia

India cfr

The propane value of 50:50 propane:butane cargoes calculated as the sum of the Argus Middle East Index for propane and spot freight from Ras Tanura to New Mangalore/Haldia
Timing: delivered one month from the date of assessment
Size: 46,000t cargoes 50:50 propane:butane
Location: cfr to two-ports New Mangalore-Haldia

India cfr (US origin)

Timing: cargoes for delivery 55-65 days forward
Specification: refrigerated cargoes of purity propane
Size: 45,000-47,000t cargoes
Location: two port discharge at Visakhapatnam and Haldia

Calculated as the USGC propane export price plus the Houston-Visakhapatnam and Haldia VLGC freight rate. See the Argus NGL Americas and Argus Gas Freight methodologies.

The price is published in outright $/t terms and as a $/t differential to the Argus Far East Index propane swap. For the first 15 days of the calendar month, the differential is calculated against the third-forward swaps month assessment; for the remainder of the month, the differential is calculated against the second-forward swaps month assessment.

Indonesia cfr (US origin)

Timing: cargoes for delivery 55-65 days forward
Specification: refrigerated cargoes of purity propane
Size: 45,000-47,000t cargoes
Location: Tanjung Sekong

Calculated as the USGC propane export price plus the Houston-Tanjung Sekong (via Panama) VLGC freight rate. See the Argus NGL Americas and Argus Gas Freight methodologies.

The price is published in outright $/t terms and as a $/t differential to the Argus Far East Index propane swap. For the first 15 days of the calendar month, the differential is calculated against the third-forward swaps month assessment; for the remainder of the month, the differential is calculated against the second-forward swaps month assessment.

Butane

Argus Far East Index (butane)
Japan cfr

The Argus Far East index is for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes meeting the specification below
Size: 23,000t cargoes
Market information about 23,000t + 23,000t propane/butane, 11,500t + 11,500t propane/butane and 23,000t butane cargoes will be considered for inclusion in the assessment.
Origin: origins referred to in the Ginga standard terms plus Enterprise, Targa, Nederland, Marcus Hook, Tanjong Sulong and Bethioua
Location: for delivery to Kawasaki/Chiba (Japan)

Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.

To be considered for inclusion in the Argus assessment, all bids, offers and deals are to conform to Ginga standard terms, except those terms relating to specification, quantity and product origin, which are to align with the Argus methodology.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

Timing
The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices
Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Far East Index and a fixed price, may be considered for inclusion in the assessment. Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Note, the Argus Far East Index (butane) and the Argus Japan cfr butane assessment are identical.

Refrigerated butane specification

Properties	Specification	Test method
Propane	Max 2.0	ASTM D-2163
Butane	Min 95.0	ASTM D-2163
C5+	Max 2.0	ASTM D-2163
Total Olefins	Max 0.5	ASTM D-2163
Vapour Pressure	Max 70 PSI	ASTM D-2598
Copper Strip	Max 1	ASTM D-1838
Sulphur ppm (wt)	Max 30	ASTM D-3246
Oil Stain	Pass	
Notes: Normal C4 Max 94%, Iso C4 Max 94%		

Argus Chiba Index (butane)
The Argus Chiba Index is for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes meeting the below specification
Size: 46,000t cargoes
Location: for delivery to Chiba (Japan)

Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.
All bids, offers and deals to be included for Argus assessment are to conform to Ginga Full Cargo (Ginga II) standard terms.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and it may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

Timing
The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices

Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Argus Chiba Index and a fixed price, may be considered for inclusion in the assessment.

Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Japan CP cfr

Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For refrigerated cargoes cfr Japan (CP plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 25th of the previous month.
Specification: refrigerated cargoes are of field grade quality
Size: 22,000t cargoes
Location: for delivery to Kawasaki/Chiba (Japan)

Argus Middle East Index

Timing: period is the timing of lifting. The Argus Middle East Index will roll from one month loading to the next on the 1st of the month
Specification: refrigerated cargoes are of field grade quality
Size: 45,000-47,000t cargoes
Location: loading at Ras Tanura, Yanbu, Ras Laffan, Ruwais, Das Island and Mina al Ahmadi

Gulf CP fob

Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. The fob Mideast Gulf roll date from one month loading to the next will occur on the 1st of the month.
Specification: refrigerated cargoes are of field grade quality
Size: 45,000-47,000t cargoes
Location: loading at Ras Tanura, Yanbu, Ras Laffan, Ruwais, Das Island and Mina al Ahmadi

Argus South China cfr Index (butane)

Specification: refrigerated cargoes are as per original supplier's guaranteed specification
Size: 44,000-46,000t cargoes
Location: for delivery into the Pearl River delta (Guangzhou, Zhuhai and Dongguan) of Guangdong province
The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market. Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

The South China cfr assessment considers cargoes of worldwide origin, excluding Iran. The assessment considers bids, offers and deals for a laycan of a minimum of five days within the 25-40 day forward period and a laytime of up to 72 hours for one safe port. The vessel arrival draught shall not exceed 12m and the vessel age shall not exceed 25 years. Payment for the cargo is to be made within 7 days from the vessel's tendered Notice of Readiness (NOR).

Argus Ningbo Index (butane)

The price of butane that traded or could have traded using the Argus cfr Ningbo Contract for delivery 25-40 days forward from the date of assessment.

In making its assessment, Argus considers a wide range of information relevant to the determination of the price of product that traded or could have traded using the Argus cfr Ningbo Contract. That information includes but is not limited to trade, bids and offers, informed market views and activity in other related markets which may include information about trade involving terms other than those of the Argus cfr Ningbo Contract. Note, information about product subject to additional tariffs will be considered for inclusion in the assessment after adjustment to normalise for any price distortion caused by the tariffs.

Size: 44,000-46,000t cargoes
The assessment is an average price for each of the days in the 25-40 day forward period, taking account of the price structure of the physical market. Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

India CP cfr

The butane value of 50:50 propane:butane cargoes
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For refrigerated cargoes cfr India (CP Plus), the roll date from one month delivery to the next will occur on the 1st of the calendar month.
Specification: refrigerated cargoes are of field grade quality
Size: 46,000t cargoes 50:50 propane:butane
Location: cfr to two-ports New Mangalore-Haldia

India cfr

The butane value of 50:50 propane:butane cargoes calculated as the sum of the Argus Middle East Index for butane and spot freight from Ras Tanura to New Mangalore/Haldia

Timing: delivered one month from the date of assessment
Size: 46,000t cargoes 50:50 propane:butane
Location: cfr to two-ports New Mangalore-Haldia

India cfr (US origin)

Timing: cargoes for delivery 55-65 days forward
Specification: refrigerated cargoes of purity butane
Size: 45,000-47,000t cargoes
Location: two port discharge at Visakhapatnam and Haldia

Calculated as the USGC butane export price plus the Houston-Visakhapatnam and Haldia VLGC freight rate. See the Argus NGL Americas and Argus Gas Freight methodologies.

Indonesia (US origin)

Timing: cargoes for delivery 55-65 days forward
Specification: refrigerated cargoes of purity butane
Size: 45,000-47,000t cargoes
Location: Tanjung Sekong

Calculated as the USGC butane export price plus the Houston-Tanjung Sekong (via Panama) VLGC freight rate. See the Argus NGL Americas and Argus Gas Freight methodologies.

11+11 propane-butane mix

Argus Mixed Index
Japan cfr

The Argus Mixed Index and Argus Japan cfr assessments are for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes are of field grade quality. Prices are for a single, mixed cargo.
Size: 23,000t cargoes divided equally between propane and butane
Location: for delivery into Kawasaki/Chiba (Japan)

Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

Timing

The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices

Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Far East Index and a fixed price, may be considered for inclusion in the assessment. Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Note, the Argus Mixed Index and Japan cfr 11+11 propane/butane mix price assessments are identical.

Argus Chiba Index (mixed)

The Argus Chiba Index is for cargoes delivered to destination ports 25-40 days forward from the date of assessment.
Specification: refrigerated cargoes are of field grade quality. Prices are for a single, mixed cargo.
Size: 46,000t cargoes
Location: for delivery to Chiba (Japan)

Prices are assessed as a viable buy-sell range at the timestamp based on trades, bids, offers, informed market views and the performance of related markets.

Market information may not be consistent regarding prevailing price levels so if contradictory information regarding a viable buy-sell range is in the market Argus will give the greatest weight to deals for cargoes that conform to Argus' published specification done in the run up to the timestamp. For inclusion in the assessment, deals must be judged by Argus to be repeatable and representative.
All bids, offers and deals to be included for Argus assessment are to conform to Ginga Full Cargo (Ginga II) standard terms.

Bid and offers must be firm, made in the open market, not subject to special conditions and be valid for a period of time during which a deal could reasonably be transacted. Argus may consider a bid or offer made after the last trade but before the timestamp as being more representative of the market price at the timestamp and it may take precedence in the published assessment.

In the absence of any firm bids and/or offers, Argus assesses a buy-sell range based on information gathered from its regular survey of the market and other information judged by Argus to be indicative of market values. Swaps and other derivative market information may be used in determining forward market structure and direction and to evaluate the outright value of floating prices deals that are reported.

Timing
The assessment is an average price for the period 25-40 days from the publication date. Argus will make a price assessment for each of the days in the 25-40 day forward period taking into account the price structure of the physical market.

Physical prices are discussed in the market for different delivery periods in the 25-40 day forward period. The delivery periods are usually discussed as the first half and the second half of the month. So the Argus assessment for the 25-40 day forward period, should prices be flat for each of these delivery periods, will be proportionate to the number of days for each half-month delivery period within the 25-40 day forward period.

A spreadsheet detailing these inputs is available on a daily basis from Argus on request.

Fixed and floating prices
Trades that include both a fixed price and floating price component, for example a trade priced as a 50:50 average of the Argus Chiba Index and a fixed price, may be considered for inclusion in the assessment. Argus will use a variety of techniques to determine a fixed value of the deal to be considered for inclusion in the assessment. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals, as warranted, in its assessments.

Propane pressurised

South China CP fob
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For pressurised cargoes (CP plus), the roll date from one month loading to the next will occur on the 20th of the previous month.
Size: 1,500-2,500t
Location: for loading from Zhuhai, Shenzhen and Dongguan, south China
Specification: pressurised cargoes are for deliveries of propane from 30-50:50-70 propane:butane cargoes.

South China fob
Size: 1,500-2,500t
Location: loading from Zhuhai, Shenzhen and Dongguan, south China
Timing: for pressurised cargoes fob, the loading window is 5-20 days from the date of publication.
Specification: pressurised cargoes are for deliveries of propane from 30-50:50-70 propane:butane cargoes

South China CP cfr
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For pressurised cargoes cfr the delivery window is 7-15 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 20th of the previous month.
Size: 1,500 to 2,500t
Location: for delivery into Zhuhai and Sherkou, south China
Specification: pressurised cargoes are for deliveries of propane from either 20:80 or 30:70 propane:butane cargoes

South China cfr
Size: 1,500-2,500t
Location: delivery into Zhuhai and Sherkou, south China
Timing: for pressurised cargoes cfr, the delivery window is 12-20 days from the date of publication
Specification: pressurised cargoes are for deliveries of propane from either 20:80 or 30:70 propane:butane cargoes

Vietnam CP cfr
Size: 1,000-2,500t
Location: for delivery into Hai Phong, north Vietnam
Timing: the delivery window is 12-20 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 15th of the previous month
Specification: Pressurised cargoes are for deliveries of 30-50:50-70 propane:butane cargoes.

Butane pressurised

South China CP fob
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery For pressurised cargoes (CP plus), the roll date from one month loading to the next will occur on the 20th of the previous month.
Size: 1,500-2,500t
Location: for delivery from Zhuhai, Shenzhen and Dongguan, south China
Specification: pressurised cargoes are for deliveries of butane from 30-50:50-70 propane:butane cargoes.

South China fob
Size: 1,500-2,500t
Location: for loading from Zhuhai, Shenzhen and Dongguan, south China
Timing: for pressurised cargoes fob, the loading window is 5-20 days from the date of publication.
Specification: pressurised cargoes are for deliveries of butane from 30-50:50-70 propane:butane cargoes

South China CP cfr
Timing: CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 20th of the previous month

Size: 1,500-2,500t size
Location: for delivery into Zhuhai and Sherkou, south China
Specification: pressurised cargoes are for deliveries of butane from either 20:80 or 30:70 propane:butane cargoes

South China cfr

Size: 1,500-2,500t
Location: for delivery into Zhuhai and Sherkou, south China
Timing: for pressurised cargoes cfr, the delivery window is 12-20 days from the date of publication
Specification: pressurised cargoes are for deliveries of butane from either 20:80 or 30:70 propane:butane cargoes

Vietnam CP cfr

Size: 1,000-2,500t
Location: for delivery into Hai Phong, north Vietnam
Timing: for pressurised cargoes cfr, the delivery window is 12-20 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 15th of the previous month
Specification: pressurised cargoes are for deliveries of 30-50:50-70 propane:butane cargoes.

Ethane

East China cfr

The price of US ethane delivered to eastern China on a cfr basis 60-75 days forward from the date of assessment.
Specification: refrigerated cargoes of purity ethane
Size: 11,700t cargoes or larger
Location: for delivery to Lianyungang, Zhapu, Taixing and other destinations in eastern China

Calculated as the sum of the Argus assessment for US in-well EPC ethane at Mont Belvieu, Texas 30-45 days forward plus an assessment of terminal fees and handy-sized spot freight from the US Gulf coast to eastern China based on discussion with market participants. See the Argus NGL Americas methodology.

China wholesale propane/butane mix

Prices are published in yuan/tonne. Specification is propane-butane mix, typically in propane-butane ratio of 30:70 or 40:60 for residential-grade quality.

Pearl River Delta Index

The Argus Pearl River Index is calculated as a volume-weighted average of assessed ex-terminal sales prices at six terminals

- Jovo Energy, Dongguan
- Chinagas, Nansha
- Sinobenny, Dapeng
- New Ocean, Gaolan
- Siamgas, Gaolan
- CNOOC, Gaolan

For each location, the prices of spot and short-term sales are assessed each day. The Pearl River Delta Index is an average of the assessed spot and short-term prices weighted based on a daily discussion of sales prices and volumes with market participants.

Ex-terminal south China

Prices are also published for locations in the region. For each location, the prices of spot and short-term sales are assessed each day. Each locational assessment is the average of those spot and short-term prices weighted based on a daily discussion of sales prices and volumes with market participants.

- Dongguan - based on data gathered at Jovo Energy, Dongguan
- Zhuhai - based on data gathered at New Ocean, Gaolan; Siamgas, Gaolan; and CNOOC, Gaolan
- Shenzhen - based on data gathered at Sinobenny, Dapeng
- Nansha - based on data gathered at Chinagas, Nansha
- Raoping - based on data gathered at Ohwa Energy, Raoping
- Shantou - based on data gathered at Siamgas Shantou
- Yangjiang - based on data gathered at CNOOC Yangjiang

Posted sales prices

Argus also publishes posted sales prices for wholesale propane/butane mix.

Prices are published in yuan/tonne. Specification is propane-butane mix, typically in propane-butane ratio of 30:70 or 40:60 for residential-grade quality.

East China

Ex-terminal
- Fujian
- Ningbo
- Shandong
- Wenzhou
- Zhangjiagang

Ex refinery
- Shanghai
- Zhenhai
- Yangzi
- Fujian
- Gaoqiao
- Qingdao

South China

Ex refinery
- Maoming
- Guangzhou

Northeast China

Ex refinery
- Daqing
- Dalian

Northwest China

Ex refinery
- Urumuqi

Inland China

Ex refinery
- Yan-An

Middle East and Asia-Pacific averages

Prices are the average of those published during the named calendar month:

Middle East Gulf (Gulf CP fob)
- Propane
- Butane

Argus Middle East Index
- Propane
- Butane

Argus Far East Index
- Propane
- Propane differential to front-month AFEI propane swaps (diff to M1)
- Butane
- 11+11 propane-butane mix

Argus Chiba Index
- Propane
- Butane
- 23+23 propane-butane mix

Argus South China Index
- Propane
- Butane

Argus Ningbo Index
- Propane
- Butane

Pearl River Delta index
- Propane-butane mix

Africa LPG indexes

South Africa LPG index

Prices are in US dollars/tonne. The South Africa LPG index is the calculated value of LPG cargoes delivered to Richards Bay, South Africa, including logistics costs and the underlying prices of propane and butane exported from the Middle East.

Calculated as the Argus Middle East Index for propane and butane in a ratio of 60:40, plus freight from Ras Tanura to Richards Bay, the cost of bunker fuel, port and brokerage fees and ship-to-ship transfer costs.

Calculation components:

All calculation components are updated daily, unless specified.
- Propane Argus Middle East Index
- Butane Argus Middle East Index
- Fuel oil bunker 0.5%S 380cst Fujairah ($/t) – see the Argus Asia-Pacific Products methodology.
- USD/ZAR exchange rate – sourced by Argus at 11am London time. When unavailable owing to a London holiday, the last available rate is used.
- Time-charter rate for 35,000-38,000m³ vessels – basis 12 months (updated weekly). Argus updates this rate weekly, in consultation with the market.
- Costs of keeping a 35,000-38,000m³ vessel berthed in, or near, Richards Bay for 42 days based on pro-rated time-charter rate assessments
- South Africa flat port fee – updated annually, on or around 1 April by Transnet National Ports Authority. Port fees are subject to VAT.
- South Africa daily port fee – updated annually, on or around 1 April by Transnet National Ports Authority. Port fees are subject to VAT.

  Note, South Africa port fees include multiple discharges
- Costs of bunkering at Durban including a round trip of 10 hours + 4 hours for bunkering + cost of 0.5%S bunker fuel in Durban, including the cost of fuel consumption in transit
- Ras Tanura port fees, based on a 21,000t cargo – according to the Kingdom of Saudi Arabia General Corporation of Ports
- The resulting delivered South Africa LPG Index is published daily according to the Singapore publishing schedule. Argus also publishes a month-to-date average of the index.

Butane, delivered west Africa

Prices are in US dollars/tonne. The butane, delivered west Africa assessment is the calculated value of butane cargoes delivered to Lagos, Nigeria, and is calculated as the lowest of two derived values.

Northwest Europe butane delivered west Africa

Calculated as the Argus cif ARA large cargo butane price assessment plus the Rotterdam-Lagos calculated MGC freight rate.

US Gulf coast butane delivered west Africa

Calculated as the Argus USGC butane fob price assessment plus the Houston-Lagos calculated MGC freight rate.

See the Argus NGL Americas methodology for the description of the USGC butane price assessment and the Argus Gas Freight methodology for a description of relevant freight rates.

Propane, delivered west Africa

Prices are in US dollars/tonne. The propane, delivered west Africa assessment is the calculated value of propane cargoes delivered to Lagos, Nigeria, and is calculated as the lowest of two derived values.

Northwest Europe propane delivered west Africa

Calculated as the Argus cif ARA large cargo propane price assessment plus the Rotterdam-Lagos calculated MGC freight rate.

US Gulf coast propane delivered west Africa

Calculated as the Argus USGC propane fob price assessment plus the Houston-Lagos calculated MGC freight rate.

See the Argus NGL Americas methodology for the description of the USGC propane price assessment and the Argus Gas Freight methodology for a description of relevant freight rates.

LPG 15:85 delivered east Africa

Prices are in US dollars/tonne. The LPG 15:85 delivered east Africa assessment is the calculated value of a mixed cargo of propane and butane delivered to Mombasa, Kenya, and is calculated as the weighted sum of two derived values.

Propane delivered east Africa * 0.15 + butane delivered east Africa * 0.85

Propane delivered east Africa

Calculated as the Propane Argus Middle East Index plus a weekly assessment of freight and an annual assessment of other logistics costs for the Ras Tanura-Mombasa route.

Butane delivered east Africa

Calculated as the Butane Argus Middle East Index plus a weekly assessment of freight and an annual assessment of other logistics costs for the Ras Tanura-Mombasa route.

West Africa netbacks

Prices are in US dollars/tonne and are calculated as the published delivered Asia-Pacific price less the Argus freight rate.

- Propane Argus Far East Index less the Bonny-Chiba freight rate
- Butane Argus Far East Index less the Bonny-Chiba freight rate

Monthly averages are also published. See the Argus Gas Freight methodology for a description of the freight rate.

Timing

Indexes are calculated and published daily, except on days when Singapore, London or US price assessments are not produced.

Monthly averages

Prices are the average of those published during the named calendar month:

- Argus East Africa LPG Index (KES/kg, USD/t)
- Argus South Africa LPG Index (ZAR c/kg, USD/t)
- Argus West Africa butane index (NGN/kg, USD/t)
- Argus West Africa propane index (NGN/kg, USD/t)

Americas

A full methodology for the Americas assessments published in Argus International LPG can be found in the Argus NGL Americas methodology.

Mont Belvieu pipeline fob

Enterprise
- Propane
- Propane equivalent ($/t): prices are in US dollars/tonne. The conversion factor is 521 USG/t
- Butane
- Butane equivalent ($/t):prices are in US dollars/tonne. The conversion factor is 453 USG/t
- Purity ethane
- Purity ethane $/t equivalent: prices are in US dollars/tonne. The conversion factor is 737.99 USG/t
- Ethane-propane mix
- Isobutane
- Natural gasoline
- USGC export fob, diff to Mont Belvieu
- USCG export fob ($/t)

LST
- Propane
- Butane

Targa
- Propane
- Purity Ethane

Argus AFEI™ netbacks
- AFEI™ propane USGC netback
- Propane AFEI™ Edmonton netback
- Propane AFEI™ RIPET netback: prices are in US dollars/tonne. Calculated by subtracting from the physical Argus Far East Index™ propane price the calculated VLGC freight cost between the Prince Rupert Ridley Island Propane Export Terminal (Ripet) and Chiba, Japan.

US Enterprise averages

- Propane
- Butane

US forward market

Mont Belvieu

The Mont Belvieu propane and butane forward curves are the value of the swap futures markets at the time of the Nymex close, typically 2:30pm New York time. The bid is the highest available bid. The offer is the lowest available offer. The mean is the midpoint of the two.

Delivered Brazil
The calculated price of US propane and propane-butane mixes delivered to the Brazilian ports of Suape and Santos from the US.

For each port, prices are published for
- 100% propane
- 90% propane:10% butane
- 70% propane:30% butane
- 50% propane:50% butane

International swaps prices

Propane northwest Europe
Swaps in northwest Europe are for 12 months and four quarters forward. The front month rolls on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the second month of the quarter. Timestamp is 4:15-4:30pm London time.

Prices for the first and/or second forward month, depending on which is used as the floating price component of physical trade, are calculated as a volume-weighted average of trade, rounded to the nearest 25¢/t, with a minimum 2,000t transaction size.

Naphtha northwest Europe
Swaps in northwest Europe are for 12 months and four quarters forward. The front month rolls on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the month before the start of the quarter. Timestamp is 4.30pm London time.

Propane CP Middle East
The minimum swap volume for the CP swaps is 2,000t. Propane contract price swaps are assessed twice each day, at a 5pm Singapore timestamp and a 4.30pm London timestamp.

Prices are assessed for three months of the Contract Price (CP) at the 5pm Singapore timestamp. Prices are assessed for 12 months and four quarters of the CP at the 4.30pm London timestamp.

The front month rolls on the first working day on which the new CP is available. For example, if the October CP is issued on 29 September, the swaps front month will roll from October to November that day. Swap quarters roll on the first working day on which the CP has been announced for two months of the quarter.

Butane CP Middle East
The minimum swap volume for the CP swaps is 1,000t. Butane contract price swaps are assessed at a 5pm Singapore timestamp.

Prices are assessed for one forward month of the Contract Price (CP) at the 5pm Singapore timestamp.

The front month rolls on the first working day on which the new CP is available. For example, if the October CP is issued on 29 September, the swaps front month will roll from October to November that day.

Argus Far East Index propane
The minimum swap volume for the Argus Far East Index propane swaps is 2,000t.

Argus Far East Index propane swaps prices are assessed twice each day, at a 5pm Singapore timestamp and a 4.30pm London timestamp.

Prices are assessed for three months of the Argus Far East Index at the 5pm Singapore timestamp.

The first forward month at the 5pm Singapore timestamp is assessed as a volume-weighted average of trades done in the minute leading up to and including 5:00:00pm Singapore time, rounded to the nearest 25¢/t.

Prices are assessed for 12 months and four quarters of the Argus Far East Index at the 4.30pm London timestamp.

The front month rolls on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the second month of the quarter.

Argus Far East Index butane
The minimum swap volume for the Argus Far East Index butane swaps is 2,000t.

Prices are assessed for one forward month at the 5pm Singapore timestamp. The front month rolls on the first working day of the month.

Mont Belvieu LST
Prices are in US dollars/tonne converted from US cents/gallon. Mont Belvieu propane swaps assessments are for 12 months and four quarters forward. The front month rolls on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the second month of the quarter. Timestamp is 4.30pm London time.

65 para cif northwest Europe naphtha
Swaps in northwest Europe are for 12 months and four quarters forward. The front month rolls on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the month before the start of the quarter. Timestamp is 4.30pm London time.

Spreads

M1 diff to physical
Prices are in US dollars/tonne. This is the difference between the assessed physical or wet value and the front-month swap.

- Cif ARA propane minus cif ARA propane swap
- Cif northwest Europe naphtha minus European naphtha swap
- Fob Middle East Gulf propane minus CP swap
- Argus Far East Index propane minus Argus Far East Index propane swap (Singapore swaps timestamp). A monthly average is also published.

- Argus Far East Index propane minus Argus Far East Index propane swap (London swaps timestamp)
- Mont Belvieu LST propane mean of high/low minus Mont Belvieu propane swap

Propane-naphtha
Prices are in US dollars/tonne. The cif ARA propane swap minus the European naphtha swap.

East-West
Prices are in US dollars/tonne. The Argus Far East Index propane swap minus the cif ARA propane swap.

The Arb
Prices are in US dollars/tonne. The Mont Belvieu propane swap minus the cif ARA propane swap.

Mont Belvieu-AFEI
Prices are in US dollars/tonne. The Mont Belvieu propane swap minus the Argus Far East Index propane swap.

AFEI-CP
Prices are in US dollars/tonne. The Argus Far East Index propane swap minus the CP propane swap.

Butane-Propane CP swaps differential
Prices are in US dollars/tonne. The Argus butane CP Middle East front-month swap minus the Argus propane CP Middle East front-month swap.

LNG assessments

Argus International LPG includes a weekly northwest Europe small-scale LNG free on truck price assessment, published on Thursday in energy (□/MWh) and tonnes of propane equivalent ($/t propane equivalent). The conversion to tonnes of propane equivalent is based on a propane energy content of 50.4MJ/kg.

See the Argus LNG Daily methodology for details.