METHODOLOGY AND SPECIFICATIONS GUIDE

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ARGUS
SPOT TICKER
METHODOLOGY

Contents:

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The most up-to-date Argus Spot Ticker methodology is available on www.argusmedia.com

Introduction

The Argus Spot Ticker provides real-time transparency to the US markets for gasoline, diesel, heating oil, ethanol and RINs throughout the day. Prices displayed in the Argus Spot Ticker are an assessment of the transactable value at regular intervals, and at specific moments in time, starting with a market open and ending with a market close, with differentials applied in real-time to the current Nymex tick price.

Argus Spot Ticker provides prices of particular use to the downstream fuels market. Price indicators that are only available in the Argus Spot Ticker include:

- Prices and differentials that reflect the transactable value in real time
- Benchmark prices at four time stamps throughout the day that use a volume-weighted average (VWA) of futures as the basis
- Real-time spread values between markets and between grades
- Finished gasoline prices at 1:30pm and 2:30pm CST
- Low and high prices based on the current differential and the current futures

The Argus Spot Ticker is a companion service to Argus US Products, a daily service on refined product markets. The fuel grades displayed in Argus Spot Ticker are also assessed in Argus US Products and Argus Americas Biofuels. However, the services use different methodologies and therefore produce different prices and different market data tools. Fuel prices published in Argus US Products and Argus Americas Biofuels reflect the range of deals done over an entire trading day, with differential ranges applied to the Nymex settlement price at 1:30pm CST, critical for bulk market indexation.

Specifications for the fuels assessed in the Argus Spot Ticker will mirror those for the fuels assessed in the Argus US Products report. Prices reflect the value of fuels that meet the quality, delivery time, and volume parameters set out in the Argus US Products Methodology and Specification Guide and Argus Americas Biofuels Methodology and Specification Guide.

The Argus Spot Ticker will list the RVP grades that are currently trading in each gasoline market. In some markets, more than one RVP grade will be displayed during transition periods in summer and fall. Supplementary RVP grades may be listed through summer months. The RVP grades listed in the Argus Spot Ticker may or may not mirror exactly those listed in the Argus US Products report when published at the end of the day. RVP and VOC parameters, where applicable, are displayed alongside the assessment in the Argus Spot Ticker.

Selected Argus Spot Ticker data, including price and differential values for the 8:00am (Open), 1:30pm, 2:30pm and 4:00pm (Close) CST time-stamped benchmarks are available independently, in electronic files that can feed into various databases. The benchmark prices are kept in a historical database and available for purchase. Contact your local Argus office for information.

Argus Spot Ticker markets

Gasoline, diesel, heating oil

Price
- The current value of the commodity, calculated as the sum product of the differential and its basis in real time.

Price change
- The difference between the price displayed and the prior closing price at 4:00pm CST.
- Shortly after 4:00pm CST, the price change will begin to reflect the difference from the current day's 4:00pm CST close. The futures market is shut from 4:00-4:45pm CST.

Differential
- The differential is a single value, representing an assessment of the transactable value of the commodity relative to its basis at the time the differential is updated in the Argus Spot Ticker system. The differential may or may not represent the mean of the bid/ask range, and may or may not represent the last deal done.
- The differential is updated frequently throughout the trading day (8:00am-4:00pm CST). Displayed differentials will reflect the most recent update to differentials until new differentials are submitted by the editor. The differential is not updated from close (4:00pm CST) until open (8:00am CST).
- Overnight differentials should not be viewed as executable or indicative of current market conditions. The close differentials will continue to be applied to the overnight futures prices to provide an indication for customers who wish to see broader overnight market development.

Differential change
- The difference between the differential displayed and its value at the prior closing differential at 4:00pm CST.
- Shortly after 4:00pm CST, the differential change will begin to reflect the difference from the current day's 4:00pm CST close.
- On days when the basis month rolls from one month to the next, the differential change is not displayed between 8:00am and 4:00pm CST.

Timing
- The timing of the physical commodity being assessed is listed with the price. The most prompt timing is always assessed. For markets where timing is listed as "prompt," the definition mirrors that listed in the Argus US Products Methodology and Specification Guide. Other timings may represent pipeline cycles or date ranges.

Basis
- The underlying instrument against which the fuel trades (see table 1).
- Basis rolls from month 1 to month 2 according to a different schedule in each market (see table 1). Schedules are in some cases issued by pipelines and not known in advance.
- Note that the New York, Buckeye, Laurel and Group 3 markets roll basis on a different schedule than in the Argus US Prod-

ucts report. This allows the Argus Spot Ticker prices to be calculated through and past the 1:30pm CST futures settlement on day of expiry.

- If other markets, such as Colonial, ever trade the prompt physical market against a first month futures basis on day of expiry, the Nymex basis will be rolled to the next month at 8:00am CST on the morning of the futures expiry day.
- Underlying futures are real-time or delayed by 10 minutes, depending on subscription type.

Ethanol and RINs

Price

- The commodity's transactable value at the time of the latest update. The price may or may not represent the mean of the bid/ask range, and may or may not represent the last deal done.
- The price is updated frequently throughout the trading day (8:00am-4:00pm CST). Displayed prices will reflect the most recent update until new prices are submitted by the editor. The price is not updated from close (4:00pm CST) until open (8:00am CST).

Price change

- The difference between the price displayed and the prior closing price at 4:00pm CST. Shortly after 4:00pm CST, the price change will begin to reflect the difference from the current day's 4:00pm CST close.

Timing

- The timing of the physical commodity being assessed is listed with the price. The most prompt timing is always assessed. For markets where timing is listed as "prompt," the definition mirrors that listed in the Argus Americas Biofuels Methodology and Specification Guide.

Low and High

- Reflect the lowest and highest price displayed by the ticker between the most recent open and the close. Low and high are not updated after the close and are displayed until midnight.
- The low and high can reach their final value at any time between the 8:00am-4:00pm CST period subject to market movement in both the futures and the differentials.

Units

- All prices in the Argus Spot Ticker are displayed in US dollars per US gallon ($/USG), with the exception of WTI crude futures (CL) and crack spreads, which are displayed in US dollars per barrel ($/bl).

Table 1: Listed markets and basis

Assessment	Basis	Basis rolls on	Basis rolls at
New York			
87 conv M offline	Nymex RBOB	Day month 1 expires	8:00am CST
Reg CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Reg RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
93 conv V offline	Nymex RBOB	Day month 1 expires	8:00am CST
Prem CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Prem RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
ULSH	Nymex ULSD	Day month 1 expires	8:00am CST
ULSD	Nymex ULSD	Day month 1 expires	8:00am CST
ULSH offline	Nymex ULSD	Day month 1 expires	8:00am CST
ULSD offline	Nymex ULSD	Day month 1 expires	8:00am CST
Laurel			
Reg CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Reg RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Prem CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Prem RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
ULSD	Nymex ULSD	Day month 1 expires	8:00am CST
Buckeye			
Reg CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Reg RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Prem CBOB	Nymex RBOB	Day month 1 expires	8:00am CST
Prem RBOB	Nymex RBOB	Day month 1 expires	8:00am CST
ULSH	Nymex ULSD	Day month 1 expires	8:00am CST
ULSD	Nymex ULSD	Day month 1 expires	8:00am CST
Colonial			
87 conv M	Nymex RBOB	Variable, pipeline schedule	8:00am CST
Reg RBOB F	Nymex RBOB	Variable, pipeline schedule	8:00am CST
Reg CBOB A	Nymex RBOB	Variable, pipeline schedule	8:00am CST
93 conv V	Nymex RBOB	Variable, pipeline schedule	8:00am CST
Prem CBOB D	Nymex RBOB	Variable, pipeline schedule	8:00am CST
Prem RBOB	Nymex RBOB	Variable, pipeline schedule	8:00am CST
ULSD 62	Nymex ULSD	Variable, pipeline schedule	8:00am CST
Chicago			
Reg CBOB	Nymex RBOB	Variable, pipeline schedule	8:00am CST
Reg CBOB BCX	Nymex RBOB	Variable, pipeline schedule	8:00am CST
87 conv	Nymex RBOB	Variable, pipeline schedule	8:00am CST
91 conv	87 conv	Variable, pipeline schedule	8:00am CST
Reg RBOB	Reg CBOB	Variable, pipeline schedule	8:00am CST
Prem RBOB	Reg CBOB	Variable, pipeline schedule	8:00am CST
ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST
ULSD BCX	Nymex ULSD	Variable, pipeline schedule	8:00am CST
Group 3			
Suboctane V	Nymex RBOB	Day month 1 expires	8:00am CST
91 conv A	Suboctane V	Day month 1 expires	8:00am CST
ULSD X	Nymex ULSD	Day month 1 expires	8:00am CST
West coast			
LA reg CARBOB	Nymex RBOB	Variable, pipeline schedule	8:00am CST
LA prem CARBOB	LA reg CARBOB	Variable, pipeline schedule	8:00am CST
LA suboctane	Nymex RBOB	Variable, pipeline schedule	8:00am CST
LA reg AZRBOB	LA reg CARBOB	Variable, pipeline schedule	8:00am CST
SF reg CARBOB	Nymex RBOB	Variable, pipeline schedule	8:00am CST
SF prem CARBOB	SF reg CARBOB	Variable, pipeline schedule	8:00am CST
Portland suboctane	Nymex RBOB	Variable, pipeline schedule	8:00am CST
LA CARB ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST
LA EPA ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST
SF CARB ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST
SF EPA ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST
Portland ULSD	Nymex ULSD	Variable, pipeline schedule	8:00am CST

Argus Spot Ticker benchmark prices

- Argus publishes four time-stamped benchmark prices through the trading day.
    - 8:00am CST (Open)
    - 1:30pm CST
    - 2:30pm CST
    - 4:00pm CST (Close)

- For gasoline, diesel and heating oil, time-stamped prices are the sum product of the differential at the time stamp and an assessment of the Nymex basis price at the time stamp. For ethanol and RINs, time-stamped prices represent the price at the time stamp.

- The Nymex basis for the 1:30pm CST benchmark will be the exchange settlement price. The Nymex basis for the 8:00am, 2:30pm and 4:00pm CST benchmarks will represent the volume-weighted average of all futures trades done in the minutes prior to the time stamp. Volume in this time period must reach a defined threshold in order to calculate a volume-weighted average. Should the minimum volume threshold not be reached, Argus editors will assess the value of the period based on available transactions, spread trades, bids and offers, and other market information.

- Benchmark prices published in the Argus Spot Ticker are not intended to be predictive of prices published in the Argus US Products report. Each service uses completely different methodologies and therefore produces different prices. A transactable price at 2:30pm CST is not necessarily predictive of the range of deals done over the day applied to the settlement.

- The four time-stamped benchmark prices, their differentials and associated Nymex basis along with the low and high can be made available as a separate data feed service.

- If the exchange settlement time moves forward one hour, time-stamps for differentials and VWA periods will also move forward one hour, with the exception of the open.

Table 2: Benchmark price basis

Time stamp	VWA of trade during	Minimum volume for calculation of VWA	Displayed until
Open (8:00am CST)	7:55am-8:00am	5 contracts	12:00am CST
1:30pm CST	[Use Exchange Settlement]	[Not applicable]	12:00am CST
2:30pm CST	2:25pm-2:30pm	5 contracts	12:00am CST
Close (4:00pm CST)	3:45pm-4:00pm	5 contracts	8:00am CST

Analytics

Regional spreads

- The difference between the listed price of a commodity at two different locations (see table 3). Given regional RVP differences, the RVP may at times vary between compared locations and thus be embedded in the spread price.

Table 3: Regional spread calculations

Spread	Calculation
RBOB	
New York-Houston	NYH barge regular RBOB less Colonial regular RBOB
Chicago-Houston	Chicago regular RBOB less Colonial regular RBOB
New York-Chicago	NYH barge prompt less Chicago regular RBOB
San Francisco-Los Angeles	SF regular CARBOB less LA regular CARBOB
CBOB	
New York-Houston	NYH barge regular CBOB less Colonial regular CBOB
Chicago-Houston	Chicago regular CBOB less Colonial regular CBOB
Tulsa-Houston	Group Three suboctane V less Colonial regular CBOB
Chicago-Tulsa	Chicago regular CBOB less Group Three suboctane V
New York-Chicago	NYH barge regular CBOB less Chicago BCX regular CBOB
Portland-Los Angeles	Portland suboctane less LA suboctane
ULSD	
New York-Houston	NYH ULSD barge less Colonial ULSD 62
Chicago-Houston	Chicago ULSD less Colonial ULSD 62
Tulsa- Houston	Group Three ULSD X less Colonial ULSD 62
Chicago-Tulsa	Chicago ULSD less Group Three ULSD X
New York-Chicago	NYH ULSD barge less Chicago BCX ULSD
San Francisco-Los Angeles	SF CARB ULSD less LA CARB ULSD
Portland-Los Angeles	Portland EPA ULSD less LA EPA ULSD
Ethanol	
New York-Houston	New York barge less USGC barge/rail
Chicago-Houston	USGC barge/rail less Chicago Argo in-tank transfer
New York-Chicago	New York barge less Chicago Argo in-tank transfer

Octane premiums

- The difference between the listed prices of two gasoline grades (see table 4) with different octane content but similar RVP.

Table 4: Octane premium calculations

Octane premium	Calculation
Houston RBOB	Colonial premium RBOB less Colonial regular RBOB
Houston conventional	Colonial 93 conventional less Colonial 87 conventional
New York RBOB	NYH barge premium RBOB less NYH barge regular RBOB
New York conventional	NYH Offline 93 conv V less NYH offline 87 conv M
New York CBOB	NYH barge premium CBOB less NYH barge regular CBOB
Chicago conventional	Chicago 91 conventional less Chicago 87 conventional
Chicago RBOB	Chicago premium RBOB less Chicago regular RBOB
Los Angeles RBOB	LA premium CARBOB less LA regular CARBOB

Finished gasoline prices

Conventional finished gasoline prices and reformulated gasoline (RFG) prices are calculated according to the formulas listed in *table 5*. Where two or more RVP grades are displayed for one of the components of a formula, the following apply:

- New York
    - Between 1 January and 30 June, prices calculated using highest RVP listed that day.
    - Between 1 July and 31 December, prices calculated using lowest RVP listed that day (or Region 2 VOC).
- Colonial (Houston)
- Lowest RVP but not lower than 7.8 RVP (or Region 1 VOC) and never 9.0 RVP.

- Example 1: If 11.5 and 9.0 are listed simultaneously, the finished gasoline formula will use the 11.5 RVP.
- Example 2: If 11.5 and 9.0 and 7.8 are listed simultaneously, the finished gasoline formula will use the 7.8 RVP.

Table 5: Finished gasoline calculations

New York	
Regular conventional	90% NYH barge regular CBOB + 10% New York barge ethanol - 5% ethanol RIN
Premium conventional	90% NYH barge premium CBOB + 10% New York barge ethanol - 5% ethanol RIN
Regular RFG	90% NYH barge regular RBOB + 10% New York barge - 5% ethanol RIN
Premium RFG	90% NYH barge premium RBOB + 10 % New York barge - 5% ethanol RIN
Houston	
Regular conventional	90% Colonial regular CBOB + 10% USGC barge/rail ethanol - 5% ethanol RIN
Premium conventional	90% Colonial premium CBOB + 10% USGC barge/rail ethanol - 5% ethanol RIN
Regular RFG	90% Colonial regular RBOB + 10% USGC barge/rail ethanol - 5% ethanol RIN
Premium RFG	90% Colonial premium RBOB + 10 % USGC barge/rail ethanol - 5% ethanol RIN
Chicago	
Regular conventional	90% Chicago regular CBOB + 10% Chicago Argo in-tank transfer ethanol - 5% ethanol RIN
Premium conventional	90% (Chicago regular CBOB + Chicago 91 conv - Chicago 87 conv) + 10% Chicago Argo in-tank transfer ethanol - 5% ethanol RIN
Regular RFG	90% Chicago regular RBOB + 10% Chicago Argo in-tank transfer ethanol - 5% ethanol RIN
Premium RFG	90% Chicago premium RBOB + 10 % Chicago Argo in-tank transfer ethanol - 5% ethanol RIN
Los Angeles	
Regular RFG	90% LA regular CARBOB + 10% LA Low CI ethanol - 5% ethanol RIN
Premium RFG	90% LA premium CARBOB + 10 % LA Low CI ethanol - 5% ethanol RIN

Futures contracts

Price

- Tick price issued by the exchange, real-time or delayed 10 minutes, depending on subscription type. The futures market is shut from 4:00-4:45pm CST.

- Prices displayed for RBOB (RB), ULSD (HO) and WTI (CL) include:
  - 1st, 2nd and 3rd months
  - Spread between the 1st and 2nd months
  - 1:1 crack spreads for RBOB (RB) and ULSD (HO). Crack spreads will roll with the WTI (CL) contract.

Price change:

- Reflects change since previous day's exchange settlement (1:30pm CST).
- Note that the cash prices and cash differentials displayed in the Argus Spot Ticker have a price change that reflects the difference versus the prior day's 4:00pm close, not the exchange settlement. As a result, the futures price change

and the cash market price change will not align and will reflect different 24-hour periods of flat price movement. This is done so that users can see cash price movement from morning through afternoon as one contiguous market.

Methodological principles

Methodology rationale

Argus strives to construct methodologies that reflect the way the market trades, and 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 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.

Survey process

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

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

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.

In the Argus Spot Ticker, Argus is seeking to represent the currently transactable value. This value in many cases moves away from the last deal done as time progresses and will be best represented by an assessment of value based on current bids and offers and other market information, in addition to any deals done within proximity of the time of assessment.

Verification of transaction data

Reporters carefully analyze all data submitted to the price assessment process. This data includes 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. If this process determines 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 other transactions submitted.
- 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. In the case of the Argus Spot Ticker, a purely transaction-based methodology would yield stale prices and distorted spreads between markets. The Argus Spot Ticker depends on intelligent assessments of the transactable value. 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 explains 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.

Transparency and confidentiality

Argus values transparency in energy markets. Argus asks for transaction counterparty names from contacts in order to confirm deals and to avoid double-counting in volume-weighted averages. But Argus does not publish individual transactions or counterparty names in the Argus Spot Ticker. Many companies in the US have existing confidentiality agreements with counterparties and can only reveal deals to the press if counterparty confidentiality is maintained. Maintaining counterparty confidentiality allows Argus to gather more information and create more robust assessments.

Corrections

Argus will on occasion issue corrections to benchmark assessments after publication. 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 period 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 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. Editors will review:

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

If necessary, the 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 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 service. 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 service 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 Spot Ticker methodology is constantly updated and revised. The latest available methodology (which may supersede the one you are reading) is available at www.argusmedia.com.