METHODOLOGY AND SPECIFICATIONS GUIDE

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ARGUS WEST AFRICA OIL

Contents:

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The most up-to-date Argus West Africa Oil methodology is available on www.argusmedia.com

Introduction

Argus West Africa Oil is a market report that publishes daily prices for crude oil produced in west Africa and refined petroleum products delivered to west Africa, as well as weekly market commentary and regional news and analysis on Fridays.

The prices contained in Argus West Africa Oil are calculated according to methodologies that link each commodity through transparent steps to assessments from the most relevant liquid markets.

The crude oil prices in Argus West Africa Oil are fob loading terminal prices calculated based on the product yield of each grade relative to those of more actively traded regional grades assessed in the Argus Crude report.

The refined product markers in Argus West Africa Oil are derived from the active northwest European barge markets for gasoline, jet fuel and heating oil assessed in the Argus European Products report, by adding a barge/cargo differential if appropriate and the price of freight from northwest Europe to west Africa as assessed in the Argus Freight report.

All prices are based on those published by Argus on the previous UK working day.

Methodological principles

Argus assessments are based upon the structure of the market as established by market participants. So if market participants trade and price products in relation to certain benchmarks, then Argus will publish prices in relation to those benchmarks.

The Argus method includes trades from various platforms — close of market windows, e-commerce portals, third-party transactions and over-the-counter swaps — to reflect a daily consensus on the price of the day. The Argus methodology relies on a survey and analysis of market inputs. It often varies from “market on close” methodologies, which only recognise select transactions, bids or offers at a specific closing time of each day.

The Argus method considers inputs received throughout the entire day up until its daily timestamp. Argus price assessments in Argus West Africa Oil reflect standardised specifications under the general terms and conditions employed for standard contracts in common use.

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).

Market survey

Argus market specialists conduct comprehensive daily surveys of key industry participants to collect trade information and gauge prevailing market sentiment. Through interrogative enquiries and analysis, Argus market reporters consider a broad range of trade data, including physical transactions, fixed-price deals, formula-related deals, premiums, discounts, reported but unconfirmed trades, tender results, netbacks, bids, offers, swaps, spreads and supply/demand fundamentals before making their assessment of the open market price for each product.

Argus reporters use the telephone and various electronic mail and messaging services to acquire and cross-check their information.

Argus does not restrict itself to one subsection of the market such as a single trading platform or single informational channel for its market information. Argus will contact and accept market data from all credible market sources including front and back office of market participants and brokers.

The market surveys are balanced in their approach and are conducted by well-trained specialists who are part of several dedicated teams responsible for the Argus Crude, Argus European Products and Argus Freight reports, from which the prices in Argus West Africa Oil are derived. The market surveys will involve up to 30 market participants in each market segment contacted by telephone or electronically.

The information will be verified and analysed. The approach is methodical and standardised and the assessments will be tested against the views of other market participants. Information from the survey is verified as best possible and archived in databases.

Price assessments

The assessments in Argus West Africa Oil are published as a service to the industry and are not in many cases supported by an open traded market. These price assessments will be constructed by comparing price values from the liquid traded open markets adjusted for freight and any other appropriate costs. All assessments and formulas refer to the price of the commodity on the UK working day previous to that of the published report and are expressed in US dollars unless otherwise stated. The prices are for contracts under whatever general terms and conditions are accepted as standard and prevailing in that particular market. Price changes refer to the last published report.

On Fridays, Argus West Africa Oil provides an overview of the week’s crude and product market activity with regard to west Africa. The report allows readers to quickly understand the key market drivers as well as receive news and analysis of regional events and trends.

See the relevant sections of this methodology and those linked to for full details of each price assessment.

West African crude prices

Argus West Africa Oil contains prices for a range of crudes produced in Nigeria, Angola, Congo (Brazzaville), Cameroon, Gabon and Ghana. These crudes do not appear in spot markets regularly enough to produce a price assessment based on reported trade, so their value is calculated according to a methodology that takes into account the refinery gate value (RGV), or the prices of the refined products that can be produced from each grade minus the costs of refining, compared with the RGV of more actively traded regional grades of crude such as Nigerian Qua Iboe, Angolan Girassol, Angolan Dalia or Chadian Doba (the "basis crudes") at a typical northwest European or Asia-Pacific complex refinery. The basis crude and refinery model are chosen according to each crude's specific gravity and typical destination. The RGVs are calculated using a model developed by Argus Consulting. Details of the refinery modelling can be found in the Argus Netback Model methodology.

The spread generated by comparing the RGV values of each grade with that of Qua Iboe, Girassol or a mean of the RGVs of Dalia and Doba is then applied to the spot price of Qua Iboe, Girassol or a mean of the spot prices of Dalia and Doba (the "Dalia/Doba average"), as published in the previous UK working day's Argus Crude. All crude prices are expressed in $/bl.

North Sea Dated

Argus North Sea Dated (hereafter referred to as Dated) is the crude oil price benchmark against which the west African grades are calculated in Argus West Africa Oil. The Dated assessment as published in Argus Crude on the previous UK working day is used as the basis for all west African crude prices assessed in the report. It is Argus' equivalent of Platts Dated Brent, and is calculated according to a methodology described in the Argus Crude methodology.

West African basis crudes

Qua Iboe

The value of Qua Iboe, a Nigerian crude, is that published in Argus Crude on the previous UK working day. It is calculated by applying the market differential of Qua Iboe to the Dated value. The prevailing market differential is also published separately. Please see the Argus Crude methodology for further information.

Girassol

The value of Girassol, an Angolan crude, is that published in Argus Crude on the previous UK working day. It is calculated by applying the market differential of Girassol to the Dated value. The prevailing market differential is also published separately. Please see the Argus Crude methodology for further information.

Dalia

The value of Dalia, an Angolan crude, is that published in Argus Crude on the previous UK working day. It is calculated by applying the market differential of Dalia to the Dated value. The prevailing market differential is also published separately. Please see the Argus Crude methodology for further information.

Doba

The value of Doba, a Chadian crude, is that published in Argus Crude on the previous UK working day. It is calculated by applying the market differential of Doba to the Dated value. The prevailing market differential is also published separately. Please see the Argus Crude methodology for further information.

The Dalia/Doba average

The Dalia/Doba average is calculated by taking the mean of the market differentials of Dalia and Doba and applying the result to the Dated value. The prevailing market differential is also published separately.

Nigeria

Abo Blend

The value of Abo Blend, a Nigerian crude, is based on the spread between the RGV of Abo Blend and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to the Dated value to create the Abo Blend market differential. This is added to Dated to create the Abo Blend price. The market differential is also published separately.

Akpo

The value of Akpo, a Nigerian crude, is based on the spread between the RGV of Akpo and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to the Dated value to create the Akpo market differential. This is added to Dated to create the Akpo price. The market differential is also published separately.

Antan

The value of Antan, a Nigerian crude, is based on the spread between the RGV of Antan and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to the Dated value to create the Antan market differential. This is added to Dated to create the Antan price. The market differential is also published separately.

Asaramatoru

The value of Asaramatoru, a Nigerian crude, is based on the spread between the RGV of Asaramatoru and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Asaramatoru market differential. This is added to Dated to create the Asaramatoru price. The market differential is also published separately.

EA Blend

The value of EA Blend, a Nigerian crude, is based on the spread between the RGV of EA Blend and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the EA Blend market differential. This is added to Dated to create the EA Blend price. The market differential is also published separately.

Ebok
The value of Ebok, a Nigerian crude, is based on the spread between the RGV of Ebok and that of the Dalia/Doba average at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Ebok market differential. This is added to Dated to create the Ebok price. The market differential is also published separately.

Eremor
The value of Eremor, a Nigerian crude, is based on the spread between the RGV of Eremor and that of the Dalia/Doba average at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Eremor market differential. This is added to Dated to create the Eremor price. The market differential is also published separately.

Ima
The value of Ima, a Nigerian crude, is based on the spread between the RGV of Ima and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Ima market differential. This is added to Dated to create the Ima price. The market differential is also published separately.

Obe
The value of Obe, a Nigerian crude, is based on the spread between the RGV of Obe and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Obe market differential. This is added to Dated to create the Obe price. The market differential is also published separately.

Okono Blend
The value of Okono Blend, a Nigerian crude, is based on the spread between the RGV of Okono Blend and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Okono Blend market differential. This is added to Dated to create the Okono Blend price. The market differential is also published separately.

Okoro
The value of Okoro, a Nigerian crude, is based on the spread between the RGV of Okoro and that of the Dalia/Doba average at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Okoro market differential. This is added to Dated to create the Okoro price. The market differential is also published separately.

Okwori
The value of Okwori, a Nigerian crude, is based on the spread between the RGV of Okwori and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Okwori market differential. This is added to Dated to create the Okwori price. The market differential is also published separately.

Okwuibome
The value of Okwuibome, a Nigerian crude, is based on the spread between the RGV of Okwuibome and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Okwuibome market differential. This is added to Dated to create the Okwuibome price. The market differential is also published separately.

Oyo
The value of Oyo, a Nigerian crude, is based on the spread between the RGV of Oyo and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Oyo market differential. This is added to Dated to create the Oyo price. The market differential is also published separately.

Pennington Light
The value of Pennington Light, a Nigerian crude, is based on the spread between the RGV of Pennington Light and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Pennington Light market differential. This is added to Dated to create the Pennington Light price. The market differential is also published separately.

Ukpokiti
The value of Ukpokiti, a Nigerian crude, is based on the spread between the RGV of Ukpokiti and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Ukpokiti market differential. This is added to Dated to create the Ukpokiti price. The market differential is also published separately.

Yoho Light
The value of Yoho Light, a Nigerian crude, is based on the spread between the RGV of Yoho Light and that of Qua Iboe at a typical northwest European complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Qua Iboe to Dated to create the Yoho Light market differential. This is added to Dated to create the Yoho Light price. The market differential is also published separately.

Angola

Mondo
The value of Mondo, an Angolan crude, is based on the spread between the RGV of Mondo and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Mondo market differential. This is added to Dated to create the Mondo price. The market differential is also published separately.

Palanca
The value of Palanca, an Angolan crude, is based on the spread between the RGV of Palanca and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Palanca market differential. This is added to Dated to create the Palanca price. The market differential is also published separately.

Pazflor
The value of Pazflor, an Angolan crude, is based on the spread between the RGV of Pazflor and that of the Dalia/Doba average at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Pazflor market differential. This is added to Dated to create the Pazflor price. The market differential is also published separately.

Plutonio
The value of Plutonio, an Angolan crude, is based on the spread between the RGV of Plutonio and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Plutonio market differential. This is added to Dated to create the Plutonio price. The market differential is also published separately.

Saturno
The value of Saturno, an Angolan crude, is based on the spread between the RGV of Saturno and that of the Dalia/Doba average at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Saturno market differential. This is added to Dated to create the Saturno price. The market differential is also published separately.

Saxi-Batuque
The value of Saxi-Batuque, an Angolan crude, is based on the spread between the RGV of Saxi-Batuque and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Saxi-Batuque market differential. This is added to Dated to create the Saxi-Batuque price. The market differential is also published separately.

Congo (Brazzaville)

Djeno
The value of Djeno, a crude from Congo (Brazzaville), is based on the spread between the RGV of Djeno and that of the Dalia/Doba average at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of the Dalia/Doba average to Dated to create the Djeno market differential. This is added to Dated to create the Djeno price. The market differential is also published separately.

N'Kossa
The value of N'Kossa, a crude from Congo (Brazzaville), is based on the spread between the RGV of N'Kossa and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the N'Kossa market differential. This is added to Dated to create the N'Kossa price. The market differential is also published separately.

Cameroon

Kole Marine
The value of Kole Marine, a Cameroonian crude, is based on the spread between the RGV of Kole Marine and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Kole Marine market differential. This is added to Dated to create the Kole Marine price. The market differential is also published separately.

Gabon

Rabi Light
The value of Rabi Light, a Gabonese crude, is based on the spread between the RGV of Rabi Light and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the Rabi Light market differential. This is added to Dated to create the Rabi Light price. The market differential is also published separately.

Ghana

TEN
The value of TEN, a Ghanaian crude, is based on the spread between the RGV of TEN and that of Girassol at a typical Asia-Pacific complex refinery as calculated by the Argus Netback Model. This spread is added to the market differential of Girassol to Dated to create the TEN market differential. This is added to Dated to create the TEN price. The market differential is also published separately.

Refined products markers

The refined products markers in Argus West Africa Oil are intended to reflect the cost of oil products delivered to west African ports from northwest Europe. They are based on prices discovered in the highly active Amsterdam-Rotterdam-Antwerp (ARA) barge markets for gasoline, diesel and jet fuel and published in the previous UK working day's Argus European Products, adjusted for the barge/cargo differential and the price of freight from northwest Europe to west Africa as published in the previous UK working day's Argus Freight.

The methodology behind the base assessments for each product can be viewed in the Argus European Products methodology. The methodology for assessing freight rates can be viewed in the Argus Freight methodology.

Products prices are expressed in $/t and Nigerian naira/litre, except jet fuel, which is expressed in $/t only.

Gasoline

The value of Argus Eurobob delivered west Africa is calculated by adding the previous day's Argus Eurobob oxy barge fob ARA price as published in Argus European Products to a barge/cargo differential and the price of clean products freight UKC-WAF for 37kt cargoes from northwest Europe to west Africa, as published in Argus Freight. The resulting price is expressed in $/t and Nigerian naira/litre, using an Argus conversion factor whereby 1 tonne equals 1,330 litres.

Diesel

The value of gasoil diesel 1,000ppm delivered west Africa is calculated by adding the previous UK working day's Argus gasoil heating oil German NWE barge fob price as published in Argus European Products to the price of clean products freight UKC-WAF for 37kt cargoes from northwest Europe to West Africa, as published in the previous UK working day's Argus Freight. The resulting price is expressed in $/t and Nigerian naira/litre, using an Argus conversion factor whereby 1 tonne equals 1,183 litres.

Jet

The value of jet/kerosine delivered west Africa is calculated by adding the previous UK working day's Argus jet/kerosine NWE barge fob price as published in Argus European Products to the price of clean products freight UKC-WAF for 37kt cargoes from northwest Europe to West Africa, as published in the previous UK working day's Argus Freight. The resulting price is expressed in $/t.