METHODOLOGY AND SPECIFICATIONS GUIDE

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ARGUS COAL DAILY

Contents:

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The most up-to-date Argus Coal Daily 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 market values. As a result, the specific currencies, volume units, locations and other particulars of an assessment are determined by industry conventions.

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

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

Survey process

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

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

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

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

Market data usage

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

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

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

Verification of transaction data

Reporters carefully analyse all data submitted to the price assessment process. These data include transactions, bids, offers, volumes, counterparties, specifications and any other information that contributes materially to the determination of price. This high level of care described applies regardless of the methodology employed. Specific to transactions, bids, and offers, reporters seek to verify the price, the volume, the specifications, and location basis. The deals are also published in the daily report.

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

Primary tests applied by reporters

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

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

Secondary tests applied by editors for transactions identified for further scrutiny

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

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

Assessment guidelines

When insufficient, inadequate, or no transaction information exists, or when Argus concludes that a transaction based methodology will not produce representative prices, Argus reporters will make an assessment of market value by applying intelligent judgment based on a broad array of factual market information. Reporters must use a high degree of care in gathering and confirming all market data used in determining price assessments, a degree of care equal to that applying to gathering and confirming 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 in most cases the highest bid and the lowest offer can be assumed to define the boundaries between which a deal could be transacted.

Comparative metrics

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

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

Volume minimums and transaction data thresholds

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

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.

Minimum Transaction Thresholds

Assessment	VWA transaction minimum volume	Typical tonnage
CSX <1% sulfur rail 12,000	Unit train/month	11,000st
CSX <1% sulfur rail 12,500	Unit train/month	11,000st
Illinois basin, maximum 3.15pc sulphur 11,500 Btu	5 barges/month	8,750st
8,800 Powder River basin	Unit train/month	15,000st

Transparency

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

Swaps and forwards markets

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

Publications and price data

Argus coal prices are published in the Argus Coal Daily report. Subsets of these prices appear in other Argus market reports and newsletters, and form the Argus contribution to indexes published jointly with other independent publishing companies such as the Argus/McCloskey's Coal Price Index Report and the Argus/Coalindo Indonesian Coal Index Report. The price data are available independent of the text-based report in electronic files that can feed into various databases. These price data are also supplied through various third-party data integrators. The Argus website also provides access to prices, reports and news with various web-based tools. All Argus prices are kept in a historical database and available for purchase. Contact your local Argus office for information.

A publication schedule is available at www.argusmedia.com

Corrections to assessments

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

Argus reviews corrections for material effect on price data and the amount of time that has elapsed from the date of published price data before deciding whether to issue a correction. After 30 days, Argus is unlikely to make a correction to published data. Argus will not retroactively assess markets based on information learned after the assessments are published.

Ethics and compliance

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

Consistency in the assessment process

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

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

Review of methodology

The overriding objective of any methodology is to produce price assessments which are reliable indicators of commodity market values, free from distortion and representative of 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 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 analyse and comment on changes, but will not allow the time needed to follow these procedures to create a situation wherein unrepresentative or false prices are published, markets are disrupted, or market participants are put at unnecessary risk. Argus will engage with industry throughout this process in order to gain acceptance of proposed changes to methodology. Argus cannot however guarantee universal acceptance and will act for the good order of the market and ensure the continued integrity of its price assessments as an overriding objective.

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

The market

Argus Coal Daily publishes price assessments for Americas and international coal markets.

Physical coal markets can be prone to periods of illiquidity. The Argus Coal Daily methodology is underpinned by a daily or weekly survey of market participants and was designed to incorporate market liquidity when it is present and to still provide robust price assessments even when it is not. Assessment-relevant trades are published on the Argus Direct platform and are available to subscribers.

Assessments are based on a two-part process: a volume-weighted average of deals done and on a survey of active market participants. In the absence of transactions, the assessment will be based on the market survey and the best bids and offers received. In the absence of both transactions and best bids and offers, the assessment will be based on the market survey.

To merit inclusion in the Argus assessment process, transactions and survey responses must meet standard specification guidelines.

All prices are assessed in US dollars per short ton or US dollars per metric tonne (tonne). Spark and dark spreads are assessed in US dollars per megawatt hour.

Market survey

For all assessments, Argus surveys a wide cross section of coal market participants via telephone, e-mail, instant messenger and other means of communication.

For weekly physical market price assessments, Argus maintains a balance between sellers of physical coal, utility buyers and trading companies. For daily over-the-counter market transactions and market data, Argus solicits information and transaction confirmations from brokerages and relevant market exchanges.

Transactions

Deals conducted on electronic trading platforms and through brokerage houses are included, provided they meet all relevant criteria for physical coal.

Deals with exchange of futures for physical (EFP) are included in assessments provided a fixed physical price is agreed before the trade is broken into its two parts.

Assessment timing

Assessments in Argus Coal Daily typically cover coal for loading or delivery sometime within the following 3 years, commencing as soon as the following month. Argus uses the Coal Trading Committee of the American Coal Council trading calendar for determining the spot month and spot quarter for daily over-the-counter coal assessments. For weekly physical market prices, a calendar quarter and year are used.

For forward trading in over-the-counter coal, each new month becomes "prompt" or "spot" after the 25th of the preceding month, or the final business day prior to the 25th. The prior prompt month settles as the average of the daily assessments of the trading month.

Prices are assessed for contracts traded for two nearby months, three calendar quarters (for instance 2nd quarter includes April, May, June), and the next three years ahead. Quarterly contract prices are assessed for a given calendar quarter up until the last trading day of the prior quarter, rolling on the 25th or the business day prior. Prices are also assessed for calendar years. The calendar year assessed will roll to the next year on 26 December, after the last assessment of a given year on the final trading day of that year, 24 December.

Monthly averages of daily assessments for spot month and spot quarter coal trading are published each month. The indexes will be published in the table "Argus OTC monthly settlement indexes" in Argus Coal Daily.

Weekly physical market assessments roll on the final business day of the calendar month and Argus publishes monthly and quarterly average prices for these assessments in Argus Coal Daily.

US over-the-counter market prices are assessed and published daily. Atlantic basin market prices are assessed weekly and published daily. Argus accepts all relevant market data up until the 4:00pm ET timestamp. Weekly coal prices typically are assessed on Fridays, unless Friday is not considered a full work day by Argus. These assessments represent the price at which transactions were done or would have been done during the trading week.

Weekly coal price assessments are republished each day in Argus Coal Daily until their next weekly assessment.

Seaborne cargo loading window

Seaborne price assessments typically cover coal for delivery or loading during the first and second calendar months forward.

Two-month assessments

The two-month delivery or loading period rolls forward on the first publication day following the last publication day of the last week of the month.

For example, during July 2015, these two-month assessments would be for coal delivered or loaded in August and September 2015. In this example, the delivery or loading period would roll to September and October 2015 on Monday, 3 August, the first publication day after the last publication day of the last week of July.

In those months where the last publication day of the month is not a Friday, the delivery or loading period will roll forward sooner.

For example, during November 2015, these assessments would be for coal delivered or loaded in December 2015 and January 2016. In this example, the delivery or loading period would roll to January and February 2016 on Monday, 30 November, the first publication day after the last publication day of the last full week of November

International and US export coal

Argus assesses a bid-ask range for the US east coast fob Hampton Roads 6,000 kcal/kg specification. In times of illiquidity, the bid will be the lower of the netback from Argus' cif ARA coal price assessment and the netforward from the Argus CSX 12,000 Btu/lb coal price assessment, adjusted for energy content, and the offer will be the higher of the two.

- Netback: weekly average Argus cif ARA (Amsterdam-Rotterdam-Antwerp) daily index less the average of the daily Argus Capesize freight, ARA - US East Coast freight rate in the week before publication
- Netforward: the Argus price assessment of CSX 12,000 Btu/lb coal plus the Argus assessment of CSX-USEC freight. An energy content differential is subtracted from that value, which is then converted to metric tons from short tons.
  - Net forward component (CSX 12,000 Btu/lb coal plus CSX-USEC freight)
  - Energy content differential component ((CSX 12,500 Btu/lb coal minus CSX 12,000 Btu/lb coal) * 1.4)
  - Short ton to metric tonne conversion factor 1.10231

US Gulf coast mid-sulphur discount

The difference between the weekly average of US Gulf coast 11,300Btu and the netback for northwest Europe 6,000 kcal/kg to the US Gulf Coast, converted into $/lb SO2/mm Btu.

Calculated on Friday, or the previous working day if Friday is a holiday, using the most recent inputs available at the time.

US Gulf coast high-sulphur discount

The difference between the weekly petroleum coke fob USGC assessments for 6.5% sulphur 40 HGI and 4.5% sulphur 40 HGI, converted to $/lb SO2/mmBtu.

Calculated on Friday, or the previous working day if Friday is a holiday, using the most recent inputs available at the time.

For more information see the Energy Argus Petroleum Coke methodology.

Monthly OTC settlement indexes

Argus publishes monthly indexes of over-the-counter coal assessments for uses including settlement of the 12,000 Btu CSX physical contract. These indexes use the Coal Trading Committee of the American Coal Council trading calendar to define the spot, or first forward, trading month. The spot month trades until the 25th of the month prior to its delivery, or the preceding business day. For example, the February contract is the prompt for settlement index purposes from 26 December to 25 January; from 26 January, March becomes the prompt month.

The indexes are the mathematical average of the spot month's and spot quarter's assessments during the index month.

Ocean freight

Argus Coal Daily includes weekly snapshots of daily US dollar/metric tonne freight rates published in Argus Dry Freight. Rates are published on Monday, or the following day if Monday is a holiday and are the latest available at the time of publication. See the Argus Dry Freight methodology.

- US east coast to east coast India 120,000t
- US Gulf coast to ARA 75,000t
- Puerto Bolivar to Rotterdam 75,000t
- West coast North America to Japan 75,000t

Rail freight

Assessment methodology

Argus surveys a broad selection of shippers, producers and other market participants.

When available, Argus also uses rail tariff rates in compiling assessments, but these rates are not the only indication for, or component in price assessments. When the route indicated in tariff pricing falls outside transportation specifications assessed by Argus, mileage differences are taken into account in evaluating the rates.

If certain routes are illiquid during the assessment period, Argus will survey market participants about movements along other routes to inform the assessments.

Rail rate assessments do not incorporate costs for the purchase or lease of railcars, or the fees associated with equipment handling. Rates are not reflective of equipment ownership and are solely the cost of transport for the routes in question. Prices are the cost of transportation during the following month for fuel-surcharge adjusted rail rates, and for base rates during the current month.

Argus assesses rail rates for deliveries from the five major coal producing regions in the US. Those regions are: Central Appalachia, Powder River basin, Pittsburgh Seam, Illinois basin and Colorado-Utah. Prices are published on a monthly basis.

In the east, rates are assessed from:

- Central Appalachia to east coast export terminals, Carolinas, Southwest Ohio, Florida, New York, US southeast and TVA
- Pittsburgh Seam to Florida, New York and east coast export terminals
- Illinois basin to southwest Ohio, Illinois basin, US southeast and Florida

In the west, rates are assessed from:

- PRB to ERCOT, St. Louis region, US southeast, southwest Ohio, TVA and Superior Terminal
- Colorado to TVA and St. Louis region

Calculating rail rates plus fuel surcharges

Class I railroads assess fuel surcharges for many shipments using a coal mileage-based system, although some coal-delivery contracts base fuel surcharges on the underlying base rail rate. The mileage-based rate is calculated by multiplying the applicable fuel surcharge by the number of miles per carload. Each carrier has a different price at which surcharges begin to accrue, indicating when the surcharge goes into effect, and surcharges change in different increments. Rates for Norfolk Southern are not provided because the railroad built fuel surcharges into its tariff rates.

Fuel surcharges are assessed in cents per mile per railcar and rail rates are assessed in dollars per ton. To resolve this discrepancy, Argus converts the surcharge into dollars per ton using the following calculation:

((rate/ton * tons per car) + (mileage*surcharge/mile))/tons per car
Example: For shipments from Central Appalachia to the East Coast Export Terminals on CSX

(($27.50 * 105 tons per car) + (400 miles * 53¢/mile)) / 105 tons per car = $29.52/ton

Argus uses the same tons/car factor from month to month. CSX coal cars are estimated at 105 tons per car and BNSF and Union Pacific cars are estimated at 118 tons per car.

Mileage is also standard from month to month and does not represent a specific plant mileage. Instead, this is a generic move from the basin to the region being assessed. Argus applies the following mileage in its assessments:

Eastern rail rates

	Destination	Mileage
Origin	East coast export terminals	400
Central App	Carolinas	400
	Southwest Ohio	260
	Florida	1,100
	New York	515
	US southeast	800
	TVA	825
Pittsburgh Seam	Florida	1,200
	New York	480
	East Coast Export Terminals	300
Illinois basin	Southwest Ohio	300
	Illinois basin	90
	US southeast	650
	Florida	1,100

Western rail rates

	Destination	Mileage
Origin	ERCOT	1,200
PRB	St. Louis region	1,050
	US southeast	1,575
	Southwest Ohio	1,290
	TVA	1,700
	Superior Terminal	800
Colorado	TVA	1,200
	St. Louis region	980

Barge freight

Argus assesses barge rates for the main trading routes on North America's inland waterways. These freight rates are assessed as a result of communication with leading barge operators, shippers and others in the industry. Assessments are of prevailing spot market rates for transits commencing within the next 30 days. In the absence of booked transportation, prices are based on an assessment of bids and offers in the market to obtain the price at which business could have been transacted.

The following routes are assessed:

- Domestic movements: Big Sandy to Pittsburgh, Port Amherst to Cincinnati, Port Amherst to Pittsburgh and Big Sandy to St. Louis
- Movements to export terminals: Big Sandy to Davant, Birmingham to Mobile, Louisville to Davant, Port Amherst to Davant and St. Louis to Davant.
- Northbound backhauls: Davant to Chicago, Cincinnati, Huntington, Pittsburgh and St. Louis

Delivered coal prices

Argus publishes delivered coal costs to major destinations from the five major coal regions on a weekly basis using prompt-quarter coal prices and monthly transport cost assessments. These comparisons are published weekly in both $/short ton and $/mmBtu.

For a more extensive explanation of Argus coal price assessments, see the Argus Coal Daily International methodology.

For a more extensive explanation of Argus emissions assessments, see the Argus Air Daily methodology.

Delivered coal prices

Hub	Delivered to
Central Appalachia rail	
Big Sandy/CSX rail 12,500 1.6	By rail into east coast ports for export, Carolinas, southwest Ohio, Florida, New York, US southeast and TVA
Powder River basin	
fob mine/rail 8,800 0.8 fob mine/rail 8,400 0.8	ERCOT, St. Louis region, US southeast, southwest Ohio, TVA and Superior Terminal
Central Appalachia barge	
Nymex Spec barge 12,000 1%	Pittsburgh, southwest Ohio and St. Louis
Pittsburgh Seam	
fob mine 13,000 3.5 fob mine 13,000 4.5 fob mine 12,500 6.0	Florida and New York
Illinois basin	
Illinois/Indiana mine 11,500 5 Illinois/Indiana mine 11,000 >6.0	Southwest Ohio and Illinois basin, Gulf coast export, US southeast and Florida
Colorado/Utah	
Green River basin 11,300 Uinta basin, Utah 11,700	TVA and St. Louis region

Competing fuels analysis

Argus Coal Daily includes a weekly comparison of US coal and natural gas prices delivered to major destinations. Prices are published in $/short ton and $/mmBtu for coal, and $/mmBtu for natural gas.

Competing fuels analysis

Commodity	Destination
PRB coal	
fob mine/rail 8,400 0.8lb SO2	Southwest Ohio, Tennessee Valley Authority, Southeast
Illinois basin coal	
Illinois/Indiana mine 11,500 5lb SO2	Southwest Ohio, US Gulf coast
Central Appalachian coal	
Big Sandy/CSX rail 12,500 1.6lb SO2	Southwest Ohio, US east coast, Tennessee Valley Authority, Southeast
Nymex Spec barge 12,000 1%	US Gulf coast
Western bituminous coal	
Green river basin 11,300 <1%	Tennessee Valley Authority
Natural gas	
Col Gas Appalachia day-ahead	Southwest Ohio
TGT zone 1 day- ahead	Tennessee Valley Authority
Florida Gas zone 3 day-ahead	Southeast

On-Time Delivery Index

The Argus On-Time Delivery Index is the definitive independent measure of railroad on-time performance, designed to give shippers, receivers and carriers a nationwide picture of on-time delivery.

Launched in May 1997, the index provides a standardized method of defining and measuring on-time traffic delivery, regardless of differences in individual railroad performance tracking methods. Each railroad generally defines and calculates "on-time" differently, hindering a direct comparison of carrier performance. For example, some track all movements and consider a train on time if it arrives in a roughly two-hour window, while other carriers track only certain, time-sensitive trains (such as intermodal shipments) on specified routes.

Argus' On-Time Delivery Index uses a single standard method — how the railroads' performance is perceived by the shippers who rely on them.

Shippers rank deliveries on a 1-5 scale, with 1 being the worst performance and 5 the best performance. Shippers are asked to look at the last three months of service and base the rank on how well the carrier has performed during that period.

Argus speaks to multiple shippers, both large and small, served by each major carrier and averages the ranking provided by each to demonstrate how well each carrier has done in meeting shipper requirements.

Using this qualitative method, Argus is able to provide an accurate picture of rail performance across the nation.

Generating costs

Spark spreads

Argus Coal Daily shows spark spreads or the difference between power prices and raw energy prices for the North American peak and off-peak power.

The implied spark spreads indicate the profitability of running a power plant taking into account variable fuel costs in the day-ahead, prompt-month and prompt-season markets. Argus spark spreads are based on Argus power, gas and coal assessments (see Argus US Electricity and Argus Natural Gas Americas methodologies). Coal plant spark spreads are based on plants with an efficiency (heat) rate of 10,000 Btu/kWh, while gas spark spreads are based on 8,000 Btu/kWh. All prices are listed in US dollars/megawatt hour ($/MWh).

Coal prices used in the spark spread calculation are delivered prices to the specified power market region. The fuel costs are based on the percentage of types of coals taken by utilities in the given region. Transport costs are based on actual or anticipated costs of moving coal by rail or barge from the mine to the utility plant. Rates for those delivery routes are updated monthly.

Spark spreads are published for

- Indiana (day-ahead, front-month, front-season)
- PJM (day-ahead, front-month, front-season)
- Southern Co. (day-ahead)
- N. Illinois (day-ahead, front-month, front-season)
- Palo Verde (day-ahead, front-month, front-quarter)
- Mid-Columbia (day-ahead, front-month, front-quarter)

Price assessments and specifications

Weekly US domestic physical coal assessments — $/st

Location	Basis	Btu/lb	lb SO2/mmBtu	Timing		Assessment frequency
				Quarters	Years	
Central Appalachia						
CSX rail 12,000 Btu, maximum 14% ash	fob rail	12,000	(<1%) 1.67lb SO2	3	2	Weekly
Big Sandy “Nymex-spec”	fob barge	12,000	(<1%) 1.67lb SO2	3	2	Weekly
CSX rail	fob rail	12,500	(<1%) 1.6lb SO2	3	2	Weekly
Powder River basin						
UP & BNSF Converse/Campbell	fob mine	8,800	0.8	3	2	Weekly
UP & BNSF Converse/Campbell	fob mine	8,400	0.8	3	2	Weekly
Illinois basin						
Ohio River in western Kentucky	fob barge	11,500	5	3	2	Weekly
Illinois/Indiana	fob mine	11,500	5	3	2	Weekly
Ohio River in western Kentucky	fob barge	11,800	4.5	3	2	Weekly
Illinois/Indiana	fob mine	11,000	6	3	2	Weekly
Ohio River in western Kentucky	fob barge	11,000	6	3	2	Weekly
Colorado/Utah						
Western bituminous	fob mine	11,300	<1%	3	2	Weekly
Uinta Basin, Utah	fob mine	11,700	<1%	3	2	Weekly
Northern Appalachia						
Pittsburgh Seam	fob mine	13,000	3.5	3	2	Weekly
Pittsburgh Seam	fob mine	13,000	4.5	3	2	Weekly
Pittsburgh Seam	fob mine	12,500	6	3	2	Weekly

Daily over-the-counter market assessments — $/st

Location	Basis	Btu/lb	Sulphur	Timing			Assessment frequency
				Months	Quarters	Years	
CSX rail	fob rail	12,000	<1%	2	3	3	Daily
CSX rail	fob rail	12,500	<1%	2	3	3	Daily
Illinois basin	fob barge	11,500	maximum 3.15pc	2	3	3	Daily
Powder River basin	fob rail	8,800	0.8lb SO2/mmBtu	2	3	3	Daily

International and US export coal assessments — $/t

Location	Basis	Heat content	Sulphur	Cargo size	Unit	Assessment frequency
US Gulf coast	fob New Orleans, Louisiana (NOLA)	6,000 kcal/kg	3%	Panamax	$/mt	Weekly
Colombia	fob Puerto Bolivar	6,000 kcal/kg typical, with minimum 5,750 kcal/kg NAR	<1%	50,000t	$/mt	Weekly
US Gulf coast mid-sulphur discount	NOLA	na	<1% versus 3%	na	$/lbs SO2/mmBtu	Weekly
US Gulf coast high-sulphur discount	NOLA	na	4.5% versus 6.5%	na	$/lbs SO2/mmBtu	Weekly
US east coast	fob Hampton Roads	6,000 kcal/kg	<1%	Panamax	$/mt	Weekly
Northwest Europe	cif ARA	6,000 kcal/kg	<1%	50,000-150,000t	$/mt	Weekly
South Africa	fob Richards Bay	6,000 kcal/kg	<1%	50,000-150,000t	$/mt	Weekly

Monthly benchmark physical coal indexes and over-the-counter settlement indexes

Argus benchmark physical coal indexes

Location	Heat content (Btu/lb)	Sulphur (lb SO2/ mmBtu)	Delivery mode	Delivery point	Standard lot size
Central Appalachian rail	12,500	1.6	fob railcar	CSX - Big Sandy/ Kanawha	Unit train
Central Appalachian barge	12,000	1.67	fob barge	Big Sandy or Ohio Rivers Greenup Pool between the Byrd and Greenup lock complexes	Five barges
Illinois basin rail or mine	11,500	5	fob mine, railcar	Illinois, Indiana or western Kentucky rate districts	Unit train or mine
Illinois basin barge	11,500	5	fob barge	Between MP 896 and MP 784 on the Ohio River	Five barges
Northern Appalachian rail	13,000	4.5	fob railcar	MGA rate district	Unit train
Colombian seaborne	6,000 kcal/kg typical	<1%	fob vessel	Colombian Caribbean terminals	Panamax vessel
Western bituminous	11,300	<1%	fob railcar	UP-served CO, UT, WY	Unit train
Powder River basin	8,800	0.8	fob railcar	Joint Line	Unit train

Monthly over-the-counter (OTC) settlement indexes *$/st*

Location	Basis	Btu/lb	Sulphur	Timing		Frequency
CSX rail	fob rail	12,000	<1%	Prompt month	Prompt quarter	Monthly, published according to CTC trading calendar
CSX rail	fob rail	12,500	<1%			
Powder River basin	fob rail	8,800	0.8lb SO2/mmBtu			