METHODOLOGY AND SPECIFICATIONS GUIDE

argusmedia.com

ARGUS AMERICAS BIOFUELS

Contents:

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The most up-to-date *Argus Americas Biofuels* 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 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 consensus to facilitate seamless bilateral trade and Argus mirrors these industry conventions.

In the biofuels markets, Argus typically reflects physical market prices across the entire trading day as a low and high of deals done. In illiquid markets and time periods, Argus assesses the range within which product could have traded by applying a strict process outlined later in this methodology. An entire day price is a reliable indicator of physical market values as it incorporates the broadest possible pool of spot market liquidity and has acceptance from industry. Argus applies product basis differential transactions to the CME settlement price to arrive at fixed prices because the futures settlement price is a representative futures price reference. This approach has been endorsed by industry acceptance. See also section "Definition of trading day."

Additionally, the industry has asked Argus to reflect swaps market prices as a bid-offer range at 2:30pm EST. This approach aligns the financial swap with its underlying futures settlement price at 2:30pm EST and allows companies to more easily use the price as a mark-to-market tool.

In order to qualify to set the low or high of the day, deals must meet the minimum volume, delivery, timing, and specification requirements in our methodology and the deals must be bona fide. For volume-weighted averages, the same requirements apply, except volume is considered in aggregate, rather than on a per trade basis.

Definition of trading day

Argus defines the trading day by determining at what times the market can be said to contain a fair number of willing buyers and sellers. Outside of these time boundaries, markets are typically too illiquid to produce representative price indications and deals. These boundaries can vary in different markets, and will be under continuous review to maintain the accuracy of the assessments.

The trading day is defined as follows:

North America and Argentina (all except North American feedstocks): 8:00am - 2:30pm Houston time
North America feedstocks: 2:30pm - 4pm Houston time
Brazil: 8:00am-4:45pm Brasilia time

Argus will announce its publishing schedule in a calendar located at www.argusmedia.com. Argus may not assess prices on certain public holidays even when the exchanges are open, owing to anticipated illiquidity in the cash spot markets.

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 or other means.

Information communicated to Argus via the AOM platform is visible in real time to any market participant on the platform and involves a commitment to meet the requirements of the relevant Argus methodology at the time an order or the initiation of a trade is published. As such, information communicated via the AOM platform is particularly valuable to the market reporting process. While Argus encourages all market participants to communicate all relevant market information via the AOM platform, market information relating to activity in the biofuels market communicated in other ways may also be considered for inclusion in the assessment. All market information is subject to the careful analysis and testing described below.

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 when and where possible.

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. Should the number of entities providing market data repeatedly fall to a level that assessment quality may be affected, supervising editors will review the viability of the assessment.

For certain price assessments identified by local management, should more than 50pc of the market data upon which the assessment is based come from a single entity during any assessment period (defined as the minimum period covered, such as a day for a daily assessment), then 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.

Argus has committed to deliver many of our final published prices to clients by a particular deadline each day. Because compiling and confirming transactions and other market data in advance of this deadline is a lengthy process, price assessment procedures must be concluded well before that deadline. As a result, for the Americas biofuels markets, Argus has instituted cut-off times for the submission of data by market participants. Argus will review all data received after the cut-off time and will make best efforts to include in the assessment process all verifiable transactions and market data received after the cut-off time but reserves the right to exclude any market data from the process if received after the cut-off time.

Cut-off time
Brazil: 5:15pm Brasilia time
North America and Argentina (all except North American feedstocks): 3:00pm Houston time
North America feedstocks: 4:15pm Houston time

Market data usage
In each market, Argus uses the methodological approach deemed to be the most reliable and representative for that market. Argus will utilize 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 obtains, 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 analyze all data submitted to the price assessment process. This 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 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.

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 certain price assessments identified by local management, 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 arms 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.
- 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 behavior. 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 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 center.
- Comparison to a more actively traded but slightly different specification commodity in the same market center.
- Analysis of prices in forward markets for 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).

Throughout this methodology, Argus will explain, in more detail and on a market by market basis, the criteria and procedures that are used to make an assessment of market value by applying intelligent judgment.

Volume minimums and transaction data thresholds
In establishing each methodology, Argus will list a specific minimum volume for each assessment. 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 certain price assessments identified by local management, 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.

Commodity	Modality	Locations	Minimum volume
D6 ethanol RIN	Credit	na	500,000 RINs
D4 biodiesel RIN	Credit	na	250,000 RINs
D5 advanced RIN	Credit	na	100,000 RINs
Biodiesel	Rail/barge	fob Houston	3,000 bl
Argo ethanol (VWA)	fob tank	Argo terminal, Chicago	15,000 bl
D6 ethanol RIN (VWA)	Credit	na	1.5mn RINs

Transparency and confidentiality
Argus values transparency in energy markets. As a result, we publish lists of deals in our reports that include price, basis, 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. Argus asks for transaction counterparty names from contacts in order to confirm deals and to avoid double-counting. But Argus does not publish counterparty names in the Americas Biofuels report. Many companies in the US and Latin America have existing confidentiality agreements with counterparties and can only reveal deals to the press if confidentiality is maintained. Maintaining confidentiality allows Argus to gather more information and create more robust assessments.

Basis differentials and absolute prices
In the Americas Biofuels report, a mix of absolute prices and cash basis differentials make up the negotiated bids, offers and transaction values. In the case of differentials, Argus fixed prices are derived by adding the differentials to the CME futures settlement price or to another differential. In the case of B100 biodiesel, differentials trade at premiums or discounts to the front month Nymex ULSD futures contract.

Argus publishes various price types for each commodity. These typically include

- **Differential low**: The low differential to futures or another basis.
- **Differential high**: The high differential to futures or another basis.
- **Low**: The low "fixed" or absolute price on the lower end of the assessment.
- **High**: The high "fixed" or absolute price on the upper end of the assessment.
- **Delta**: The change between today's absolute price and that of the previous trading day.

Swaps and forwards markets

Argus publishes forward assessments for numerous markets. These include forward market contracts that can allow physical delivery, such as an "Any Month" paper contract, 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. Argus looks at forward markets for biofuels in New York and Chicago.

Publications and price data

Argus biofuels prices for the US and Latin America are published in the Argus Americas Biofuels report. Subsets of these prices appear in other Argus market reports and newsletters in various forms, such as Argus Air Daily and Argus Latin Markets. 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.

If transaction information is submitted in error, and the company submitting informs Argus of the error within 24 hours of the original submission, Argus will make best efforts to correct the price data. After 24 hours, Argus will review both the material effect that the correction will have on the price data and the amount of time that has elapsed from the date of the published price data before deciding whether to issue a correction. After 30 days, data submitters are not expected to file corrections to submitted data.

Ethics and compliance

Argus operates according to the best practices in the publishing field, and maintains thorough compliance procedures throughout the firm. We want to be seen as a preferred provider by our subscribers, who are held to equally high standards, while at the same time maintaining our editorial integrity and independence. Argus has a strict ethics policy that applies to all staff. The policy can be found on our website at www.argusmedia.com. Included in this policy are restrictions against staff trading in any energy commodity or energy related stocks, and guidelines for accepting gifts. Argus also has strict policies regarding central archiving of email and instant messenger communication, maintenance and archiving of notes, and archiving of spreadsheets and deal lists used in the price assessment process. Argus publishes prices that report and reflect prevailing levels for open-market arms length transactions (please see the Argus Global Compliance Policy for a detailed definition of arms length).

Consistency in the assessment process

Argus recognizes 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 program of training and oversight of reporters. This program 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 which 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
- 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 analyze 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 in the relevant Argus report and include a date for implementation. In addition, publication of stakeholders' formal comments that are not subject to confidentiality and Argus' response to those comments will also take place. These formal comments should be published in a manner described by management but must be available to all market participants and stakeholders.

Updates to methodology

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

Publication schedule

US

Argus Americas Biofuels is not published on US holidays. Weekly US prices are assessed and published on the last publishing day before a US holiday.

Brazil

Unless it is also a Brazilian holiday, Brazilian prices are assessed and published electronically on US holidays. Weekly prices are published in the next print edition of Argus Americas Biofuels. On Brazilian holidays, Brazilian daily price assessments are not published, and weekly prices are published the previous day

Argentina

Unless it is also an Argentinian holiday, Argentinian prices are assessed and published electronically on US holidays. Weekly prices are published in the next print edition of Argus Americas Biofuels. On Argentinian holidays, Argentinian daily price assessments are not published, and weekly prices are published the previous day. A full publishing schedule is available at www.argusmedia.com Print-only subscribers can contact their local Argus office for access to Argentinian and Brazilian daily prices published electronically on US holidays when Argus Americas Biofuels is not published.

Volume-weighted averages

For certain products, Argus publishes volume-weighted averages ("weighted average") of deals done throughout the entire trading day.

In order to allow the average to be representative in illiquid markets, a minimum aggregate volume of trade must occur in a given trade day for each weighted average to be calculated. Should this aggregate volume not be reached, the weighted average will default to the mean of the low and the high for the same product.

Minimum aggregate volumes for volume-weighted averages	
Market	Minimum aggregate volume
Argo ethanol	15,000 bl
D6 RINs	1.5mn RINs

Month-to-date averages

Month-to-date averages (MTD averages) are the average of the midpoint prices published during the month for:

- Chicago (Argo) prompt
- New York Harbor prompt
- Los Angeles low CI
- Fob Brazil anhydrous
- Cif Brazil anhydrous
- Houston fob B100
- Chicago fob B100
- SME fob Argentina upriver

US ethanol

Specification

All US ethanol assessments reflect ASTM D4806, 92.1pc ethanol min. Los Angeles ethanol is quoted based on differing carbon intensity scores. Los Angeles specifications will evolve with the Low-Carbon Fuel Standard (LCFS) each year to reflect the new year's low carbon intensity score requirement.

Attached RINs

Argus ethanol price assessments are for ethanol with current-year D6 RINs attached between 1 February and 31 December and with prior-year D6 RINs attached between 1 January and 31 January. Between 1 January and 31 January, Argus will normalize market activity for ethanol with current-year RINs attached to the price of ethanol with prior year RINs attached. Argus may consider a wide range of information in the normalization process, including but not limited to the spread between unattached current- and previous-year RINs, the spread between current- and previous-year ethanol in other markets and other market information that may help establish a differential.

For ethanol transfers between 1 January and 31 January, it is industry practice to transfer ethanol with either prior-year or current-year RINs at the seller's option. If a trade, bid or offer does not specify a RIN vintage year, Argus may exclude the market activity from the price assessment.

Timing, volume and basis

Chicago

Argo

Timing:
Same day: same day transfer (0 days forward)
Prompt: 1-10 days forward
Forward "any month": product that is deliverable at any time during the named month. Argus publishes any month prices for the current month and three additional months forward. Months roll at the end of the calendar month.
Volume: 5,000 bl min
Basis: in-tank transfer fob Kinder Morgan Argo terminal

Rule 11

Timing: 1-5 days forward
Volume: 145,000 USG min (equivalent to five railcars)
Basis: fob Chicago interchange rail as Rule 11

New York

Timing: Reflects value of current month "any month" contract and three additional months forward. Months roll five calendar days before end of month.
Volume: 25,000 bl min
Basis: fob New York Harbor barge

New Jersey

Sewaren

Location: Sewaren, New Jersey
Timing: 1-10 days forward
Volume: 5,000 bl min
Basis: in-tank transfer (ITT) Sewaren terminal

US Gulf coast

Timing: 5-15 days forward
Volume: 10,000 bl min
Basis: fob Houston, barge or rail delivery

Dallas, Tampa, Atlanta

Timing: 3-10 days forward
Volume: 5,000 bl min
Basis: delivered by rail

Nebraska

Timing: 1-5 days forward
Volume: 145,000 USG min (equivalent to five railcars)
Basis: BNSF: fob Nebraska rail on Burlington Northern Santa Fe railroad. UP: fob Nebraska rail on Union Pacific railroad.

Los Angeles

Specification: Argus publishes a price for ethanol with a carbon intensity score of 75.
Timing: 1-15 days forward
Volume: 145,000 USG min (equivalent to five railcars)
Basis: rail delivered Carson, California

Washington

Timing: 1-5 days forward
Volume: 145,000 USG min (equivalent to five railcars); 870,000 USG max (equivalent to 30 railcars)
Basis: delivered rail in Washington on Burlington Northern railroad

Ethanol crush spread

This spread measures the profitability of producing ethanol from corn and provides a hedging tool. Since one bushel of corn yields about 2.8 USG of ethanol, the price of ethanol is multiplied by this value to accurately reflect the price conversion. The spread is expressed in $/bushel and calculated as: (Concurrent month Cbot Ethanol in ¢/USG x 2.80) – (Concurrent month Cbot Corn in ¢/bushel).

Asia-Pacific ethanol

cfr Asia South Korea B grade
See the Argus Biofuels methodology.

Brazil ethanol

Spot prices
Prices are for material meeting the quality, volume, timing and delivery criteria set out below.

Argus Brazilian waterborne ethanol prices are assessed in $/m³ and converted to the corresponding R/m³ price using the most recent Brazilian Central Bank exchange rate published by 1pm Brazil time.

Quality	
Anhydrous	Free of water and at least 99pc pure – and used in fuel blends. Anhydrous fuel meets all the requirements of the ASTM D4806.
Hydrous	Contains water and has a purity of 96pc. Can be used in Brazil as a 100pc gasoline substitute.

Volume, timing and delivery				
Assessment	Minimum volume	Timing	Delivery	Assessment frequency
Fob Santos	10,000m³	5-30 days	Fob Santos	Daily
Cif Brazil	10,000m³	20-30 days	Cif all Brazilian ports	Daily

US biodiesel

Specification

B100: biodiesel with 100pc purity. Conforms to ASTM D6751
B99: biodiesel with 99pc purity. Conforms to ASTM D6751

Argus biodiesel assessments are for product with differing maximum cloud points throughout the year depending on their location.

Cloud point			
Location	Max cloud point °C	Start date	End date
New York Harbor	2.0	1 Oct	31 Mar
	8.0	1 Apr	30 Sep
Chicago	2.0	1 Sep	30 Apr
	8.0	1 May	31 Aug
Houston	2.0	1 Oct	31 Mar
	13.0	1 Apr	30 Sep
San Francisco	3.0	1 Oct	31 Mar
	10.0	1 Apr	30 Sep
Los Angeles	3.0	1 Oct	31 Mar
	10.0	1 Apr	30 Sep

Attached credits

Argus B99 assessments are for material from which RINs have already been stripped. US west coast B99 assessments are for material from which LCFS credits have also been stripped. Assessed as a differential to Nymex ULSD, and to the nearest quarter of a cent.

Basis roll timing

The Nymex ULSD basis for Argus biodiesel assessments rolls on the last business day before the end of the month.

B99 and B100 prices are assessed for Chicago, Houston and New York Harbor. B99 prices are assessed for San Francisco and Los Angeles.

Timing, volume and basis

Chicago
Timing: 3-15 days forward
Volume: 3,000 bl min
Basis: in-tank transfer fob Kinder Morgan Argo terminal

Houston
Timing: 3-15 days forward
Volume: 3,000 bl min
Basis: fob Houston rail/barge

New York Harbor
Timing: prices are assessed and published separately for loading 10-30 days forward, during the current calendar quarter and during the next calendar quarter
Volume: 2,000 bl min, 15,000 bl max (B99) 10,000 bl min (B100)
Basis: fob barge New York Harbor

San Francisco B99
Timing: any time during the named month
Volume: 1,000 bl min
Basis: fob truck at terminals within a 100-mile radius of San Francisco

Los Angeles B99
Timing: any time during the named month
Volume: 1,000 bl min
Basis: fob truck at terminals within a 100-mile radius of Los Angeles

Blenders' Tax Credit 50:50 split clause
The Argus 50:50 BTC clause assessment is for the current calendar year price 0-30 days forward in ¢/USG of the BTC 50:50 split contract clause which stipulates that if reinstated with retroactive effect, the BTC will be split evenly between the buyer and the seller.

For periods when the Blenders' Tax Credit (BTC) has not been enacted by law, and a split clause is used by the market, the assessment will be set by market survey. For periods when the BTC is active by law, the Argus 50:50 BTC assessment will be shown as 0 since the contract stipulation will cease to be an executable clause.

Heating oil/Soybean oil spread
This spread measures the profitability of producing biodiesel from soybeans and provides a hedging tool for protecting production price exposure, also known as the HOBO spread. The spread is expressed in $/USG and calculated as: (Concurrent month Nymex Heating Oil in $/USG) – (Concurrent month CME Soybean Oil in $/lb x 7.50). The spread rolls with the CME Soybean Oil contract on the business day prior to the 15th calendar day of the contract month.

Soybean oil/Heating oil spread
Known as the BOHO spread. The spread is expressed in $/USG and calculated as: (Concurrent month CME Soybean Oil in $/lb x 7.50) - (Concurrent month Nymex Heating Oil in $/USG). The spread rolls with the CME Soybean Oil contract on the business day prior to the 15th calendar day of the contract month.

Renewable diesel

R100 delivered California, Oregon

A daily calculated price for soybean oil, tallow, corn oil and UCO-based 100pc renewable diesel (R100) sold into California or Oregon. The price is the sum of the value of fossil diesel plus its cap-and-trade and California LCFS/Oregon CFP deficit costs, and the value of California LCFS/Oregon CFP credits and RINs. The weighted average of CI pathways and LCFS credit values are published separately and described below.

Specification: 100pc renewable diesel as defined by 40 CFR § 80.1101(i) that is not co-processed with petroleum-based diesel. Conforms to ASTM D975.

R99 California spot

Daily assessments of the price of material meeting the criteria set out below. Prices are assessed and published as differentials to both CARB ULSD and its attributes (CCA cost for diesel + LCFS deficit cost for diesel + crude CI deficit cost for diesel), and to front-month Nymex ULSD. Information about trade, bids and offers on any pricing basis may be considered for inclusion in the assessment if deemed relevant.

Head of pipeline
Specification: Kinder Morgan RD
Locations: head of pipeline in Los Angeles and San Francisco
Timing: any time during the named month at buyer's option; excluding specified delivery times
Volume: 5,000 bl min

Delivered rail
Specification: ASTM D975
Locations: del to terminals on the Kinder Morgan systems of northern California and southern California
Timing: any time during the named month
Volume: 145,000 USG min (equivalent to five railcars)

Attached credits
Assessments are for material from which RINs, LCFS credits have been stripped.

Basis roll timing
The CARB ULSD plus attributes basis for the Los Angeles assessments tracks the Kinder Morgan pump dates schedule for CARB diesel. In San Francisco, the day fourth-cycle CARB diesel enters the freeze for that month (the period during which changes to tendered volumes can no longer be made) will be the first day of prompt renewable diesel timing for the next month.

R99 New York Harbor spot

Specification: ASTM D975
Location: del barge New York Harbor
A daily outright price and differential against front-month Nymex ULSD calculated as a derived US Gulf price plus the Argus Houston to New York clean tanker freight rate.

Attached credits
Assessments are for material from which RINs have been stripped.

The derived US Gulf price is the low-high range between:

- a Texas rack price proxy calculated as the Argus ULSD fob USGC waterborne assessment less a quarterly assessed cost of intra-Gulf Coast freight plus the Texas state excise tax credit for biomass-based diesel

and

- a Los Angeles netback calculated as the Argus R99 head of pipeline Los Angeles (Nymex heating oil basis) assessment plus the California LCFS credit value for the lowest carbon intensity feedstock less the New Orleans to Los Angeles clean freight rate.

See the Argus Tanker Freight and Argus US Products methodologies.

Renewable diesel margins

Argus publishes calculated profit margins for the sale in California of renewable diesel produced in the US Gulf coast using one of four feedstocks. An average of those margins is also published.

Margins are calculated daily as the average price of San Francisco and Los Angeles CARB ULSD plus the value of federal and environmental credits in California less the cost of feedstock. Margins exclude operating expenses, freight costs and the value of co-products. Environmental credits in California are valued as described below and published separately, along with the weighted average of CI pathways.

Calculations assume 8lbs of feedstock per gallon of renewable diesel and that producers retain the full value of federal and environmental credits in California.

Margins are calculated using the following Argus price assessments for feedstocks delivered to the US Gulf coast

- Crude degummed soybean oil
- Distillers corn oil
- Used cooking oil
- Bleached fancy tallow

Weighted average of CI pathways

Argus publishes the weighted average of the CI pathways used to determine the environmental credit value component of the following assessments:

- R100 del California
- R100 del Oregon
- Renewable diesel margins at US Gulf coast

Global plant capacity is used to weight the CI score for each of four feedstock-based renewable diesel pathways under the California LCFS and Oregon Clean Fuels Program (CFP) when calculating R100 prices. US Gulf coast plant capacity is used to weight the CI score for

each of four feedstock-based renewable diesel pathways under the California LCFS program when calculating margins. Weighted average CI pathways are updated quarterly.

LCFS credit values

The LCFS credit value components of the assessments for USGC renewable diesel margins, R100, R99 and SAF are determined by applying the logic of the California Air Resources Board (CARB) LCFS credit price calculator each quarter. Using the calculator, the LCFS credit value of renewable diesel can be converted from $/ton to ¢/USG, depending on the CI value of the feedstock used. For example, at a daily Argus California LCFS credit price of $120/ton, a renewable diesel fuel with a weighted average CI score of 30 gCO2e/MJ in 2022 generates LCFS credits worth 94¢ per renewable diesel gallon equivalent under the California program. Diesel targets under the California LCFS and Oregon CFP programs are updated yearly.

Renewable diesel delivered south Brazil import parity

Specification: ASTM D975
Location: delivered Paranagua
Volume: prices are published separately for 40,000t cargoes and 5,000t parcels

Daily outright prices for 40,000t cargoes and 5,000t parcels are calculated as a derived US Gulf price plus freight to Paranagua, Brazil.

The derived US Gulf price is a Los Angeles netback calculated as the Argus R99 head of pipeline Los Angeles assessment plus the California LCFS credit value for soybean oil feedstock, RINs and 45Z credit value, less the New Orleans to Los Angeles clean freight rate as published in Argus Tanker Freight. See the Argus Tanker Freight methodology.

To the derived US Gulf price is added separately the different freight costs for shipping a 40,000t cargo and a 5,000t parcel of HVO aboard a 50,000dwt IMO2 coated tanker on the US Gulf coast to south Brazil route. See the Argus Specialised Freight methodology.

Renewable Diesel delivered Chile import parity

Specification: ASTM D975
Location: delivered Quintero
Volume: prices are published separately for 40,000t cargoes and 5,000t parcels

Daily outright prices for 40,000t cargoes and 5,000t parcels are calculated as a derived US Gulf price plus freight to Quintero, Chile.

The derived US Gulf price is a Los Angeles netback calculated as the Argus R99 head of pipeline Los Angeles assessment plus the California LCFS credit value for soybean oil feedstock, RINs and 45Z credit value, less the New Orleans to Los Angeles clean freight rate as published in Argus Tanker Freight. See the Argus Tanker Freight methodology.

To the derived US Gulf price is added separately the different freight costs for shipping a 40,000t cargo and a 5,000t parcel of HVO aboard a 50,000dwt IMO2 coated tanker on the US Gulf coast to Chile route. See the Argus Specialised Freight methodology.

Sustainable aviation fuel (SAF)

SAF100 delivered California

Daily calculated prices for UCO-based and tallow-based 100pc sustainable aviation fuel (SAF100) sold into California. Prices are calculated separately as the sum of the value of fossil jet fuel and the value of LCFS credits and RINs. The weighted average of CI pathways and LCFS credit values are published separately and described above.

Location: delivered California
Specification: 100pc hydroprocessed ester and fatty acid (HEFA) sustainable aviation fuel. Conforms to ASTM D7566

Delivered US west coast

See the Argus Jet Fuel methodology.

SAF100 delivered Illinois

A daily calculated price for tallow-based 100pc sustainable aviation fuel (SAF100) sold into Illinois. The price is the sum of the value of fossil jet fuel, RINs and Illinois consumers' tax credits.

Location: delivered Illinois
Specification: 100pc hydroprocessed ester and fatty acid (HEFA) sustainable aviation fuel. Conforms to ASTM D7566

SAF100 delivered US Gulf coast

A daily calculated price for tallow-based 100pc sustainable aviation fuel (SAF100) sold at the US Gulf coast. The price is the sum of fossil jet fuel and RINs.

Location: delivered US Gulf coast
Specification: 100pc hydroprocessed ester and fatty acid (HEFA) sustainable aviation fuel. Conforms to ASTM D7566

SAF delivered south Brazil import parity

Specification: ASTM D7566
Location: delivered Paranagua
Volume: prices are published separately for 40,000t cargoes and 5,000t parcels

Daily outright prices for 40,000t cargoes and 5,000t parcels are calculated as a derived US Gulf price plus freight to Paranagua, Brazil.

The derived US Gulf price is a fob ARA netback calculated as the RED HEFA-SPK fob ARA range assessment less the USGC to ARA 40,000t IMO2 SAF freight assessment as published in Argus Specialised Freight. See the Argus Specialised Freight methodology.

To the derived US Gulf price is added separately the different freight costs for shipping a 40,000t cargo and a 5,000t parcel of SAF aboard a 50,000dwt IMO2 coated tanker on the US Gulf coast to south Brazil route. See the Argus Specialised Freight methodology.

Biofuel as marine fuel

Los Angeles R99

Los Angeles R99 renewable diesel published daily in $/mn Btu, $/t VLSFO and MGO equivalents. Los Angeles R99 renewable diesel is considered a bio marine fuel only for commercial harbor crafts in California, not ocean-going vessels, which may be treated differently under RIN and LCFS schemes.

- Renewable diesel R99 Los Angeles USD/mn Btu
- Renewable diesel R99 Los Angeles USD/t VLSFOe
- Renewable diesel R99 Los Angeles USD/t MGOe

Conversion factors
- Los Angeles renewable diesel R99 assumes 41.684mn Btu/t
- US VLSFO assumes 40.405mn Btu/t
- US MGO assumes 43.4545mn Btu/t

Houston and New York B30

Delivered-on-board calculated blend prices for commercial harbor crafts based on biodiesel and fossil fuels prices and including storage, delivery and other fees. Published daily in $/mn Btu, $/t and $/t MGO equivalents. See the Argus Marine Fuels methodology.

Los Angeles B30 marine Ucome

Calculated as a B30 blend for ocean-going vessels of a derived Los Angeles UCOME (30pc) value and the Argus Los Angeles 0.5%S 380cst fuel oil price assessment (70pc) plus storage, throughput, blending and barging costs.

The UCOME component is calculated as the fob Los Angeles B99 assessment plus the California LCFS credit value for UCO feedstock, California Carbon Allowance and D4 RIN value.

Published daily in $/metric tonnes (t), $/mn Btu, $/t VLSFO and $/t MGO equivalents.

See the Argus US Products methodology.

Houston B30 marine Ucome

Calculated as a B30 blend for ocean-going vessels of a derived Los Angeles UCOME (30pc) value adjusted for freight between Los Angeles and Houston and the Argus Houston 0.5%S 380cst fuel oil price assessment (70pc) plus storage, throughput, blending a barging costs. The UCOME component is calculated described above.

Published daily in $/metric tonnes (t), $/mn Btu, $/t VLSFO and $/t MGO equivalents.

See the Argus US Products and Argus Tanker Freight methodologies.

Renewable feedstocks

Argus assesses and publishes renewable feedstocks spot market prices daily in ¢/lb. US Gulf coast used cooking oil prices are also published in $/t.

Used cooking oil

Used cooking oil (UCO) is fats and oils originating from commercial or industrial food processing operations, including restaurants, that have been used for cooking or frying. Feedstocks characterised as UCO contain only fats, oils, or greases that were previously used for cooking or frying operations and can be used to produce biofuels. Assessments are of the price of product with a maximum free fatty acid (FFA) content of 15pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 2pc.

Used cooking oil			
Location	Basis	Minimum volume	Forward timing
Iowa	fob truck	20 trucks	5-30 days
Chicago	del truck	5 trucks	5-30 days
Chicago	fob truck	5 trucks	5-30 days
New York/New Jersey	del rail or truck	5 railcars; 20 trucks	5-30 days
Carolinas	fob truck	10 trucks	5-30 days
Georgia	del truck	10 trucks	5-30 days
US Gulf coast[1]	del rail or truck	5 railcars; 20 trucks	30-90 days
Northern California[2]	del truck	5 trucks	5-30 days
Southern California[3]	del truck	5 trucks	5-30 days

(1) Texas and Louisiana coasts, (2) Within 100-mile radius of San Francisco, (3) Within 100-mile radius of Los Angeles

fob Asia-Pacific UCO
- EPA-compliant UCO fob China bulk
- EPA-compliant UCO fob Strait of Malacca bulk

See the Argus Biofuels methodology

Tallow, edible

Edible tallow is 100pc pure beef fat derived from cooking down fatty tissue from edible portions of beef carcasses. It is further refined to remove all traces of solids and moisture. Edible tallow is inspected by the US Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS).

Assessments are of the price of product with a maximum free fatty acid (FFA) content of 0.75pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 0.25pc.

Tallow, edible			
Location	Basis	Minimum volume	Forward timing
Chicago	del rail	2 railcars	1-30 days

Tallow, bleached fancy

Bleachable fancy tallow is the fat extracted from animal tissue in the rendering process. This finished product can be used to produce biofuels.

4pc FFA

Assessments are of the price of product with a maximum free fatty acid (FFA) content of 4pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 1pc.

Tallow, bleached fancy (4pc FFA)			
Location	Basis	Minimum volume	Forward timing
Chicago	del Chicago interchange rail as Rule 11	3 railcars	1-30 days
US Gulf coast[1]	del rail or truck	2 railcars; 8 trucks	1-60 days
Northern California[2]	del rail	2 railcars	15-45 days
Southern California[3]	del rail	2 railcars	15-45 days

(1) Texas and Louisiana coasts, (2) Within 100-mile radius of San Francisco, (3) Within 100-mile radius of Los Angeles

20pc FFA

Assessments are of the price of product with a maximum free fatty acid (FFA) content of 20pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 3pc.

Tallow, bleached fancy (20pc FFA)			
Location	Basis	Minimum volume	Forward timing
US Gulf coast[1]	del rail or truck	2 railcars; 8 trucks	1-60 days

(1) Texas and Louisiana coasts

Tallow, technical

Technical tallow is identical to edible tallow, except it does not carry a certification of inspection from the USDA's FSIS.

Tallow, technical			
Location	Basis	Minimum volume	Forward timing
Chicago	del rail	2 railcars	1-30 days
US Gulf coast[1]	del rail	2 railcars	1-30 days

(1) Texas and Louisiana coasts

Yellow grease

Yellow grease is produced by a rendering process and is typically comprised of used cooking oil and rendered low-quality animal fats such as tallow, poultry or lard. Yellow grease can be used to produce biofuels. Assessments are of the price of product with a maximum free fatty acid (FFA) content of 15pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 2pc.

Yellow grease			
Location	Basis	Minimum volume	Forward timing
Iowa	fob truck	5 trucks	5-30 days
Illinois	fob truck	5 trucks	5-30 days
Carolinas	fob truck	5 trucks	5-30 days
US Gulf coast[1]	del rail	5 railcars	5-30 days
Houston	fob truck	5 trucks	5-30 days

(1) Texas and Louisiana coasts

Choice white grease

Choice white grease is a specific grade of mostly pork fat and can be used to produce biofuels. Assessments are of the price of product with a maximum free fatty acid (FFA) content of 5pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 2pc.

Choice white grease			
Location	Basis	Minimum volume	Forward timing
Iowa	fob truck	5 trucks	5-30 days
Carolinas	fob truck	5 trucks	5-30 days

Soybean oil, crude degummed

Crude degummed soybean oil is pure but inedible soybean oil produced from fair to average-quality crude soybeans. Assessments are of the price of product with a maximum free fatty acid (FFA) content of 0.75pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 1pc.

Crude degummed soybean oil price assessments are made as a differential to CBOT soybean oil futures prices. Argus assesses differentials against the named futures contract month up to the day before its First Notice Day — the first day physical delivery can be assigned — usually the penultimate business day of the calendar month before the named contract month.

Soybean oil, crude degummed			
Location	Basis	Minimum volume	Forward timing
Iowa	fob rail or truck	5 railcars; 20 trucks	30-60 days
Carolinas	del truck	5 trucks	30-90 days
US Gulf coast[1]	del rail	5 railcars	30-60 days
Northern California[2]	del rail	5 railcars	30-90 days
Southern California[3]	del rail	5 railcars	30-90 days

(1) Texas and Louisiana coasts, (2) Within 100-mile radius of San Francisco, (3) Within 100-mile radius of Los Angeles

Canola oil, crude super degummed

Crude super degummed canola oil is pure but inedible oil produced from canola seeds. Assessments are of the price of product that meets the quality and grade under Rule 1, Section 3 of the Canadian Oilseed Processors Association (COPA) canola oil trading rules.

Crude super degummed canola oil assessments are made as a differential to CBOT soybean oil futures prices. Argus assesses differentials against the weighted average of the futures contract months in the first forward calendar quarter as shown below:

- Q1: January, March, March
- Q2: May, May, July
- Q3: July, August, September
- Q4: October, December, December

Canola oil, crude super degummed			
Location	Basis	Minimum volume	Forward timing
Vancouver	fob tank	5,000t	1 calendar quarter

Refined, bleached and deodorized soybean oil

Refined, bleached and deodorized (RBD) soybean oil is a clear and odorless soybean oil, suitable for edible and non-edible uses. Assessments are of the price of product that meets the quality and grade under Rule 103, Section 3C of the National Oilseed Processors Association (NOPA) soybean oil trading rules.

Prices are for product delivered by rail to the named location, regardless of route. RBD soybean oil assessments are made as a differential to CBOT soybean oil futures prices. Argus assesses differentials against the weighted average of the futures contract months in the first forward calendar quarter as shown below:

- Q1: January, March, March
- Q2: May, May, July
- Q3: July, August, September
- Q4: October, December, December

Soybean oil, RBD			
Location	Basis	Minimum volume	Forward timing
Chicago	del rail	10 railcars	1 calendar quarter
US east coast (PADD 1)	del rail	10 railcars	1 calendar quarter
US west coast (PADD 5)	del rail	10 railcars	1 calendar quarter

Refined, bleached and deodorized canola oil

Refined, bleached and deodorized (RBD) canola oil is a vegetable oil, suitable for edible and non-edible uses. Assessments are of the price of product that follows the guidelines for low erucic acid rapeseed oil, also known as canola oil, under the National Institute of Oilseed Products (NIOP) trading rules.

Prices are for product delivered by rail to the named location, regardless of route. RBD canola oil assessments are made as a differential to CBOT soybean oil futures prices. Argus assesses differentials against the weighted average of the futures contract months in the first and second forward calendar quarters as shown below.

- Q1: January, March, March
- Q2: May, May, July
- Q3: July, August, September
- Q4: October, December, December

Canola oil, RBD			
Location	Basis	Minimum volume	Forward timing
Chicago	del rail	3 railcars	2 calendar quarters

Distiller's corn oil

Distiller's corn oil (DCO) is a by-product from US ethanol plants and can be used in biodiesel and renewable diesel production. Assessments are of the price of product with a maximum free fatty acid (FFA) content of 15pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 3pc.

Distiller's corn oil			
Location	Basis	Minimum volume	Forward timing

Iowa/Nebraska	fob truck	5 trucks	5-45 days
Ohio/Indiana	fob truck	5 trucks	5-45 days
Chicago	fob truck	5 trucks	5-45 days
US Gulf coast[1]	del rail	5 railcars	5-90 days
California	del rail	1 railcar	5-60 days

(1) Texas and Louisiana coasts

Poultry fat

Poultry fat is produced from recycled animal processing waste streams and is obtained as a by-product from poultry rendering and processing. Poultry fat can be used in the production of biofuels. Assessments are of the price of product with a free fatty acid (FFA) content range of 13-20pc and a maximum moisture, impurities and unsaponifiable (MIU) content of 2pc.

Poultry fat			
Location	Basis	Minimum volume	Forward timing
Georgia	fob truck	5 trucks	5-30 days
Carolinas	fob truck	5 trucks	5-30 days

Latin America biodiesel and related fuels

SME fob upriver, Argentina

Argus assesses Argentinian soybean oil-derived biodiesel in $/t on a daily basis.

Timing: 2-6 weeks forward
Volume: 5,000t minimum
Basis: fob upriver Argentina (Rosario, San Martin)

Outright bid and ask prices are calculated taking into account the esterification factor (assessed daily) and soybean oil differentials (assessed daily) to the Chicago Board of Trade (CBOT) soybean oil futures settlement. The resulting bid and ask prices are derived from the following formula – (soybean oil differentials + CBOT soybean oil futures settlement) * 2,204lbs/t divided by 100¢/$ + esterification factor.

Argentinian soybean oil

Argus assesses Argentinian soybean oil in US cents/lb on a daily basis as a differential to the Chicago Board of Trade (CBOT) soybean oil futures settlement. Outright prices are also published in $/t.

Argus assesses differentials against the named futures contract month up to the day before its First Notice Day — the first day physical delivery can be assigned — usually the penultimate business day of the calendar month before the named contract month.

Spot timing: delivery 2-4 weeks forward
Forward timing: delivery during the named month. Prices are published for the first three months forward, rolling on the 15th of the calendar month
Volume: 500-5,000t
Basis: fob Parana upriver region (from Timbues to Arroyo Seco)

Forward timing	
Delivery month	CBOT basis
January	January (F)
February	March (H)
March	March (H)
April	May (K)
May	May (K)
June	July (N)
July	July (N)
August	August (Q)
September	September (U)
October	October (V)
November	December (Z)
December	December (Z)

Brazilian biodiesel, feedstock and by-products

- Brazil biodiesel Araucaria at terminal
- Brazil biodiesel Paulinia at terminal
- Brazil biodiesel Senador Canedo at terminal
- Soybean oil fob Paranagua ($/t)
- Soybean oil cif Sao Paulo with 12pc ICMS (R/t)
- Beef tallow cif Sao Paulo with 12pc ICMS tax
- Beef tallow fob south/southeast waterborne
- Methanol cif Brazil

See the Argus Brazil Motor Fuels methodology.

- Glycerine cfr China

See the Argus Glycerine methodology.

RINs (Renewable Identification Numbers)

Definition
A RIN is a numeric code that is generated by the production or import of renewable fuels. Once a gallon of renewable fuel is blended, the RIN may be detached from the physical fuel and sold through the EPA Moderated Tracking System (EMTS). Under the 2010 Renewable Fuels Standard (RFS2), refiners, importers and blenders, also known as obligated parties (OPs), may purchase RINs to fulfil government mandates set forth by RFS2.

RIN price assessments do not discriminate between RINs that are certified under the EPA's voluntary third-party Quality Assurance Plan (QAP) and those that are not.

Argus publishes current and previous calendar year RIN assessments, along with separate vintage year RIN assessments.

Argus will initiate and discontinue coverage of particular RIN vintage years depending on market liquidity, but will always consult subscribers before discontinuing coverage of a vintage year.

Ethanol (renewable fuel D6 category)
The prevailing spot market price of 500,000 RINs for the named vintage year.

Biodiesel (biomass-based diesel D4 category)
The prevailing spot market price of 250,000 RINs for the named vintage year.

Cellulosic (cellulosic biofuel D3 category)
The prevailing spot market price of 100,000 RINs for the named vintage year.

Advanced biofuel (advanced biofuel D5 category)
The prevailing spot market price of 100,000 RINs for the named vintage year.

Monthly averages
Averages of current calendar year assessments published during the named calendar month for:

- Cellulosic biofuel (D3)
- Advanced biofuel (D5)

RIN spreads
Argus Americas Biofuels includes RIN commodity and time spreads

Current year spreads
- Biomass-based diesel (D4) - Renewable fuel ethanol (D6)
- Biomass-based diesel (D4) - Advanced biofuel (D5)
- Advanced biofuel (D5) - Renewable fuel ethanol (D6)

Previous year spreads
- Biomass-based diesel (D4) - Renewable fuel ethanol (D6)
- Biomass-based diesel (D4) - Advanced biofuel (D5)
- Advanced biofuel (D5) - Renewable fuel ethanol (D6)

Previous - current year RIN spreads
- Biomass-based diesel (D4)
- Advanced biofuel (D5)
- Renewable fuel ethanol (D6)

Renewable Volume Obligation (RVO)

Argus' RVO assessments are a measure of an obligated party's cost per US gallon of meeting its obligations under the EPA's RFS2 by purchasing RINs in the spot market. Argus publishes RVO costs for the current and previous compliance years.

RVO costs are calculated by weighting Argus' RIN assessments for the named compliance year according to the EPA's percentage requirements for the same compliance year. To allow for uninterrupted publication, where no final EPA requirements have been published, Argus will consult with the industry and will determine an interim set of weightings which may be those set out in EPA proposals, based on EPA proposals, or those for the previous compliance year.

When the EPA proposes a range of possible weightings or when the agency's proposals are otherwise ambiguous, Argus will provide sufficient opportunity for industry consultation, and for stakeholders to analyze and comment on the interim set of weightings, but will not allow the time needed for that consultation to create a situation in which markets are disrupted, or market participants are put at unnecessary risk.

RVO weightings are subject to change without advance notice. Argus subscribers will be informed of any changes. See the RVO weightings table for current and historic weightings.

Tier 3 sulphur credits

Assessments are of the price of at least 100 previously untraded (CC0) sulphur credits generated under the average, banking and trading (ABT) provision of the Tier 3 Motor Vehicle Emission and Fuel Standards for gasoline produced or imported with sulphur content below 10ppm. Each credit represents a 1ppm reduction for 1mn US gallons of gasoline. Prices are assessed and published daily.

Standard credits
The price of credits generated through the production of sub-10ppm sulphur gasoline on an annual average basis. The generation period for standard credits begins 1 January 2017. Standard credits expire after five years.

Benzene credits

Assessments are of the price of at least 500,000 previously untraded (CC0) benzene credits generated under the average, banking and trading (ABT) provision of federal gasoline regulations described in 40 CFR part 80 requiring an annual average gasoline benzene content of 0.62 percent by volume. Each credit represents a 0.01percent reduction—1 USG reduction for 10,000 US gallons of gasoline. Prices are assessed and published daily.

Freight

Argus Americas Biofuels includes ethanol freight rates republished from Argus Tanker Freight.

- US Gulf coast-east coast Mexico 5,000t ethanol
- US Gulf coast-north Brazil 5,000t ethanol

See the Argus Tanker Freight methodology.

Other markets

South American environmental markets
- Brazil decarbonization credit (CBIO)

See the Argus Brazil Motor Fuels methodology.

North American environmental markets
- California Carbon Allowance – one month and two forward years
- California carbon offset
- California carbon price for regular, midgrade and premium carbob gasoline, diesel
- California Low-Carbon Fuel Standard (LCFS) CI crude deficit cost for carbob, diesel
- California LCFS cost for gasoline, diesel
- California LCFS premium per carbon intensity point
- California LCFS – spot and four forward quarters
- California landfill biomethane (PG&E Citygates)
- California landfill biomethane (SoCal Citygates)
- California dairy biomethane (PG&E Citygates)
- California dairy biomethane (SoCal Citygates)
- California natural gas (PG&E Citygates)
- California natural gas (SoCal Gas Citygates)
- Canada Clean Fuel Regulations (CFR) credit
- Oregon Clean Fuels Program (CFP) – spot and four forward quarters
- Oregon landfill biomethane (PG&E Malin)
- Oregon dairy biomethane (PG&E Malin)
- Oregon natural gas (PG&E Malin)
- Renewable Thermal Certificate (RTC), landfill biomethane
- Washington Carbon Allowance – one forward year
- Washington Clean Fuels Standard (CFS) cost for gasoline, diesel

See the Argus Air Daily methodology.

Argus Brazilian hydrous domestic spot prices
Ribeirao Preto
Sao Paulo
Center-South
Uberaba
Betim
Paulinia
Pirassununga
Piracicaba
Suape
Sao Francisco do Conde
Fortaleza
Alagoas
Paraiba
Pernambuco

Argus Brazilian anhydrous domestic spot prices
Center-South spot
Center-South term contract
Pirassununga
Piracicaba
Suape
Sao Francisco do Conde
Fortaleza
Alagoas
Paraiba
Pernambuco

Argus Brazilian domestic calculated prices

Hydrous ethanol Center-South ex-mill ex-tax R/m³
Anhydrous-hydrous spread Center-South ex-mill (pc)

Argus Brazilian term contract prices

Anhydrous ethanol priced as a percentage differential to ex-tax
Center-South ex-mill hydrous spot prices

Road freight

Prices are assessed tax inclusive for truck freight on the following
routes:

Alagoas-Sao Francisco do Conde	Paraiba-Suape
Alagoas-Suape	Passos-Betim
Aracatuba-Paulinia	Passos-Uberaba
Bahia Norte-Fortaleza	Patos-Unai-Betim
Bahia Norte-Sao Francisco do Conde	Patos-Unai-Uberaba
Bahia Norte-Suape	Pernambuco-Fortaleza
Bahia Sul-Sao Francisco do Conde	Pernambuco-Sao Francisco do Conde
Divinopolis-Betim	Pernambuco-Suape
Divinopolis-Uberaba	Ponte Nova-Betim
Dourados/Rio Brilhante MS-Paulinia	Presidente Prudente-Paulinia
Frutal-Araxa-Betim	Quirinopolis/Senador Canedo
Frutal-Araxa-Uberaba	GO-Paulinia
Goias-Fortaleza	Ribeirao Preto-Betim
Goias-Sao Francisco do Conde	Ribeirao Preto-Paulinia
Goias-Suape	Ribeirao Preto-Uberaba
Ituiutaba-Betim	Rio Grande do Norte-Fortaleza
Ituiutaba-Uberaba	Sao Jose do Rio Preto-Paulinia
Jau/Bauru-Paulinia	Sao Paulo-Sao Francisco do Conde
Minas Gerais-Sao Francisco do Conde	Sao Paulo-Suape
Minas Gerais-Suape	Senador Canedo/Quirinopolis-Betim
Minas Oeste-Betim	Senador Canedo/Quirinopolis-Uberaba
Minas Oeste-Uberaba	Teofilo Otoni-Betim
Ourinhos-Paulinia	Triangulo Mineiro MG-Paulinia
Paraiba-Fortaleza	

See the Argus Brazil Motor Fuels methodology.