

Methodology and specifications guide

Europe and Africa refined oil products

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INTRODUCTION

Platts methodologies are designed to produce price assessments that are representative of market value, and of the particular markets to which they relate. Methodology documents describe the specifications for various products reflected by Platts assessments, the processes and standards Platts adheres to in collecting data, and the methods by which Platts arrives at final assessment values for publication.

Platts discloses publicly the days of publication for its price assessments, and the times during each trading day in which Platts considers transactions in determining its assessments levels. This schedule of publication is available on Platts website, at the following link: <http://www.platts.com/HolidayHome>.

The dates of publication and the assessment periods are subject to change in the event of outside circumstances that affect Platts ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism and other situations that result in an interruption in Platts operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessment periods, with as much advance notice as possible.

Platts methodologies have evolved to reflect changing market conditions through time, and will continue to evolve as markets change. A revision history, a cumulative summary of changes to this and previous updates, is included at the end of the methodology. Methodology is reviewed regularly to ensure it reflects current market reality. Such reviews are carried out by Platts reporters and their managers, supplemented and supported by price methodology specialists who operate separately from the reporting teams. Platts follows a clearly defined process for public consultation on material changes to its methodologies. This process is based on full transparency and communication with industry stakeholders aimed at gaining

market acceptance for any proposed introduction or changes to methodology. For more information on the review and approval procedures, please visit: <https://www.spglobal.com/platts/en/our-methodology/methodology-review-change>

All Platts methodologies reflect Platts commitment to maintaining best practices in price reporting.

How this methodology statement is organized

This description of methodology for assessments is divided into seven major parts (I-VII) that parallel the entire process of producing the end-of-day price values.

- Part I describes what goes into Platts assessments, including details on what data market participants are expected to submit, the process for submitting data and criteria for timeliness of market data submissions, as well as the editorial collection of input data from market sources.
- Part II describes any security and confidentiality practices that Platts uses in handling and treating data, including the separation between Platts price reporting and its news reporting.
- Part III is a detailed account of how Platts collects bids, offers, trades and other market data, and what Platts does with the data to formulate its assessments. It includes descriptions of the methods that Platts uses for reviewing data, and the methods used to convert raw data into assessments. This also includes the procedures used to identify anomalous data. This section describes how and when judgment is applied in this process, the basis upon which transaction data may be excluded from a price assessment, and the relative importance assigned to each criterion used in forming the price assessment. This section describes the minimum amount of transaction data required for a particular price assessment to be published. This is based on reported transactions and other market information. Finally, this section describes how Platts addresses assessment periods

where one or more reporting entities submit market data that constitute a significant proportion of the total data upon which the assessment is based.

- Part IV explains the process for verifying that published prices comply with Platts standards.
- Part V lays out the verification and correction process for revising published prices and the criteria Platts uses to determine when it publishes a correction.
- Part VI explains how users of Platts assessments can contact Platts for clarification of data that has been published, or to share a complaint. It also describes how to find out more about Platts complaint policies.
- Part VII is a list of detailed specifications for the trading locations and products for which Platts publishes assessments for a particular commodity. This section describes why specific units of measurement are used, and what conversion factors are used to move between units of measurement, where relevant.

PART I: INPUT DATA

Platts objective is to ensure that input data that editors use as the basis for their price assessments is of the highest quality. Ensuring that data used in Platts assessments is of high quality is crucial to maintaining the integrity of Platts various price assessment processes.

Platts encourages entities that submit any input data for consideration in its assessment processes to submit all market data that they have which may be relevant to the assessment being made. Platts aim is to determine the full circumstances surrounding all reported transactional data, including details of quality, specifications, order sizes, dimensions, lead times and any locational and loading/delivery information. Platts uses that

information to determine a typical and repeatable market level for the commodity being assessed.

Reporting data to Platts

Platts assesses a variety of different markets and commodities. In some of these Platts receives information from back office functions. However, in many markets back office functions are not best placed to communicate relevant market data to Platts editors, and in these instances Platts has processes in place to ensure that data is corroborated either through reviews of entities participating in its process, or through source validation and publication of information.

As part of its standard editorial practise, Platts routinely reviews the companies participating in its price assessment processes. These reviews ensure the suitability of data and information that are used to formulate Platts end-of-day price assessments. These reviews are conducted on a regular basis, and may take into consideration an array of issues including, but not limited to, adherence to editorial guidelines, operational and logistical issues, as well as counterparty acceptance. Further details concerning Platts MOC Participation Guidelines can be found online at <https://www.platts.com/market-on-close>.

The reviews are not designed to impede a company's ability to bilaterally engage in market transactions; the objective at all times is to ensure the integrity of published price assessments. Platts does not disclose the nature or scope of routine reviews of data providers that participate in its price assessment activities.

Platts may consider verifiable data reported and published through the day as provided for publication by individual sources, through established editorial methods.

Platts has developed guidelines for Management of Sources that address source identification, source evaluation, source development, using source information and source dependency. Individual sources are verified as per Platts Source Management Guidelines.

Platts considers several criteria as whether to use source information. These criteria include:

- Company reputation
- Source position within a company
- Source understanding and knowledge of the market in question
- Ability of source to provide relevant, valuable information
- Ability of Platts to verify information with other sources
- Source credibility

What to report

Platts encourages all market participants to submit all data that may be relevant to Platts assessments, including but not limited to:

- Firm bids that are open to the marketplace as a whole, with standard terms
- Firm offers that are open to the marketplace as a whole, with standard terms
- Expressions of interest to trade with published bids and offers, with standard terms
- Confirmed trades
- Indicative values, clearly described as such
- Reported transactional activity heard across the market, clearly described as such
- Other data that may be relevant to Platts assessments

How to report

Platts accepts any reasonable method of delivery/communication for information provided for publication in real-time, including for bids, offers and transactions. Platts editors typically communicate with market participants through phone, eWindow (if relevant) and/or online instant messaging systems.

Platts tries to accommodate the communication needs of its customers and will endeavor to open any additional communication channels required. Other means of communication, such as emails during the assessment process, are acceptable but are considered to be atypical. If a market participant chooses to communicate with Platts editorial using such atypical means, this needs to be highlighted well ahead of the assessment process.

The following reporting methods are accepted by Platts editorial staff:

- Commonly used Instant Messaging software
- eWindow
- Telephone
- Email

Reporters covering the markets in Asia and the Middle East are contactable from around 09:30 to around 18:30 Singapore time, those covering Europe and Africa from around 09:30 to around 18:30 London time, and those covering the Americas from around 08:30 to around 17:30 Houston time.

MOC data publishing principles

The Platts Market on Close (MOC) assessment process establishes core standards for how data is collected and published, how data is prioritized by value, and ultimately how data is analyzed in the course of completing Platts assessments.

Transparency underpins Platts data publishing processes. Under Platts MOC guidelines for collecting and publishing data, Platts publishes market information including but not limited to firm bids and offers, expressions of interest to trade and confirmed trades that are received from market participants throughout the day.

This information is published in real-time, as it is received, on Platts information services. Platts publishes all information received so that it can be fully tested by the market at large. Information collected and published includes the identities of buyers and sellers, confirmed prices, volumes, location, and stated trading terms.

Platts assessments are designed to reflect repeatable market value at the close of the assessment process. Platts tracks market price evolution during the entire day, and publishes a wide range of data relating to market value as it does so. All data that has been published through the day is analyzed during the assessment process. Towards the close of the day, Platts focuses its assessment process to publish named firm bids and offers, expressions of interest to trade and confirmed trades, with all relevant details. This transparent data is prioritized in the assessment process, because it is available to the entire market for testing.

In order to ensure that all firm bids and firm offers that still stand at the close of the assessment process have been fully tested in the market at large, Platts has established clearly defined time cut-offs that apply when publishing firm bids and firm offers in the MOC process. Time cut-offs for the submission and subsequent publication of new bids and offers are applied so that MOC participants cannot bid or offer late in the process, and to ensure that every bid and offer published by Platts is logistically executable.

Bids and offers published by Platts are considered to be firm until Platts is informed otherwise, or until the close of the assessment process for the day, whichever comes first. Platts expects all participants in the MOC process to be contactable at all times.

Platts will consider all firm bids and offers as open to the market at large and executable unless informed otherwise by the counterparty submitting the market information. If no communication is made to Platts to withdraw or change the parameters of the bid or offer it is assumed that it is available to the marketplace. Platts seeks verification of any transaction originating from a bid or offer submitted for inclusion in the Platts MOC process.

Input data may also include fully and partially confirmed bids, offers and trades, notional trading values and other market information as provided for publication by individual sources, through established editorial methods.

Market reporters endeavor to verify all market information they receive, including by testing it within the market through the publishing process. Trades reported as executed are verified as being executed and Platts ensures that any firm bids/offers reported are available to the market as a whole.

Platts uses various techniques to confirm the quality of data it receives, including cross checks with counterparties as well as requests for supporting documentation. Platts eliminates data in the price assessment process that cannot be verified in the market to the extent deemed appropriate.

All Platts market reporters are trained to analyze the data they receive and to question sources to establish the fullest set of information possible around price data. Reporters are trained to seek a wide variety of information to test reported transactional activity, including the specific price agreed, the counterparty to the trade, the point of origin and destination for delivery of the commodity, the size of the transaction, any physical quality commitments agreed as part of the trade, the terms and conditions of a trade and when a trade was agreed.

Platts publishes the most relevant information collected that meets its methodological standards, typically through real-time information services and with as much transparency as possible in order to test information within the market.

MOC data submission process

Platts has specific guidelines around data submissions to ensure high quality of information in the assessment process. This includes detailed guidelines on timings for submissions, which can be found in the specific guide for each commodity process. The purpose of the time cut-offs is primarily to ensure logistical executability and standards of incrementability and repeatability to ensure an orderly assessment process. As such, they may be changed at short notice if evolving market conditions require.

To ensure proper dissemination of market information, new bids and offers for publication by Platts must be received by Platts no later than stated cut-off periods.

In order to ensure that all published data is fully tested in the market, Platts has established guidelines around how quickly bids and offers may be improved when they have been published, and by what amount. These incrementability guidelines define the quantum and speed at which bids and offers may typically be improved in the MOC assessment process. Incrementability does not apply to bids and offers that are moving away from market value, though Platts analyzes bids and offers that are moved lower, and higher, respectively, to ensure reasonability.

Platts may notify the market of any adjustment to the standard increments in the event of market volatility or a disruptive event. A market participant can withdraw a bid or offer from Platts MOC process at any time, so long as no other potential trading counterparty has indicated that it has interest to buy or sell into the bid/offer.

Platts expects that market participants bidding and offering in the MOC process should perform on their bid/offer with the first company of record to express interest to Platts for publication during the MOC process. In the event of a dispute on the timing, Platts will review its records and determine which company communicated to Platts first its intention to execute on a bid/

offer displayed on the Platts systems. Platts prioritizes data on the basis of timeliness. This sequence is critical for an orderly assessment process.

Platts editorial guidelines governing its assessment process require it must consider only those transactions, bids or offers where market participants perform under typical contractual terms. Platts accepts that individual companies may have trading limits with counterparties and that national legislation may prevent companies from dealing in materials of certain origins. Such counterparty issues are dealt with on a case-by-case basis.

All bids and offers are firm from the moment of submission.

Submissions of bids, offers or transactions should not be considered as received by Platts unless acknowledged as received by Platts. For communication initiated by phone Platts will consider the time when the trader actually communicated the bid/offer or transaction. Acknowledgment may take the form of “yes,” “OK,” “y,” “k,” or any other reasonable forms, including by sending back the published information. Platts recognizes the time of receiving a message of a company's intent to buy/sell, as opposed to the time a message was sent by the trading party.

Bids and offers submitted on time but in an incomplete form, where the terms are only clarified after the cut-off deadline, will not be used in the assessment process.

As a general recommendation Platts advises market participants not to wait for the last possible minute before the cut-off deadlines for bids and offers, as the communication may not be completed on time.

A buyer or seller can communicate with Platts directly to express buying or selling interest. Platts may also take into consideration bids and offers made via a broker, provided the buyer or seller have communicated to Platts that they have authorized the broker to speak on their behalf.

Platts only considers for publication and assessment transactional interest that is expressed by participants for bids or offers that have already been published by Platts. Interest in bids or offers at prices that have not been published, and therefore may not be fully available for testing in the marketplace as a whole, may be disregarded. Should a buyer lower its bid or a seller increase its offer, an expression to trade at a previously published level will not be considered.

Platts editorial processes require full clarity when communicating bids/offers and intentions to trade. When expressing an intention to hit a bid or lift an offer in the MOC processes, any message should typically include the specific price of the trade and the name of the counterparty. Information may not be published if it is not sufficiently clear when communicated to Platts.

Following any trade, an intention to rebid or reoffer must be received by Platts as soon as is possible and within a reasonable time frame, as per incrementability guidelines.

Unless sellers/buyers expressly inform Platts of their continued interest to buy/sell after a deal, Platts will presume the original buyers or sellers are not there for additional volume.

A rebid or reoffer must match the initial position's parameters, with the exception of price. A rebid or reoffer can be made at the same level or inferior to the traded price. For example Company B hits Company A's bid for \$100/mt during the MOC. Company A can rebid at \$100/mt or below this level. If the MOC process for the market includes a “freeze” period at the close of the process, bids and offers may only be repeated at the last published price.

When there are multiple bids or offers at the same level, the first participant to reach that level should be the first to be traded. Subsequent deals will go to the second, third and fourth participant at the same level. When a participant is traded, any repeat of their bid/offer will move to the back of the bid/offer queue.

Platts will consider the first participant to express their interest in a bid or offer to be the counterparty for the subsequent trade. Platts will monitor time stamps in the event of a dispute to determine who the first buyer or seller was. In the event of a bid or offer being repeated, the queue of participants expressing interest in that position will be reset. Platts will not consider any interest expressed in a rebid or reoffer before the position is published to be executable during the MOC assessment process.

After a bid or offer is published, only price can be changed, while in certain markets volume may be adjusted to be multiples of a minimum volume. The quality or loading/delivery timing cannot be changed. Buyers or sellers can withdraw bids/offers at any time, provided no prior interest to transact has been expressed by any potential counterparty. If a participant trades another position during the MOC assessment process, they must communicate to Platts if they wish to withdraw their existing position following the trade. Otherwise, it is assumed the participant's own position remains active.

All participants that have reported bids and offers for publishing in the Platts process are expected to promptly report any transactions stemming from available bids or offers reported to Platts as part of the MOC assessment process.

Platts synchronizes its computer clocks every day precisely, and will compare the time of any submitted bid, offer or transactional interest against this synchronized time. Please note that Platts applies the timing deadlines strictly.

For the purposes of clock synchronization, market participants may find the following internet link to be helpful: www.time.gov. This link offers an atomic clock reading for US time zones.

In markets where Platts eWindow is in operation, the eWindow clock will be used to determine the correct sequence of events when a bid or offer is amended, withdrawn, or traded by an interested counterparty. Bids or offers submitted by phone, or any other medium, such as instant messaging software, shall be

clocked at the time the bid, offer or trade indication is actually transmitted through the Platts eWindow system. As per Platts methodology, buyers or sellers can withdraw bids/offers at any time when communicating through eWindow, provided no prior interest to transact has been expressed by any potential counterparty. All bids and offers are firm from the moment submitted into Platts eWindow to the moment they are traded, the window period closes or the bid/offer is withdrawn from the system by the trader or a Platts editor.

Platts is an information company and it aims to publish any credible bid or offer reported to it. Platts makes no commitment to publish every bid or offer submitted to it, however. For instance, frivolous bids and offers may not be published.

Terms of trade such as quality, delivery port, timing of delivery/loading and price are fully up to the company submitting the bid or offer.

Platts cannot make any guarantee in advance about how and whether market information received and published but not fully adhering to its defined methodology will be incorporated in its final assessments.

Atypical bids, offers, trades

Platts may publish bids, offers and trades with atypical pricing terms, including benchmark bases and timing. Market information with atypical pricing inherently differs in value from the typical and commonly observable information in the market.

Bids and offers which are deemed as atypical relative to the market may not be fully taken into consideration for the assessment process. In the absence of an associated, liquid derivative instrument atypical pricing bases may be difficult or impossible to evaluate on an outright price equivalent.

Such bids/offers or transactions would be at best indicators of an overall market condition but they would not be seen as exact indicators of market price.

Any unusual condition or request regarding a commodity should be specified at the moment the initial bid or offer is made. Any unusual request that surfaces at the time a counterparty is ready to trade and that impedes the normal flow of a transaction could be seen as an impediment to trade.

Information reported by market participants that may have legal implications, including but not limited to potential libel, will not be published.

Market participants are encouraged to inform Platts when they cannot trade with another typical market participant due to performance, credit or legal issues before the cut off deadlines for initial bids and offers. Platts may ask market participants to provide supporting documentation to ensure the integrity of its assessment process.

Law

Contracts using English law are considered standard in the assessment process.

Embargoed products

Laws stating that nationals from specific countries may not buy products from embargoed countries may prevent market participants from lawfully executing transactions. A seller therefore may not assume that a buyer has the obligation to buy embargoed materials. Under Platts Market on Close assessment guidelines, commodities supplied from countries or entities that are subject to trading embargoes and sanctions recognized under international law should not be delivered against transactions concluded during the Platts MOC assessment processes. Bids and offers that contain statements surrounding delivery of embargoed materials will be considered by Platts for publication, and if published after review may be subject to normalization in value.

Late performance

Platts is aware that physical conditions regarding logistics which are beyond the control of the seller or buyer may result in lateness, quality issues or conditions seen as a deviation from the original wording in the contract, for example late delivery/loading.

These deviations will be seen in the larger context of physical trading, and should not be seen as an indication of Platts condoning lateness.

Platts will review patterns of logistical performance, as adjustments due to late performance and/or quality issues should be extraordinary and not recurring events.

Participants who are intending to sell should not offer when there is a known and distinct possibility that loading/delivery may be delayed. If congestion or delays prevent performance under the contractual terms, the seller should make reasonable and timely efforts to supply from an alternative source, or the seller should engage in other measures to alleviate the buyer's exposure.

Equally, a buyer should not over-commit and then aggregate nominations in a way that makes it logistically impossible for the seller to perform.

Platts will take appropriate steps to ensure the integrity of its assessments if issues of non-performance should arise.

In summary, performance is paramount and all bids and offers must be firm and transactions should be performable within the contractual parameters.

Platts only recognizes bids, offers and transactions where no party claims a right to unilaterally cancel a transaction. If a transaction becomes difficult the party causing the issue must seek resolution including alternative loadings, qualities, dates or book outs.

Compensation

Platts publishes bids, offers and transactions on the basis that participants will fulfil the full value of the physical contract.

A party deemed to have underperformed or not performed under the original contract is expected to compensate the affected party.

In almost all circumstances, the compensation is not, and should not be due to a flat price change, but should include parameters such as backwardation, logistics, and the inconvenience for the buyer in the case of a seller not performing, or contango, logistics and the inconvenience for the seller in the case of a buyer not performing. Compensation should not include consequential costs.

Such adjustments should be fair and in line with market practice, and should be reciprocal in the event that the inverse situation occurs in the future.

Compensation is subject to editorial review to ensure market practices and overall fairness in the transaction have been followed. Platts review may include an analysis of reasonable compensation. Platts views compensation as a part of full performance due under the parameters of a trade reported in the assessment process.

Force majeure

Force majeure is part of trading and may be invoked under very special circumstances. Platts editors will monitor the application of it to ensure that force majeure is not invoked frivolously.

Booking out trades

Booking out trades done during the Platts Market on Close assessment process is acceptable under exceptional circumstances. A stressed party may request to book out a trade, but its counterparty is under no obligation to accept such request.

In those exceptional cases where both counterparties agree to book out a trade, Platts expects the original spirit of the contract to be fulfilled where the non-performing party offers to buy/sell back the position and compensates the affected party.

In almost all circumstances, the adjustment is not and should not be due to a flat price change, but should be to include parameters such as market structure, logistics and the inconvenience for the buyer or seller expecting a normal

transaction. Such adjustments should be fair and in line with market practice, and should be reciprocal in the event that the inverse situation occurs in the future.

Furthermore, circle outs may occur when the original seller sells a parcel that is later sold into a third party that has a sale into the primary seller. Such “circle outs” are considered a normal part of trading as sometimes chains originate and finish at the same point.

Book outs and circle outs are subject to editorial review to ensure market practices and overall fairness in the transaction have been followed. Platts review may include proposals/arrangements to protect the integrity of its assessment process.

Review of trades

Platts may track all aspects of performance on trades reported during its MOC assessment process. Platts not only focuses on the performance of the transaction at the time of trade, but also on any significant issues stemming from such trades, including logistics and eventual delivery. Trades executed through the Platts Market On Close assessment process may be reviewed from time to time for performance completion. Platts therefore may request documentary material to determine performance and validity. Such material may include details of quality, location, vessel and laycan nominations. MOC trades may be subject to editorial review to ensure market practices and performance in the transaction have been followed.

A failure to meet Platts guidelines for participation and performance in the MOC may lead to an event driven review. Event driven reviews are designed to help ensure that transactional information and other data inputs used as the basis for Platts price assessments are representative of market value on an ongoing basis.

Post-deal tracking enables Platts to determine the actual performance of the participants in the trade and the validity of their inputs. Platts may publish confirmation of trade performance information.

Specification

Platts assessments reflect typically traded qualities of commodities. Specifications are available in individual specifications guides, published on the Platts website www.platts.com.

Testing of products

Traded commodities are subject to standard testing techniques and protocols to determine contractual performance. Platts typically follows the standards already in place in the trading market, although it may monitor these to ensure that the standards are adequate.

Implied guarantees in specifications

Bids and offers submitted to Platts that include numerical specifications will be assumed to have a series of zeroes to the right of the decimal point or to the right of the last digit to the right of the decimal point.

As an example, a fuel oil cargo with a maximum guarantee of 0.1 Shell Hot Filtration will be considered as 0.1000 etc. If the specification guarantees are otherwise, the buyer or seller should specify it clearly to avoid potential disputes.

Merchantability

Platts only considers in its assessments commodities that are merchantable. Hence, buyers may assume that offers or transactions are for a commodity that is merchantable. Sellers must ensure their offers or transactions are for merchantable commodities.

PART II: SECURITY AND CONFIDENTIALITY

Data is stored in a secure network, in accordance with Platts policies and procedures. Platts assessments are produced in accordance with Platts Market on Close assessment methodology. This means that all data for use in Platts assessments may be published by Platts editorial staff while assessing the value of the markets.

Platts does not have confidentiality agreements in place for information that is sent for use in its assessments.

PART III: DETERMINING ASSESSMENTS

The following section describes how Platts uses concluded and reported transactions, bids, offers and any other market information it has collected in the manner described in section one, to formulate its price assessments. Additionally, this section describes other information, including the normalization of market data, assumptions and extrapolations that are considered when making a final assessment.

MOC price assessment principles

Through the MOC assessment process, Platts considers market information gathered throughout the normal trading day, and publishes such information throughout the day. Platts analyzes all published information in determining its final published price assessments.

Platts seeks to establish and publish the value of markets that prevail at the close of the assessment process. Platts has aligned the timestamps reflected in its assessments with what typically is a period of high activity in the markets that Platts observes. Platts believes that aligning its price assessments to typical periods of greater market activity and liquidity provides a robust basis upon which to derive an assessment of market value. Timestamps for each assessment are included in the specifications guide for that assessment.

Platts has adopted the MOC methodology in order to provide complete clarity over the precise point in time reflected in its market assessments. Like the quality of a commodity, its delivery location, delivery dates, contract terms, and the volume to be supplied, the time of commercial activity is an important attribute considered in Platts price assessments. The time that a bid or offer is shown to the market, or a transaction concluded, is vitally important in understanding the market value of the respective

commodity, in the same way that the quality of the commodity, where it will be delivered and when it will be delivered are important factors. By clearly reflecting value at a defined point in time Platts is able to properly reflect outright and spread value.

The clarity established by providing a well-defined timestamp is also important for understanding the relationships between the markets that Platts assesses. By ensuring that all assessments within a region reflect market value at the same moment in time, spreads that exist between commodities are also able to be fully and properly reflected. For example, comparing the value of a raw material to a processed commodity is possible when both values have been determined at the same moment in time. By contrast, comparing the price of raw material in the morning, to processed material in the afternoon, might deeply impair the relationship between the commodities – particularly when the respective market prices move independently during the intervening period.

By providing clear timestamps for assessments, the Platts MOC process is designed to provide assessments that properly reflect outright and spread value during times of high volatility equally well as in times of modest volatility.

MOC guidelines are designed to avoid distortion of the final price assessments by eliminating inputs that are not fully verifiable, and by disregarding one-offs or unrepeatable transactions, or those that may distort the true market level. Transactions between related parties are, for instance, not considered in the assessment process.

Deals done below the level of prevailing bids or above the level of prevailing offers (i.e., selling through the bid or buying through the offer) will not be reflected in Platts assessments. Platts will only publish expressions of interest to trade with the most competitive, tradeable bid or offer available.

Platts does not specify a minimum amount of transaction data, or a transaction data threshold, for the publication of its price assessments. Physical commodity markets vary in liquidity. Any

particular market analyzed on its own will typically demonstrate rising and falling levels of transactional activity through time. Platts is committed to providing an assessment of value for every market that it covers, equally well in times of heightened or reduced liquidity.

Platts seeks to receive market information from as broad a cross section of the market as possible. If a very limited number of market-makers are active in the market, or if a limited number submit data that constitutes a significant proportion of the total data upon which the assessment is based, Platts will continue to seek fully transparent and verifiable data from the market at large and to apply Platts methodology principles of transparency and time sensitivity. Platts considers data for assessment of any market where a single company provides more than half of all available information to be one where such a company provides a significant proportion of data. For consideration in the MOC process such a company's bids or offers must be clearly available for execution by any other potential MOC trading counter party.

Normalization price adjustment techniques

Platts seeks to align the standard specifications for the markets it assesses and the timestamps reflected in its assessments with standard industry practice. However, physical commodity markets are generally heterogeneous in nature. Key attributes often vary from the base standard reflected in Platts assessments as material is supplied to market.

The quality, delivery location and other specific terms of trade may vary in the physical commodity markets assessed by Platts. This means that simple averages of trades may not produce a representative assessment value of a physically heterogeneous market.

Because of the complex nature of the physical markets, market data typically must be aligned with standard definitions to allow for a fully representative final published assessment. Platts aligns data collected through an analysis of the physical markets with

its standard assessment specifications through a process called normalization.

Normalization is an essential price adjustment technique used to align reported market information to the base standard reflected in Platts price assessments.

Platts establishes the level of normalization by surveying markets and observing the economic impact of variance from the base standard. This is done by analyzing freight rates (for locational differences), quality premiums (for quality differences), the movements of all markets through time (for time differences) and other premiums associated with the size of trades and delivery terms.

Normalization for time may be done by analyzing movement in a related market observed through time, and that movement may provide a basis by which to align market value of an earlier reported bid, offer or transaction to market value at the MOC close. The alignment for time is essential to ensure that Platts price assessments reflect the prevailing value of a market at the close of the MOC process.

Prioritizing data

Transparency underpins Platts assessment process, just as it does Platts data publishing processes. Platts assessment process considers firm bids, firm offers and arms-length transactions that are transparent and open to sufficient, credible counterparties. Bids, offers or transactions that are not transparent may not be considered in the assessment process; bids above transparent offers or offers below transparent bids are not considered in the assessment process. Platts considers changes to bids or offers when those changes are made transparently and in normal increments.

When determining a final market assessment, Platts gives the greatest priority to fully verifiable and transparent market information. A firm bid or offer that has been published by Platts in accord with its data publishing standards, as outlined in part

1 above, and which still stands open to the marketplace at the close of the assessment process, will establish clear parameters for Platts final published assessments. Platts will typically assess market value between the best firm bid and best firm offer open to the market at the close. This ensures that Platts assessments reflect the transactable value at the close.

Completed, transparent transactions that are fully published by Platts are important in helping establish where trading interest prevails in the market, and may help determine where, in a bid/offer spread, Platts may assess value for publication.

Firm bids and offers that are available to the entire market may take precedence over trades that have been concluded earlier in the assessment process when establishing the value of the market, particularly if bids are available at the close above previously traded levels, or offers are available to the market below previously traded levels. Value is a function of time.

Similarly, firm bids and offers that are available to the entire market take precedence over transactional activity reported to Platts after completion.

The level of each bid or offer must stand firm in the marketplace long enough for any counterparty to transact; otherwise the bid or offer may be deemed non-executable. Platts may not consider bids, offers or transactions that are the result of market gapping. Gapping occurs when a bid and an offer are more than one increment apart and a trade occurs. Platts will analyse and evaluate such trades for their representative value. They may not be fully reflected in the final assessment.

Platts assessment guidelines are designed to avoid any distortion of the final price assessment and so inputs that are not verifiable and “one-off” or unrepeatable transactions may be disregarded from the price assessment process.

Single transactions may be a reflection of market value. However single transactions need to be measured against the broad

span of similar transactions. If for instance a buyer decides to trade an offer but is unwilling to buy more material offered at the same level if the seller reoffers it would be determined that the buyer failed the repeatability test. Equally if the seller does not reoffer, the seller fails the repeatability test. As such the transaction may not be fully reflected in the price assessment.

Similarly, Platts may not publish bids or offers that are provided through untested price levels. When transactions are concluded at levels that have not been fully tested by the market because price changes have been non incremental, Platts may determine that actual market value is between the last incremental bid and the transaction at the gapped level.

When no bid, offer or transaction data exists, Platts may consider other verifiable data reported and published through the day, including fully and partially confirmed trades, notional trading values and other market information as provided for publication. Platts may observe direct market activity as well as the effect of movements in related markets through spread differentials or blending and shipping economics, for example.

Platts takes into account representative transactions executed at arms-length in the open market occurring during the trading day, up to the close, and additionally taking into account bid and offer information submitted during this period. Platts editors may require direct verification from the principals to a reported bid, offer or deal when communicated through a third party, including a broker.

Assessment Calculations

Units of measurement

Platts publishes its assessments reflecting the currencies and units of measurement in which the products typically trade.

Commodities are generally internationally traded in US dollars, and Platts assessments are typically published in that currency as a result. Certain markets, such as regional markets, trade

using local currency. Platts assesses the value of such markets as appropriate in local currency.

Commodities typically trade in volumetric or energy units, and Platts assessments for these markets reflect common practice in each market. The units and unit range considered for each individual Platts assessment of a physical market is described in the specification guide for each commodity.

In certain cases Platts converts its assessments to other currencies or units of measurement to allow for ease of comparison or analysis in regional markets. Such conversions are done using exchange rates published regionally. Conversion factors are described in the specifications guide for each commodity alongside individual assessment codes.

Use of judgment

Judgment guidelines promote consistency and transparency and are systematically applied by Platts. Where judgment is exercised, all information available is critically analyzed and synthesized. The various possibilities are critically analyzed and fully evaluated to reach a judgment.

Platts reporters follow specific methodology when exercising judgment or discretion during their assessment process. Platts editors apply judgment when determining (1) whether information is suitable for publication, (2) when and how to normalize data and (3) where to assess final value. All such judgment is subject to review by Platts editorial management for adherence to the standards published in Platts methodologies.

Judgment may be applied when analyzing transactional data to determine if it meets Platts standards for publication; judgment may also be applied when normalizing values to reflect differences in time, location, and other trading terms when comparing transactional data to the base standard reflected in Platts assessments.

To ensure all assessments are as robust as possible, Platts editorial systems are backed by a strong corporate structure

that includes managerial and compliance oversight.

An evaluation process is conducted before publication on every benchmark assessment by a competent peer or manager. The price assessments are reviewed and the exercise of judgment is further discussed and verified during this process. Finally, assessments that are used as benchmarks are supported by assessment rationales. These rationales explain the application of judgment and are published together with the relevant price assessment, offering full transparency to the market.

To ensure the consistent exercise of discretion, Platts ensures that reporters are trained and regularly assessed in their own and each other's markets. Platts manages and maintains internal training guides for each of the different products assessed which aim to ensure Platts price assessments are produced consistently.

Every assessment of a benchmark, including the use of discretion, is reviewed and approved by a competent peer or manager prior to publication.

Reporters are trained to identify potentially anomalous data. Platts defines anomalous data as any information, including transactions, which is inconsistent with or deviates from our methodology or standard market conventions.

As a publisher owned by S&P Global, independence and impartiality are at the heart of what Platts does. Platts has no financial interest in the price of the products or commodities on which it reports. Platts aim is to reflect where the actual market level is.

Platts focuses primarily on assessing the value of a commodity trading in the spot market. A spot price for a physical commodity is the value at which a standard, repeatable transaction for merchantable material takes place, or could take place, in the open market at arms' length. Platts spot price assessments reflect this value at precisely the close of the assessment process.

Platts overall objective is to reflect the transactable value of the commodity assessed. In cases where the apparent value of the commodity includes extra optionalities, the intrinsic value of the commodity may be masked. In such cases, Platts reporters may use judgment to normalize bids, offers or transactions with such extraneous elements to the base market standard, or may exclude them altogether. Optionalities that may mask the value of the commodity include but are not limited to loading or delivery options held by the buyer or seller, size option tolerances exercisable by the buyer or seller, or quality specifications.

Outright, differential and spread prices

Platts assesses the outright value of a commodity, as well as differentials when it trades with reference to a benchmark. Platts analyzes all data collected and published by Platts throughout the day. Final assessments are above firm bids, and below firm offers, that stand at the close of the Market on Close assessment process. This is true for outright values and differentials.

Platts physical price assessments use a variety of inputs, including outright price bids/offers, floating price bids/offers, spread price bids/offers (including EFPs, EFSs etc.) and combinations of fixed and floating prices. Platts' objective is to assess the prevailing tradable outright price of the commodity at the close of the market assessment period. In the event of an observed conflict between outright values and differentials or spreads, outright values prevail in Platts final published assessments.

Platts establishes the hedgable, outright value of floating and spread price indications by applying them to the observable, prevailing value of underlying relevant derivatives instruments. In the event of conflicts observed between the outright values derived from floating and spread prices with different underlying references, Platts takes into account considerations that include the relative liquidity of each relevant derivatives market, and the typicality of a given spread or floating price, when exercising judgement around whether to prioritize one particular floating price or spread over another.

Platts may publish bids, offers and trades with atypical pricing terms, including benchmark bases and timing. Market information with atypical pricing inherently differs in value from the typical and commonly observable information in the market.

Bids and offers which are deemed as atypical relative to the market may not be fully taken into consideration for the assessment process. In the absence of an associated, liquid derivative instrument atypical pricing bases may be difficult or impossible to evaluate on an outright price equivalent.

Such bids/offers or transactions would be at best indicators of an overall market condition but they would not be seen as exact indicators of market price.

Timing

Platts produces time-sensitive assessments that reflect the value of the markets it covers precisely at the close of the price assessment process in each region. By providing clear timestamps for every region the Platts assessment process is designed to provide price assessments that properly reflect outright and spread value.

As an example, gasoline has a value, naphtha has a value and the gasoline versus naphtha spread has a value, and all three match when measured at the same time. By contrast, a system of averages can lead to distortions in the gasoline versus naphtha spread if the distribution of deals done for gasoline and naphtha differs over the averaging period. Thus if gasoline trades actively at the beginning of the assessment period and naphtha trades actively at the end of the assessment period in a rising market, the assessed spread value resulting from an averaging process will not be reflective of actual market value. This distortion can arise even if the value of spread trades in their own right has remained constant. The MOC approach drastically reduces the possibility of such distortions.

Assessments reflect typical loading and delivery schedules for each market assessed. The standard loading and delivery

periods are included in the individual specifications guide for each commodity.

Market structure, such as backwardation and contango, is also factored into the Platts assessment process. If a company offers a parcel loading 15 days forward, the offer may provide market information for the Platts assessment for parcels loading 15 days forward. Platts would still need to assess days 16 through 30 (in a 15-30 day market) and publish an assessment that reflects market value 15-30 days forward ahead of the day of assessment.

Market structure

Platts is very stringent in following timings for loading or delivery due to the variability in market value across time. This variability increases as the market structure, backwardation or contango, in the markets increases.

Platts factors in the backwardation/contango and reflects its impact on the published assessment. The assessment reflects the value of the commodity normalized to the center of the loading/delivery window. In a contango market, the excess of prompt material causes the front period to be significantly lower in value than material available at the end of the window. In a backwardated market the tightness of supply causes the prompt material to be at a higher price than material available at the end of the window.

Platts methodology eliminates any arbitrary movement in assessments caused simply by the different loading/delivery ranges traded. By normalizing prices to the mid-point of a clearly defined date range, the consistency of prices is maintained. The day-to-day changes in the price assessments therefore reflect an actual price move in the value of the commodity, rather than an artificial change because a cargo happens to be loading/delivering in the front period of the window rather than the back period, or vice versa.

The date ranges reflected by Platts reflect the prevailing trading practices in the region. By not taking very prompt days

into consideration, transactions reflecting distressed prices are excluded. The definition of this period varies according to specific markets.

Determination of backwardation or contango

In calculating market structure, the prices of tradable instruments, including derivatives such as futures and swaps, may be used.

Typical calculations include a determination made for the difference in price over a month; a granular value is then calculated from this for each day.

Outright and floating price information

The three main factors used in the commodities markets for price determination are:

- Outright price
- Differentials
- Derivatives

These three factors — outright price, premiums and derivatives — converge in a spot price. Platts may use all three in its assessments.

Outright price: The ultimate question in the mind of an end-user, producer, trader or broker is price. Outright prices are the simple statement of a price at which something can be bought or sold, with the entire value stated – for example, an offer of a cargo of iron ore at \$100/mt. Price in turn determines expense, processing margin, profit, loss, etc. The spot market trades actively on an outright price basis and a floating price basis. Platts takes both into account in its assessments. Platts will publish activity on both a fixed and floating basis.

Differentials: Many transactions are carried out in relation to a benchmark. In this case a differential, also known as a

premium/discount is generated. Differentials can arise if the quality, volumes or loading times for a given transaction differ from the benchmark. In addition, floating price transactions are done in relation to assessments that will be published in the future – for example, a bid for a cargo at \$10/mt above the Platts assessment of that same commodity, as published immediately before, during and after delivery of the cargo. Premiums usually rise when the market's backwardation steepens, and the steeper the curve, the greater the premium. In a contango situation, premiums have a tendency to turn into discounts.

Derivatives: Derivatives are a major determinant in price; they trade frequently and throughout the day. These markets are very reactive and may provide market participants with timely information on market conditions. They can react to arbitrage conditions or movements in overseas markets as well as local conditions. Derivatives may allow companies to adapt their price exposure because they enable market participants to transform floating prices to fixed or fixed to floating.

PART IV: PLATTS EDITORIAL STANDARDS

All Platts employees must adhere to the S&P Global Code of Business Ethics (COBE), which has to be signed annually. The COBE reflects S&P Global's commitment to integrity, honesty and acting in good faith in all its dealings.

In addition, Platts requires that all employees attest annually that they do not have any personal relationships or personal financial interests that may influence or be perceived to influence or interfere with their ability to perform their jobs in an objective, impartial and effective manner.

Market reporters and editors are mandated to ensure adherence to published methodologies as well as internal standards that require accurate records are kept in order to document their work.

Platts has a Compliance function that is independent of the editorial group. The Compliance team is responsible for ensuring the quality and adherence to Platts policies, standards, processes and procedures. The Compliance team conduct regular assessments of editorial operations, including checks for adherence to published methodologies.

S&P Global Platts appoints an independent, external auditor with appropriate experience and capability to review and report on its adherence to this stated methodology. The annual report is published online at <https://www.platts.com/regulatory-engagement>.

PART V: CORRECTIONS

Platts is committed to promptly correcting any material errors. When corrections are made, they are limited to corrections to data that was available when the assessment was calculated.

PART VI: REQUESTS FOR CLARIFICATIONS OF DATA AND COMPLAINTS

Platts strives to provide critical information of the highest standards, to facilitate greater transparency and efficiency in physical commodity markets.

Platts customers raise questions about our methodologies and the approach we take in our price assessments, proposed methodology changes and other editorial decisions in relation to our price assessments. These interactions are strongly valued by Platts and we encourage dialog concerning any questions a customer or market stakeholder may have.

However, Platts recognizes that occasionally customers may not be satisfied with responses received or the services provided by Platts and wish to escalate matters. Full information about how to contact Platts to request clarification around an assessment, or make a complaint, is available on our website, at: <http://www.platts.com/ContactUs/Complaints>.

PART VII: DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES DAILY INDEXES OR ASSESSMENTS

The following specifications guide contains the primary specifications and methodologies for Platts refined oil products assessments throughout Europe and Africa. The various components of this guide are designed to give Platts subscribers as much information as possible about a wide range of methodology and specification issues.

This methodology is current at the time of publication. Platts may issue further updates and enhancements to this methodology and will announce these to subscribers through its usual publications of record. Such updates will be included in the next version of the methodology. Platts editorial staff and managers will usually be ready to provide guidance when assessment issues require clarification.

Shipping considerations

Bids: For the cargo assessment processes bids may be expressed with a specific location. Bids with excessive limitations – whether expressed or implied – may be deemed atypical and not considered for assessment purposes.

The name of the buyer and the location chosen set the conditions for any potential counterparty considering trading. The implied set conditions for a CIF bid include:

Up front conditions Conditions to be met

Name of the buyer	Ship must meet vetting conditions of buyer
Volume	Volume delivered must match volume requested plus/minus normal operational tolerances (in cargos this tolerance is commonly 10% and in barges 5%; tolerance is usually specified at time of bid, offer or trade)
Port	Ship must meet physical limitations of port, e.g., draft, beam, etc. Ship must also meet conditions set by country of destination.

Offers: Offers may be made into a specific location or to meet a broad area. CIF offers may be made with a named or unnamed ship.

Up front conditions Conditions to be met

Name of Ship	Buyer to determine if ship is acceptable to its vetting department
Unnamed ship	Seller has the responsibility to declare its

commitment to meet either the vetting requirement of any buyer or conversely to declare up front how many ship vettings the seller is confident the ship will meet. Platts standard requires a seller name at least 3 relevant oil majors.

Please note that offers made with ships that have restrictions limiting the number of potential buyers would be considered atypical and not used in the assessment process.

Platts will also monitor vetting to ensure that ships are not rejected because of commercial considerations but only because of internal and consistently applied company standards.

Cargo Nomination Procedure

In all European CIF refined oil product cargo bids, offers and transactions, Platts guidelines require that the seller should narrow the five day delivery range to a three day delivery range by the earliest of five clear calendar or three clear working days before the first day of the narrowed delivery range, whichever falls sooner. Platts also expects the seller to nominate the performing vessel by the earliest of either five clear calendar or three clear working days. For CIF Mediterranean gasoil cargo nominations, the vessel nomination and the narrowing of the delivery range should be made by the earliest of seven clear calendar or five clear working days before the first day of the actual delivery range, again, whichever falls sooner. Platts FOB Northwest European and FOB Mediterranean oil product cargo assessments reflect market activity where the seller nominates

the loading terminal 7 calendar days ahead of the first day of the 5-day laycan. Additionally, Platts reflects cargoes which stipulate the buyer must nominate the vessel 7 calendar days ahead of the first day of the original 5-day laycan. Buyer must also narrow the 5-day laycan to a 3-day laycan at the same time. On barges, the buyer must give the seller 48 clear working hours' notice of the date required.

CIF transactions

A CIF buyer has the right to request a deviation of the ship to another port, provided the ship-owner has granted, or has the ability to grant, the deviation to the charterer. Any incremental expenses associated with the deviation are borne by the buyer as he/she is initiating the request for the deviation.

All charter party options should be passed from a seller to the buyer in the form that they exist in the original Charter Party contract. Charges incurred because of the deviation must be transparent and be granted at cost and in line with normal market practices. The seller should not impose a fee for passing the Charter Party (CP) options.

Quantity and Quality

Platts FOB and CIF assessments reflect trades where the quality and quantity are established at loadport, except in cases of fraud and/or manifest error. This does not preclude a buyer from potentially having a valid claim if the original test of a loadport sample is proven to be inaccurate because the results of the original test cannot be repeated and/or reproduced within reasonable parameters through subsequent re-testing of the

original loadport sample. Platts considers retesting of retained samples a necessary step to determine if the original test was fully reflective of the quality delivered, and sellers should not reject such requests for retesting. Buyers' requests to re-test the load port sample should be made only in cases where later testing differs from the load port test beyond repeatability and/or reproducibility.

Ship-to-ship transfers

Platts CIF refined product cargo assessments in Northwest Europe and in the Mediterranean reflect offers where the seller has the option to make final delivery on a vessel that had received its cargo on a ship-to-ship basis.

Should the seller elect to deliver a CIF cargo that has loaded on a ship-to-ship basis, the binding quantity and quality would be established on a ship's composite basis in the final delivering vessel.

The seller may not unreasonably withhold a buyer's request for title to transfer after the separation of the vessels involved in the ship-to-ship transfer.

Furthermore, Platts reflects offers which grant the buyer the option to request delivery into a vessel, rather than into a port.

Under these circumstances the quantity and quality as title and risk will pass in line with typical practices in CIF transactions.

Location

Platts publishes assessments for several locations on a FOB and CIF basis. The location parameters for each assessment are published in Section VII of this guide.

Barges

For FOB North West Europe barges across all products, the buyer must give the seller 48 clear working hours' notice of the date of loading required.

Platts FOB barge assessments reflect specified loading locations. Platts may publish bids, offers and trades outside of these locations, if appropriate, and these may be normalized to the standard loading location.

Platts reflects barge deals where the buyer has the right to request alternative loading mechanisms after the seller nominates a loading terminal. These alternative loading terms may include pumpover, inter tank transfer or cargo loading. The seller should not unreasonably withhold these requests and any alternative loading basis should be granted at operational cost only to the buyer

Platts FOB barge assessments, basis ARA, reflect bids and offers where the buyer commits to load the contractual volumes as per the agreed volume at the time of trade, where the quantity delivered to a buyer is measured in line with the typical practice established at the nominated terminal at the loading port. Platts understands the typical method of measuring quantity in the ARA barge market uses the terminal's shore tank results, where quantity is metered between the shore tank and the receiving barge's flange. Platts assessment processes reflect these standard processes and conventions.

Any potential for short loading -beyond the normal operational tolerance levels- for logistical reasons, such as water level issues on inland waterways, must be agreed with the seller prior to the commencement of loading.

The seller retains the option on whether to accept or reject the buyers request to short load. Any buyer who wishes to retain an option to short load barges due to water level concerns on inland waterways must express this in their bid. Bids with such stipulations will be considered atypical and may be subject to normalization.

LPG

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV	TO UOM
Propane CIF NWE Large Cargo	PMABA00	PMUEE03	-	AABEY00	CIF	NWE	10-25 days forward	8,500	23,100	US \$	metric ton	5.21	cts/gal
Propane CIF NWE 7kt+ Month to Date	PMUDK00	-	-	AABFB00	CIF	NWE				US \$	metric ton	5.21	cts/gal
Propane FOB NWE Seagoing	PMABB00	PMUEA03	-	AABEU00	FOB	NWE	5-15 days forward	1,000	3,600	US \$	metric ton	5.21	cts/gal
Propane FOB NWE Seagoing Month to Date	PMUDI00	-	-	-	FOB	NWE				US \$	metric ton	5.21	cts/gal
Propane ARA CIF Large Swap Mo01	PMABU00	-	-	-	CIF	ARA				US \$	metric ton	5.21	cts/gal
Propane ARA CIF Large Swap Mo02	PMUDH00	-	-	-	CIF	ARA				US \$	metric ton	5.21	cts/gal
Propane ARA CIF Large Swap Qr01	PMUDE00	-	-	-	CIF	ARA				US \$	metric ton	5.21	cts/gal
Propane FOB ARA	PMAAS00	PMUEB03	-	-	FOB	ARA	3-10 days forward	420	1,100	US \$	metric ton	5.21	cts/gal
Propane FCA ARA	PMABH00	PMUEC03	-	AABEW00	FCA	ARA	3-10 days forward	20	500	US \$	metric ton	5.21	cts/gal
Propane W Med CIF 7000+ MT	PMABE00	PMUEH03	-	-	CIF	West Med (basis Lavera)	10-25 days forward	7,000	+	US \$	metric ton	5.21	cts/gal
Propane W Med FOB Ex-Ref/Stor	PMABC00	PMUEF03	-	AABEZ00	FOB	West Med (basis Lavera)	5-15 days forward		3,000	US \$	metric ton	5.21	cts/gal
Propane W Med FCA Ex-Ref/Stor	PMABJ00	PMUEG03	-	AABFA00	FCA	West Med (basis Lavera)	3-10 days forward	20	500	US \$	metric ton	5.21	cts/gal
Butane CIF NWE 1-3kt	PMAAJ00	PMUDX03	-	AABER00	CIF	NWE	5-15 days forward	1,000	3,600	US \$	metric ton	4.53	cts/gal
Butane CIF NWE Large Cargo	PMAAK00	PMUDY03	-	AABES00	CIF	NWE	10-25 days forward	8,000	12,000	US \$	metric ton	4.53	cts/gal
Butane FOB NWE Seagoing	PMAAL00	PMUDU03	-	AABEO00	FOB	NWE	5-15 days forward	1,800	6,000	US \$	metric ton	4.53	cts/gal
Butane FOB ARA	PMAAC00	PMUDV03	-	AABEP00	FOB	ARA	3-10 days forward	420	1,100	US \$	metric ton	4.53	cts/gal
Butane FCA ARA	PMABI00	PMUDW03	-	AABEQ00	FCA	ARA	3-10 days forward	20	500	US \$	metric ton	4.53	cts/gal
Butane W Med FOB Coaster	PMAAM00	PMUDZ03	-	AABET00	FOB	West Med (basis Lavera)	5-15 days forward	1,600	+	US \$	metric ton	4.53	cts/gal

LPG

Propane CIF 1,000-3,000 MT (PMAAZ00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, including both field-grade and refinery material with a minimum of 93% C3s and a maximum of 30% olefins. The assessment reflects full cargoes of 1,000-3,600 mt, sold on a CIF basis. The assessment covers an area represented by a triangle, with Wilhelmshaven (Germany), Teesside (UK) and Le Havre (France) as its three corners, and also including Milford Haven, Fawley and Grangemouth. Please note that Platts has not formally renamed this assessment even though volumes larger than 3,000 mt are currently considered for normalization.

Propane CIF NWE Large Cargo (PMABA00): This assessment reflects the value of refrigerated cargoes for delivery 10-25 days from the date of publication, with values normalized to reflect

the mean of the delivery period. The assessment reflects full or part-cargoes of between 8,500-23,100 mt, meeting Braefoot Bay commercial propane specifications. The assessment is CIF basis Flushing, but deliveries into other ports in NWE will be reflected. Bids, offers and transactions into relevant Scandinavian ports may also be considered in the assessment. All deliveries to ports other than Flushing may be normalized to this location. Previously, Platts described this assessment as Propane CIF Large Cargoes or Propane 7000+ MT. Effective January 3, 2017, Platts has standardized this to Propane CIF NWE Large Cargo.

Propane CIF Large Cargoes Monthly Rolling Average

(PMUDK00): This value reflects the month-to-date average of Platts daily Propane CIF NWE Large Cargo assessments. An average is calculated using daily data points published on a rolling basis during the month.

Propane FOB NWE Seagoing (PMABB00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects coasters ex-refinery/storage with full cargoes of between 1,000-3,600 mt with a minimum content of 93% C3s and a maximum of 30% olefins including both field and refinery grades. The assessment is FOB basis Tees, but loadings from other ports in NWE will be reflected. Bids, offers and transactions from relevant Scandinavian ports may also be considered in the assessment. Previously, Platts described this assessment as Propane FOB Seagoing. Effective January 3, 2017, Platts has standardized this to Propane FOB NWE Seagoing.

Propane FOB Seagoing Monthly Rolling Average (PMUDI00):

This value reflects the month-to-date average of Platts daily Propane FOB NWE Seagoing assessments. An average is

calculated using daily data points published on a rolling basis during the month.

Propane FOB ARA (PMAAS00): This assessment reflects the value of pressurized barges loading 3-10 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects barges ex-refinery/storage with full cargoes of between 420-1,100 mt, with a minimum content of 95% C3s and a maximum of 30% olefins including both field and refinery grades. The assessment is FOB basis ARA.

Propane FCA ARA (PMABH00): This assessment reflects the value of pressurized material loading 3-10 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects railcars and trucks ex-refinery/storage with parcels of between 20-500 mt, with a minimum content of 95% C3s and a maximum of 30% olefins including both field and refinery grades. The assessment is FCA basis ARA.

Propane W Med CIF 7000+ MT (PMABE00): This assessment reflects the value of refrigerated cargoes for delivery 10-25 days from the date of publication, with values normalized to the mean of the delivery period. The assessment reflects full cargoes of at least 7,000 mt, meeting Sonatrach commercial propane specifications. The assessment is CIF basis Lavera, but deliveries into other ports in the West Mediterranean may be reflected. Trades basis other locations are normalized to a Lavera basis by analyzing freight costs.

Propane W Med FOB Ex-Ref/Stor (PMABC00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects coasters ex-refinery/storage with cargoes of up to 3,000 mt with a minimum content of 93% C3s and a maximum of 30% olefins including both field and refinery grades. The assessment is FOB basis Lavera. Platts reflects bids where the buyer is willing to load in a different location to the basis port, subject to potential freight compensation. Trades basis other locations are normalized to

a Lavera basis by analyzing freight costs. Restrictive bids basis only Lavera will not be considered for assessment.

Propane W Med FCA Ex-Ref/Stor (PMABJ00): This assessment reflects the value of pressurized material loading 3-10 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects railcars and trucks ex-refinery/storage with parcels of between 20-500 mt with a minimum content of 93% C3s and a maximum of 30% olefins including both field and refinery grades. The assessment is FCA basis Lavera.

Butane CIF 1,000-3,000 MT (PMAAJ00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, with values normalized to the mean of the delivery period. The assessment reflects coasters ex-refinery/storage with cargoes of between 1,000-3,600 mt, of mixed butane with a maximum content of 85% normal butane, 49% isobutane and 30% olefins including both field and refinery grades. The assessment covers an area represented by a triangle, with Wilhelmshaven (Germany), Teesside (UK) and Le Havre (France) as its three corners, and also including Milford Haven, Fawley and Grangemouth. Please note that Platts has not formally renamed this assessment even though volumes larger than 3,000 mt are currently considered.

Butane CIF NWE Large Cargo (PMAAK00): This assessment reflects the value of refrigerated cargoes for delivery 10-25 days from the date of publication, with values normalized to the mean of the delivery period. The assessment reflects full or part-cargoes of between 8,000-12,000 mt, meeting Braefoot Bay commercial mixed butane specifications, with a typical split of 70% normal butane and 30% isobutane. Pure normal butane and isobutane are not assessed by Platts in Europe, although pure normal butane may be considered for normalization in the assessment. The assessment is CIF basis Rotterdam, but deliveries into other ports in NWE will be reflected. Bids, offers and transactions into relevant Scandinavian ports may also be considered in the assessment. All deliveries to ports other than

Rotterdam may be normalized to this location. Previously, Platts described this assessment as Butane CIF Large Cargoes or Butane 3kt+. Effective January 3, 2017, Platts has standardized this to Butane CIF NWE Large Cargo.

Butane FOB NWE Seagoing (PMAAL00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects coasters ex-refinery/storage with full or part-cargoes of between 1,800-6,000 mt of mixed butane with a maximum content of 85% normal butane, 49% isobutane and 30% olefins including both field and refinery grades. The assessment reflects FOB loadings in NWE. Bids, offers and transactions from relevant Scandinavian ports may be considered in the assessment. Previously, Platts described this assessment as Butane FOB Seagoing. Effective January 3, 2017, Platts has standardized this to Butane FOB NWE Seagoing.

Butane FOB ARA (PMAAC00): This assessment reflects the value of pressurized barges loading 3-10 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects barges ex-refinery/storage with full cargoes of between 420-1,100 mt with a maximum content of 85% normal butane, 49% isobutane and 10% olefins including both field and refinery grades. The assessment is FOB basis ARA.

Butane FCA ARA (PMABI00): This assessment reflects the value of pressurized material loading 3-10 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects railcars and trucks ex-refinery/storage with parcels of between 20-500 mt with a maximum content of 85% normal butane, 49% isobutane and 10% olefins including both field and refinery grades. The assessment is FCA basis ARA.

Butane FOB West Med Coaster (PMAAM00): This assessment reflects the value of pressurized vessels loading 5-15 days from the date of publication, with values normalized to the mean of the loading period. The assessment reflects coasters

ex-refinery/storage with full or part-cargoes of at least 1,600 mt of mixed butane with a maximum content of 85% normal butane, 49% isobutane and 30% olefins including both field and refinery grades. The assessment is FOB basis Lavera. Platts reflects bids where the buyer is willing to load in a different location to the basis port, subject to potential freight compensation. Trades basis other locations are normalized to a Lavera basis by analyzing freight costs. Restrictive bids basis only Lavera will not be considered for assessment.

GASOLINE

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
Gasoline Prem Unleaded 10ppmS FOB Med Cargo	AAWZA00	AAWZA03	-	-	FOB	Med (basis Italy)	10-25 days forward	25,000	30,000	US \$	metric ton	8.33
Gasoline Prem Unleaded 10ppmS CIF Med Cargo	AAWZB00	AAWZB03	-	-	CIF	Med (basis Genoa/Lavera)	10-25 days forward	25,000	30,000	US \$	metric ton	8.33
Gasoline 10ppmS CIF NWE Cargo	AAXFQ00	AAXFQ03	-	-	CIF	NWE (basis Thames)	10-25 days forward	9,000	11,000	US \$	metric ton	8.33
Gasoline Eurobob FOB AR Barge	AAQZV00	AAQZV03	-	-	FOB	AR	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	5,000	US \$	metric ton	8.33
Gasoline Prem Unleaded 10ppmS FOB AR Barge	PGABM00	PGABM03	-	-	FOB	AR	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	5,000	US \$	metric ton	8.33
Gasoline Reg Unleaded 98 FOB AR Barges	AAKOD00	AAKOE00	-	-	FOB	AR	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	5,000	US \$	metric ton	8.33
Reformate FOB AR Barge	AAXPM00	AAXPM03	-	-	FOB	AR	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	3,000	5,000	US \$	metric ton	-
Reformate FOB AR Barge Eur/mt	AAXPN00	AAXPN03	-	-	FOB	AR	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	3,000	5,000	Euro	US \$	-
West Africa Cargoes FOB NWE	AAKUV00	AAKUV03	-	-	FOB	Amsterdam	10-25 days forward	30,600	37,400	US \$	metric ton	-
West Africa Cargoes CIF West Africa	AGNWC00	AGNWC03	-	-	CIF	West Africa	10-25 days forward	30,600	37,400	US \$	metric ton	-

Gasoline

Seasonal Changes: The switch in gasoline quality from summer to winter grade and vice versa may have a significant impact on gasoline prices in Europe. Platts reflects winter specification material for physical loading or delivery up until and inclusive of March 31, after which summer grade only is reflected. Platts reflects summer grade up until and inclusive of September 30, after which winter grade only is reflected. These dates are subject to change, depending on observed implementation of seasonal switching in the market. Platts announces a phase-in period for the summer and winter grades on cargoes and barges, in which the incoming seasonal grade is given an increasing weighting in the assessment. Platts does not reflect seasonal specification changes in its West Africa gasoline cargo assessments.

For example: In the gasoline cargo market on March 7 2014, Platts began reflecting summer grades of gasoline on a pro-rated basis in the Northwest Europe and Mediterranean cargo

assessments, with March 11 being the first day on which summer gasoline could be bid or offered and March 17 being the last day on which winter gasoline could be bid or offered. The last day on which winter was reflected in the assessment was March 21. In the Amsterdam Rotterdam gasoline barge market, on March 17, 2014 Platts started reflecting summer grades of gasoline on a pro-rated basis, with March 21 being the first day on which summer gasoline could be bid. March 24 was the last day on which winter could be offered. The last day on which winter was reflected in the assessment was March 26.

Operational Tolerance: Platts reflects bids, offers and trades that limit a counterparty's price exposure to operational tolerance. Operational tolerance is typically limited to plus or minus 10% of the transacted size for cargoes and 5% for barges. For example, a barge size of 3,000 mt would have a maximum operational tolerance of plus or minus 150 mt. When pricing on a floating basis Platts reflects FOB and CIF cargoes where the operational tolerance prices after the completion of discharge/

issuance of bill of lading, and barges where the operational tolerance prices after the issuance of the bill of lading.

Premium gasoline 10PPM Cargoes FOB Med (AAWZA00): The FOB Mediterranean cargo assessment reflects EN 228 gasoline meeting Italian, French and Spanish specifications. The Research Octane Number (RON) is 95 and the Motor Octane Number (MON) is 85. The density is 0.755 kg/liter. The aromatics limit is a maximum of 35%. Cargo assessments reflect parcels of 25,000 to 30,000 mt, though cargoes of up to 33,000 mt may be considered. The assessment reflects cargoes loading FOB basis Santa Panagia Bay or Sarroch. Loadings taking place in other Med locations may be considered in the MOC assessment process and normalized to reflect value basis Santa Panagia Bay.

Platts currently publishes bids and offers for the following locations: Croatia: Rijeka; Cyprus: VTT Vasiliko; Greece: Aspropyrgos, Thessaloniki; Italy: Falconara, Genoa, Milazzo, Santa Panagia Bay, Sarroch; Malta: Malta; Morocco: Tangier Med;

Spain: Barcelona, Castellon. Platts also reflects sales of gasoline that occur across the berth at jetties within the Platts Premium gasoline 10PPM Cargoes FOB Med assessment. Should the seller elect to deliver a cargo that has loaded across the jetty, the binding quantity and quality would be established on a ship's composite basis in the final delivering vessel. The assessment reflects material loading 10-25 days from date of publication, with value normalized to reflect the mean of the delivery period.

The reference Reid Vapor Pressure [RVP] for Platts winter specification 10 ppm gasoline FOB and CIF Mediterranean cargo assessments is a maximum RVP of 80 Kilopascals (kPa). For summer grade, Platts reflects a maximum of 60 kPa.

Premium gasoline 10PPM Cargoes CIF Med (AAWZB00): The CIF Med gasoline assessment is a freight netforward to the FOB Med assessment, using the Platts cross-Med clean tanker assessment. Effective January 2, the Worldscale flat rate used to calculate the net-forward formula for the CIF Mediterranean premium gasoline 10 ppm cargo is \$6.25/mt.. The assessment reflects CIF basis Genoa and Lavera.

Premium gasoline 10PPM Cargoes CIF NWE (AAXFQ00): The CIF NWE cargo assessment reflects EN 228 material with a 95 RON, 85 MON and a density of 0.755 kg/l. The maximum sulfur content is 10ppm. The aromatics limit is a maximum of 35%.

The assessment reflects material with a maximum oxygenate content of 0.9% by mass, and a maximum evaporation (E70) of 43% in winter specification material and 41% in summer specification material. Offers with a higher evaporation (E70) level should state the maximum limit.

The assessment reflects cargoes of 10,000 mt. Larger cargo sizes may be considered in the MOC assessment process but normalized back to the reference cargo size. The assessment reflects cargoes delivered CIF basis Thames with normal charterparty options within Northwest Europe. The assessment reflects the value of cargoes for delivery 10-25 days from the

date of publication, with value normalized to reflect the mean of the delivery period.

In the absence of spot liquidity, Platts may consider differentials to other gasoline markets, such as Eurobob Gasoline Barges FOB AR or Premium Gasoline 10PPM Barges FOB AR, as well as prevailing Cross UK Continent freight rates. The reference Reid Vapor Pressure [RVP] for the Platts winter specification 10 ppm gasoline CIF NWE cargo assessment is a maximum RVP of 90 Kilopascals (kPa). For summer grade, Platts reflects a maximum of 60 kPa.

Platts currently publishes bids and offers for the following locations: UK: Terminal Plymouth, Tees, Tees – Vopak Terminal, Thames, Thames – Vopak.

West Africa Gasoline FOB Northwest Europe (AAKUV00): The assessment reflects gasoline with a maximum of 1,000ppm sulfur, minimum 91 RON, a maximum RVP of 9 Pounds per Square Inch (PSI) and a maximum density of 0.735 kg/l at 60 degrees Fahrenheit. In its assessment process, Platts will publish bids and offers for other merchantable gasoline grades appropriate for West African delivery, and normalize these back to the reference specification. The FOB NWE assessment is basis FOB Amsterdam, with bids and offers from other locations in NWE normalized back to Amsterdam.

Platts currently publishes bids and offers for the following locations: Belgium: Antwerp; Netherlands: Amsterdam, Rotterdam.

The FOB NWE cargo assessment reflects cargoes of 34,000 mt plus/minus 10% operational tolerance with other cargo sizes also considered for assessment purposes but normalized back to the reference cargo size.

West Africa Gasoline CIF West Africa (AGNWC00): The CIF West Africa assessment is a freight netforward from the FOB NWE assessment, using a basket of two Worldscale flat rates,

Amsterdam-Lome and Amsterdam-Lagos. This CIF assessment is calculated by multiplying the Worldscale flat rate by the Platts daily tanker rate assessment for UKC-West Africa 37,000 mt cargoes (PFAMH00). Effective January 2, 2019, the Worldscale flat rate used to calculate the net-forward formula for the CIF West Africa assessment became \$15.45/mt.

Barges: The assessment reflects material for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days from date of publication, with value normalized to reflect the mean value of the loading period. Gasoline barges reflect a basis location of Amsterdam/Rotterdam (AR). Loading nominations at Antwerp or Terneuzen will also be reflected. Where Antwerp or Terneuzen are nominated, any demonstrable incremental costs incurred by the buyer should be borne by the seller.

Eurobob Gasoline Barges FOB AR (AAQZV00): The barge assessment reflects a blendstock that after the addition of 4.8% maximum of ethanol meets EN 228 gasoline. A maximum oxygenate content of 0.9% by weight is reflected. The assessment reflects parcels of 1,000 to 5,000 mt.

Premium Gasoline 10PPM Barges FOB AR (PGABM00): The barge assessment reflects EN 228 gasoline with a 95 RON, 85 MON and a density of 0.755 kg/l. The maximum sulfur content is 10ppm. The aromatics limit is a maximum of 35%. The assessment reflects parcels of 1,000 to 5,000 mt.

98 RON Gasoline 10PPM Barges FOB AR (AAKOD00): The barge assessment reflects EN 228 gasoline with a 98 RON, 88 MON and a density of 0.755 kg/l. The maximum sulfur content is 10ppm. The aromatics limit is a maximum of 35%. The assessment reflects parcels of 1,000 to 5,000 mt. This assessment is typically established as a differential to Eurobob Gasoline Barges FOB AR.T

Reformate Barges FOB AR (AAXPM00): The barge assessment reflects material with a minimum 99 RON, minimum 0.810 kg/l density, a maximum sulfur content of 3ppm, maximum 38 kPa

Vapour Pressure, a maximum 2% Benzene and a minimum 65% aromatics limit. Bids and offers for different merchantable grades of reformat will be published in the Platts MOC assessment process and may be normalized to reflect the reference specification. The assessment reflects parcels of 3,000 to 5,000 mt.

NAPHTHA

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
Naphtha CIF NWE Cargo	PAAAL00	PAAAL03	-	-	CIF	NWE (basis Rotterdam)	10-25 days forward	12,500	36,000	US \$	metric ton	8.9
Naphtha FOB Med Cargo	PAAAI00	PAAAI03	-	-	FOB	Med (basis Alexandria)	10-25 days forward	27,500	27,500	US \$	metric ton	8.9
Naphtha CIF Med Cargo	PAAAH00	PAAAH03	-	-	CIF	Med (basis Lavera)	10-25 days forward	27,500	27,500	US \$	metric ton	8.9
Naphtha FOB Rdam Barge	PAAAM00	PAAAM03	-	-	FOB	ARA (basis Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	5,000	US \$	metric ton	8.9

Naphtha

Naphtha Cargoes CIF NWE (PAAAL00): The Naphtha Cargoes CIF NWE assessment reflects open specification material with a minimum 65% paraffin content and a typical density of 0.69 to 0.735 kg/l. Other qualities may be taken into account when traded but these would be normalized to Platts typical specifications. Likewise, naphtha with larger than normal mercury levels may not be considered in the assessment process. The maximum mercury reflected in the assessment is 5 parts per billion. Platts also reflects material with a maximum MTBE content of 50 ppm and a total oxygenate content of 100 ppm.

The physical assessment reflects four cargo sizes of 12,500 mt,

PLATTS CIF NWE NAPHTHA CARGO SPECS

Specific Gravity at 15 C	max 0.735 g/ml
Reid Vapor Pressure	max 12.5 psi
Colour	min +20 Saybolt
Initial Boiling Point	min 30 deg C
Final Boiling Point	max 180 deg C
Paraffins pct vol	min 65 %
Olefins pct vol	max 1 %
Naphthenes + aromatics pct vol	balance
Sulfur	max 500 ppm
H2S	max 10 ppm
Lead	max 50 ppb
Total chlorides	max 10 ppm
MTBE	max 50 ppm
Total Oxygenate	max 100 ppm
Mercury	max 5 ppb
Mercaptan sulphur	to be reported

24,000 to 28,000 mt, 28,000 to 32,000 mt and 32,000 to 36,000 mt, full or part-cargo. The most competitive (i.e. lowest value) of the four cargo sizes will be reflected in the final published Naphtha Cargoes CIF NWE assessment. The assessment reflects naphtha for delivery 10-25 days forward from date of publication, with value reflecting the mean value of the delivery period. By reflecting four commonly traded cargo sizes, Platts seeks to ensure its assessment reflects a broad cross-section of the European spot market.

OPERATIONAL TOLERANCE: Platts reflects European naphtha cargo bids, offers and trades that limit a counterparty's price exposure to operational tolerance.

For cargoes of 12,500 mt, Platts will reflect European naphtha cargo bids, offers and trades where the volume operational tolerance is plus or minus 10%.

For 24,000 to 28,000 mt, 28,000 to 32,000 mt and 32,000 to 36,000 mt cargoes, Platts reflects CIF cargo bids, offers and trades that value the operational tolerance volume after discharge on a floating price basis, on the mean of the Platts naphtha CIF NWE cargo assessment over five working days after completion of discharge (COD), plus or minus a differential. For example, in a bid for 24,000 to 28,000 mt, Platts would typically publish a bid of 24,000 mt on a fixed price basis, with an operational tolerance of 0 to 4,000 mt as a floating price on the mean of the Platts Naphtha Cargoes CIF NWE assessment five working days after COD, plus or minus a differential.

The assessment reflects cargoes delivered CIF basis Rotterdam. When part-cargoes are delivered CIF basis Rotterdam, neither the buyer nor the seller should be disadvantaged by the seller's decision not to deliver a full cargo. Therefore, Platts reflects demurrage rates whereby the buyer's exposure to demurrage should not exceed the lesser of either the normal associated demurrage for a vessel size commensurate to the traded volume, or the charterparty for the actual nominated vessel. Commensurate demurrage rates for part-cargo volumes should be based on prevailing market rates to normal destinations in NWE, even when these are outside the ARA range. Platts reflects bids and offers with typical charterparty options including ARA, the Le Havre-Hamburg range and East Coast UK.

Platts only reflects offers of Tuapse-loading naphtha cargoes when the seller commits to deliver on a CIF basis, but with the quantity established by means of a ship's composite at disport.

Platts European naphtha assessments include bids, offers and transactions where the seller has committed to meeting the receiver's reasonable shipping and vetting requirements. Assessments also reflect bids, offers and transactions where the buyer requests delivery into a ship, provided the vessel is of widespread acceptability.

Platts assessments reflect trades where a seller may substitute vessels nominated to a buyer up until one clear working day before the first day of the narrowed three-day delivery period. As an example, for a laycan narrowed by a seller to Wednesday, June 26 until Friday, June 28, a seller would be permitted to

substitute the vessel up until the close of business on Monday, June 24. Platts also expects counterparties to be reasonable when exceptional circumstances may require later substitutions, and also in managing a buyer's request to change discharge orders. A nominated cargo needs only to meet the specifications defined in Platts methodology and those expressed by the market maker in the MOC. Re-nominated vessels need to be able to meet the logistical requirements of the originally agreed discharge port.

Platts Naphtha Cargoes CIF NWE assessments reflect bids, offers and transactions where the vessel is not guaranteed to have an inert gas system (IGS) if the material is delivered in a coaster vessel, typically of 12,500 mt. In those situations where a buyer requires a vessel equipped with IGS, that buyer should specify it in the bid or declare a delivery port that requires an IGS-equipped vessel.

Naphtha Cargoes FOB Med (PAAAI00): The Naphtha Cargoes

FOB Med assessment reflects open specification material in line with the CIF NWE cargo assessment. The assessment reflects 27,500 mt cargoes, loading FOB basis Alexandria 10-25 days forward from the date of publication, with value reflecting the mean of the delivery period. This assessment is a netback from the CIF NWE assessment.

Effective January 2, 2019, the Worldscale flat rate used to calculate the netback formula for FOB Mediterranean naphtha cargoes became \$12.72/mt, including the additional 91 cents/mt, reflecting calculated port fees in Rotterdam. The netback rate is assessed daily using Platts UKC-Med freight assessments for 27,500 mt naphtha cargoes and the applicable Worldscale flat rate

Naphtha Cargoes CIF Med (PAAAH00): The Naphtha Cargoes CIF Med assessment reflects open specification material in line with the CIF NWE cargo assessment. The assessment reflects 27,500 mt cargoes, delivered CIF basis Lavera 10-25

days from the date of publication, with value reflecting the mean of the delivery period. This assessment is a netforward from the Naphtha Cargoes FOB Med assessment, based on the freight value between Alexandria and Lavera. This is calculated using the Platts cross-Med freight assessment for 27,500 mt naphtha cargoes. Effective January 2, 2019 the Worldscale flat rate used to calculate the net-forward formula for CIF Mediterranean naphtha became \$7.72/mt. Naphtha Barges FOB ARA (PAAAM00): Barge naphtha assessments reflect the value of open specification material, with value normalized to reflect 65% minimum paraffin content. Barge assessments reflect parcels of 1,000 to 5,000 mt, loading FOB ARA, basis Rotterdam. Barge assessments reflect parcels for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward from the date of publication. The barge assessment is established through a fixed \$4/mt differential to the CIF NWE cargo assessment.

JET FUEL

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
Jet CIF NWE Cargo	PJAAU00	PJAAU03	-	-	CIF	NWE	10-25 days forward	25,000	45,000	US \$	metric ton	7.89
Jet FOB NWE Cargo	PJAAV00	PJAAV03	-	-	FOB	NWE	10-25 days forward	25,000	45,000	US \$	metric ton	7.89
Jet FOB Rdam Barge	PJABA00	PJABA03	-	-	FOB	ARA	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	2,000	5,000	US \$	metric ton	7.89
Jet FOB Med Cargo	AAIDL00	AAIDM00	-	-	FOB	Med	10-25 days forward	27,500	27,500	US \$	metric ton	7.89
Jet CIF Med Cargo	AAZBN00	AAZBN03	-	-	CIF	Med	10-25 days forward	30,000	30,000	US \$	metric ton	7.89
Jet CIF Med Cargo	AAZBN00	AAZBN03	-	-	CIF	Med	10-25 days forward	30,000	30,000	US \$	metric ton	7.89

Jet fuel

Platts European jet fuel assessments reflect standard commercial Jet-A1 specifications, as defined by UK Ministry of Defence in DEFSTAN 91-091 and the Joint Fuelling System Checklist. The UK Ministry of Defence has updated DEFSTAN 91-091 periodically and Platts reflects the latest issue. Latest DEFSTAN specifications at the time of this guide's publication are as follows: sulfur content is 0.3% maximum, density is 0.775-0.840 kg/l, flash point is 38 degrees celsius minimum, freeze point is minus 47 degrees celsius maximum. The Joint Fuelling System Checklist requires jet fuel to meet the more stringent requirements of DEFSTAN 91-091 and the American Society for Testing & Materials', Standard Specification D 1655-04a.

Operational Tolerance: Platts reflects bids, offers and trades that limit a counterparty's price exposure to operational tolerance. Operational tolerance is typically limited to plus or minus 10% of the transacted size for cargoes and 5% for barges. As an example, a barge size of 3,000 mt would have a maximum operational tolerance of plus or minus 150 mt. When pricing on a floating basis Platts reflects CIF cargoes where the operational tolerance prices after the completion of discharge, and barges where the operational tolerance prices after the bill of lading.

Jet Cargoes CIF NWE (PJAAU00): This cargo assessment reflects standard tradable parcels. Typical cargo sizes of

25,000 to 45,000 mt are reflected. Platts takes into account spot deliveries made in full or part-cargoes at seller's option. The assessment is normalized to 30,000 mt full or part-cargo, seller's option, delivered basis a par port within NWE where the seller guarantees lay-time of 36 plus 6 hours to the buyer of each parcel. Bids, offers and trades into other locations will be considered, and will be normalized to reflect a par port. Par ports are typically considered to be those with open storage access and flexibility to handle a variety of cargo sizes, such as Rotterdam and Le Havre. Offers or bids basis non-par ports may be considered for assessment, but these will typically be normalized to the standard. Bids requiring a full cargo will be considered restrictive and may not be published.

Typically, cargoes delivered into ARA, UK and northern France are considered in the assessment. Since jet trading patterns are diverse, no single base location is reflected. Deliveries into Scandinavia, including Copenhagen, are not considered, however. Offers are assumed to carry a normal range of charterparty options within NWE.

Platts currently publishes bids and offers for the following locations: Belgium: Antwerp, Antwerp ATPC, Antwerp Oiltank Ghent, Ghent Oiltank; France: Le Havre, Le Havre CIM; Netherlands: Amsterdam, Amsterdam Oiltank, Rotterdam; UK: Avonmouth, Fawley, Hamble, Immingham, Isle of Grain, Milfordhaven, Pembroke, Royal Portbury Docks, Shell Haven.

Platts reflects bids and offers where the seller endeavors to deliver oil on a vessel that will fit plausible terminals and jetties within the port shown in the original bid or offer. Where the buyer needs a vessel that will fit the specific dimensions of a terminal or a jetty, the name of the terminal and/or jetty should be detailed in any bid communicated to Platts for publication. Upon performance of any resulting trade, a buyer may wish to take the vessel to a different port based on its charterparty options. In such a situation, the seller is obliged to provide a vessel fitting plausible terminals in the originally nominated port.

The assessment reflects material for delivery 10-25 days from date of publication, with value reflecting the mean of the delivery period. Platts assessments will reflect merchantable quality jet fuel regardless of origin. Platts reflects ex-duty cargoes of jet fuel in its Jet CIF NWE cargo assessment.

Jet Cargoes FOB NWE (PJAAV00): The FOB NWE assessment is derived from the CIF value based on a differential representing freight costs for handy size vessels on typical routes within NWE. Platts uses the \$/mt value for cross UK Continent tanker freight published in Platts Clean Tankerwire. This assessment reflects the value of parcels loading 10-25 days forward from the date of publication, with values reflecting the mean of the loading period.

Jet Barges FOB Rotterdam (PJABA00): This assessment reflects parcels of 2,000 mt to 5,000 mt, with value normalized to a 2,000

to 3,000 mt range. Barges are assessed basis FOB Rotterdam, 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward from date of publication, with value reflecting the mean of the loading period. Transactions occurring at other load ports in NWE are typically normalized to Rotterdam. Platts considers bids and offers from Flushing, Amsterdam, Rotterdam Antwerp and Ghent. Single port bids may not be considered for assessment. The Platts Jet FOB Rotterdam barge assessment reflects “EU-qualified” material.

Effective July 2, 2018, Platts will implement the following key changes to the methodology for the Jet barges. A decision note confirming the upcoming change was published on April 12, 2018.

Basis Ports: Platts will standardize the assessment basis from FOB basis Rotterdam to FOB Flushing-Amsterdam-Rotterdam-Antwerp-Ghent (FARAG); Barges Sizes: The assessment will continue to reflect a basis of 2,000 mt - 3,000 mt. Platts will publish bids and offers for the following ranges: 2,000 mt - 3,000 mt; 2,000 mt - 4,000 mt, with volume nomination in the buyer’s

option at time of trade; Laycans: Platts will standardize the way in which bids and offers are published in its MOC assessment process to any fixed five-day period within the 3-15 (Monday-Tuesday) or 5-15 (Wednesday-Friday) days forward assessment period. In line with its current methodology, Platts reflects bids, offers and trades that limit a counterparty’s price exposure to operational tolerance. Operational tolerance is typically limited to plus or minus 5% of the transacted size for barges. When pricing on a floating basis, Platts reflects barges where the operational tolerance prices at the mean of the subsequent three assessments published by Platts after the bill of lading, at the same differential as the main volume.

Jet Fuel FOB Med (AAIDL00): This assessment reflects the value of cargoes of 27,500 mt loading FOB Mediterranean basis Augusta, for loading 10-25 days from date of publication, with value reflecting the mean of the loading period. This assessment is a freight netback from the CIF NWE jet cargo assessment. Details of the calculation are as follows:

The calculation takes the spot Worldscale freight rate as

published in Platts Clean Tankerwire, for Med-NWE, pro-rated from 30,000 mt to 27,500 mt. This total is multiplied by the flat rate for the Augusta-Rotterdam route as defined by Worldscale. The appropriate allowance for port fees at Rotterdam is then added. The result of this formula is rounded to the nearest \$0.25/mt and subtracted from the mean of the CIF NWE jet assessment, to define the FOB Med mean.

Effective January 2, 2019 the Worldscale flat rate used to calculate the netback formula for FOB Mediterranean jet became \$10.17/mt. An additional \$1/mt is added for Rotterdam port fees.

Jet Fuel CIF Med (AAZBN00): This assessment reflects the value of cargoes of 30,000 mt delivered CIF Mediterranean, 10-25 days forward from the date of publication. This assessment is a freight netback from the CIF NWE jet cargo assessment, using the difference between the lump sum assessments of the Persian Gulf to NWE and Persian Gulf to the Med routes, as published in the Platts Clean Tankerwire.

ULSD

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT LOCATION BASIS	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV	
ULSD 10ppmS CIF NWE Cargo	AAVBG00	AAVBG03	-	-	CIF	NWE (basis ARA)	10-25 days forward	10,000	40,000	US \$	metric ton	7.45
ULSD 10ppmS CIF NWE Basis Le Havre Cargo	AAWZC00	AAWZC03	-	-	CIF	NWE (basis Le Havre)	10-25 days forward	10,000	40,000	US \$	metric ton	7.45
ULSD 10ppmS CIF NWE Basis UK Cargo	AAVBH00	AAVBH03	-	-	FOB	NWE (basis UK)	10-25 days forward	10,000	40,000	US \$	metric ton	7.45
ULSD 10ppmS FOB NWE Cargo	AAVBF00	AAVBF03	-	-	FOB	NWE (basis ARA)	10-25 days forward	10,000	40,000	US \$	metric ton	7.45
ULSD 10ppmS FOB NWE Basis Le Havre Cargo	AAWZD00	AAWZD03	-	-	FOB	NWE (basis Le Havre)	10-25 days forward	10,000	40,000	US \$	metric ton	7.45
ULSD 10ppmS CIF Med Cargo	AAWYZ00	AAWYZ03	-	-	CIF	Med (basis Lavera)	10-25 days forward	25,000	30,000	US \$	metric ton	7.45
ULSD 10ppmS FOB Med Cargo	AAWYY00	AAWYY03	-	-	FOB	Med (basis Lavera)	10-25 days forward	25,000	30,000	US \$	metric ton	7.45
ULSD 10ppmS FOB ARA Barge	AAJUS00	AAJUW00	-	-	FOB	NWE (basis ARA)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	3,000	US \$	metric ton	7.45

ULSD

Seasonal Changes: Platts schedules seasonal specification changes for its assessments of diesel fuel in late winter, ahead of the transition from winter grade to summer grade, and then in late summer, ahead of the transition from summer to winter. Intermediate grade can also be reflected as appropriate. Platts intends to follow broadly similar schedules each year, but the exact dates may vary in line with prevailing patterns of refining trading activity. As trading and seasonal patterns change from year to year, any schedule is provisional and subject to change with limited notice.

Trace elements of biodiesel: Platts defines non-intentionally blended trace elements of biodiesel in hydrocarbon diesel assessments as having a maximum biodiesel content of no more than 0.30%.

Clear and bright: Platts reflects ultra-low sulfur diesel (ULSD) with a clear and bright aspect.

Part-cargoes: Platts CIF European ULSD assessments reflect bids, offers and trades that allow a seller to deliver oil from a part-cargo providing the vessel was named at the time of sale, either as a named vessel in the offer or by hitting a bid with a named vessel. Additionally, when selling on a part cargo

basis, a seller must commit to supplying the performing fuel in segregated tanks with separate bills of lading. A seller must also commit to discharging any additional fuel above the contractual size prior to discharge of the main cargo, and also protect the buyer against any additional freight exposure caused by delivering on a part-cargo basis. When supplying on a part-cargo basis the seller must provide a vessel commensurate with typical trade patterns in that market.

Terminals and Ports: Platts reflects bids and offers where a seller endeavors to deliver oil on a vessel that will fit plausible terminals and jetties within the port shown in the original bid or offer. Where the buyer needs a vessel that will fit the specific dimensions of a terminal or a jetty, the name of the terminal and/or jetty should be detailed in any bid communicated to Platts for publication. Upon performance of any resulting trade, a buyer may wish to take the vessel to a different port based on its charterparty options. In such a situation, a seller is obliged to provide a vessel fitting plausible terminals in the original basis port.

Operational Tolerance: Platts reflects bids, offers and trades that limit a counterparty's price exposure to operational tolerance. Operational tolerance is typically limited to plus or minus 10% of the transacted size for cargoes and 5% for barges. As an example, a barge size of 3,000 mt would have a maximum

operational tolerance of plus or minus 150 mt. When pricing on a floating basis, Platts reflects CIF cargoes where the operational tolerance prices after the completion of discharge, and barges where the operational tolerance prices after the bill of lading.

ULSD 10 ppm Cargoes CIF NWE (AAVBG00): This assessment reflects Benelux and French quality diesel fuel with a maximum sulfur content of 10 ppm and density in the range 0.82-0.845 kg/l. The reference density is 0.845 kg/l. Bids, offers and transactions for other 10 ppm grades, such as UK or German specifications, into typical CIF NWE locations will be considered in the assessment process and may be normalized to the basis assessment. Typical cargo sizes of 10,000-40,000 mt are reflected. Effective January 3, 2017, Platts normalizes this assessment to 30,000 mt plus or minus 10%. Due to an observed change in market flows, in which larger cargoes and vessels are increasingly supplying the market, and following supportive industry feedback, Platts raised the basis size of its CIF NWE diesel cargo assessments from 20,000 mt plus or minus 10% to the current standard. The CIF assessment reflects ARA delivery with typical charterparty options. These include the Hamburg-Bordeaux and North Spain range, German North Sea, the German Baltic Sea, ARA, Poland, Thames, the East Coast and the South Coast of the UK. As with other existing charterparty options, West Coast UK charterparty options may not be unreasonably withheld. Bids and offers into ports in this

range may be considered for publication in the assessment process. Platts has observed a widespread market standard of charterparty rates carrying minimum Hamburg flat rates for deliveries into the German port of Rostock, and will assess any bids, offers or trades for that port reported in the MOC process on that basis. Offers stipulating alternative charterparty rates may be considered for publication and sellers are expected to clearly stipulate these in the terms of the offers, which may be normalized accordingly.

The assessment reflects material for delivery 10-25 days from date of publication, with value reflecting the mean value of the delivery period. Following the introduction of a Filter Blocking Tendency (FBT) limit of 2.52 in the UK's diesel specification from November 1, 2015, Platts has reflected bids for a UK grade of diesel with maximum FBT of 2.52 in its Northwest European diesel cargo assessments, but continues to normalize them back to the value of French diesel specification.

Platts currently publishes bids and offers for the following locations: Belgium: Antwerp, Ghent; France: Bordeaux, Brest, Donges, Dunkirk, La Pallice, Le Havre, Lorient, Pauillac, Rouen; Germany: Bremen, Hamburg Kiel, Rostock, Wilhelms; Ireland: Dublin; Netherlands: Amsterdam, Rotterdam; Spain: Bilbao, Gijon; UK: Belfast, Cardiff, Clydebank, Eastham, Grangemouth, Immingham, Londonderry, Plymouth, Teesside, Thames, Tranmere.

Diesel 10ppm NWE Cargoes CIF NWE (AAWZC00): This assessment is a freight netforward to the ULSD 10 ppm CIF NWE assessment (basis ARA) using daily freight rates published in the Platts Clean Tankerwire. Effective January 2, 2019, the flat rate used to calculate the net-forward formula for ULSD 10ppmS CIF NWE Basis Le Havre Cargoes becomes \$1.49/mt. The assessment reflects Benelux and French quality diesel fuel delivered CIF basis Le Havre with a maximum sulfur content of 10 ppm and density in the range 0.82-0.845 kg/l. The reference density is 0.845 kg/l. Typical cargo sizes of 10,000 to 40,000 mt are reflected. The assessment reflects material for delivery

10-25 days from the date of publication, with value reflecting the mean of the delivery period.

Diesel 10ppm UK Cargoes CIF NWE (AAVBH00): This assessment is a freight netforward to the ULSD 10 ppm CIF NWE assessment (basis ARA), based on a freight differential to typical UK ports and using daily freight rates published in the Platts Clean Tankerwire. The basket of flat rates includes three typical destinations into the UK. The basket is weighted to reflect Thames (50 per cent), Cardiff (30 per cent) and Immingham (20 per cent). Effective January 2, 2018, the flat rate used to calculate the netforward formula for Diesel 10 ppm UK Cargoes CIF NWE is \$2.29/mt. This assessment reflects Benelux and French quality diesel fuel with a maximum sulfur content of 10 ppm and density in the range 0.82-0.845 kg/l. The reference density is 0.845 kg/l.

ULSD 10ppm Cargoes FOB NWE (AAVBF00): This assessment is a freight netback to the ULSD 10 ppm Cargoes CIF NWE assessment, based on the following routes: Brofjorden, Porvoo, Slagen, Primorsk, Riga and Kaliningrad to ARA and using the daily freight rates published in the Platts Clean Tankerwire. Effective January 2, 2018, the Worldscale flat rate used to calculate the netback formula for ULSD 10ppm FOB NWE is \$7.92/mt. This assessment reflects Benelux and French quality diesel fuel with a maximum sulfur content of 10ppm and density in the range 0.82-0.845 kg/l. The reference density is 0.845 kg/l.

Diesel 10ppm NWE Cargoes FOB NWE (AAWZD00): This assessment is a freight netback to the Diesel 10ppm NWE Cargoes CIF NWE assessment, based on the following routes: Amsterdam, Rotterdam, Antwerp, Klaipeda, Wilhelmshaven, Ventspils to Le Havre and using the daily freight rates published in the Platts Clean Tankerwire. Effective January 2, 2018, the Worldscale flat rate used to calculate the netback formula for Diesel 10ppm FOB NWE is \$8.16/mt. The assessment reflects Benelux and French quality diesel fuel with a maximum sulfur content of 10ppm and density in the range 0.82-0.845 kg/l. The reference density is 0.845 kg/l.

CIF refined product cargoes: In its European CIF refined product cargo assessment processes, Platts typically reflects oil of international origin. Platts considers bids, offers and transactions for delivery into the referenced port where the material is sourced from a different country, unless the seller commits to meeting any and all additional costs caused by supplying oil from the same referenced country. For example, a CIF bid basis any Italian port implies that any potential seller will not supply from Italy. Similarly, a CIF offer basis any French port implies the oil will not be supplied from France. A seller would not be expected to bear additional and demonstrable costs emanating from a buyer's deviation request into a different port/country other than the basis.

10ppm ULSD Cargoes CIF Med: This assessment typically reflects French quality diesel, but other grades such as Italian and Spanish may be considered in the assessment. The assessment reflects the value of 25,000-30,000 mt cargoes, delivered CIF basis Lavera, with normal charterparty options within the Mediterranean considered. The assessment reflects material for delivery 10-25 days from the date of publication, with value reflecting the mean of the delivery period. Platts also reflects bids, offers and trades into the North African port of Tangier Med, Morocco, in its Mediterranean cargo assessments.

Platts currently publishes bids and offers for the following locations: Cyprus : VTT Vasiliko Egypt: Alexandria; France: La Nouvelle, Lavera, Sete; Greece: Agioi Theodori, Elefsis, Thessaloniki; Italy: Falconara Fiumicino, Genoa, Gaeta, Naples, Venice; Malta: Malta; Morocco: Tangier; Slovenia: Koper Spain: Algeciras Barcelona, Castellon, Cartagena, Huelva, Huelva (South Terminal), Malaga, Valencia; Tunisia: La Skhirra; Turkey: Aliaga, Aliaga (Total Terminal), Aliaga (PO Terminal), Dortyol, Iskenderun (PO Terminal), Mersin.

10ppm ULSD Cargoes FOB Med (AAWYY00): This assessment is calculated as a freight netback from the 10ppm ULSD Cargoes CIF MED assessment, based on routes in the Mediterranean : Santa Panagia, Aliaga, Agioi Theodoroi and Batumi to Genoa and

Lavera using the daily freight rates published in the Platts Clean Tankerwire for Med-Med 30,000 mt cargoes. Effective January 2, 2019, the Worldscale flat rate used to calculate the netback formula for ULSD FOB Med became \$7.59/mt.

Diesel 10ppm Barges (AAJUS00): This assessment reflects German specification diesel with a maximum sulfur content of 10ppm. The typical density is basis 0.845 kg/l (actual density ranges from 0.82 to 0.845 kg/l).

The assessment reflects barges of 1,000 to 3,000 mt loading FOB basis Amsterdam-Rotterdam-Antwerp 3-15 (Monday-Tuesday) or 5-15 (Wednesday through Friday) days forward, with value reflecting the mean of the delivery period. Bids, offers and transactions for Flushing-Ghent may also be published but normalized back to ARA.

Platts reflects undyed material in its diesel barge assessment, but the buyer may request red dyeing of a barge loading in

Flushing, Amsterdam, Rotterdam, Antwerp or Ghent at their own expense, and the seller should try to accommodate the request if dyeing is available at the loading terminal and possible to achieve logistically. The buyer should inform the seller of their intention to dye upon nomination of the barge.

Platts will only reflect bids, offers and trades that are for the front end (first five days of the assessed period), middle window (middle five days of the assessed period) and back end (last five days of the assessed period).

In the eWindow communication environment, buyers have 30 seconds to nominate size upon confirmation of a trade. If a size is not nominated by the buyer within 30 seconds, a default quantity of 2,000 mt applies. This corresponds to the most widely traded size in the market. Size nominations can be specified to the nearest 10 metric tons. Nominations should be confirmed using the eWindow size nomination box or other communication means.

GASOIL

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
Gasoil 0.1%S CIF NWE Cargo	AAYWS00	AAYWS03	-	-	CIF	NWE (basis Le Havre)	10-25 days forward	10,000	30,000	US \$	metric ton	7.45
Gasoil 0.1%S FOB NWE Cargo	AAYWR00	AAYWR03	-	-	FOB	NWE (basis Le Havre)	10-25 days forward	10,000	30,000	US \$	metric ton	7.45
Gasoil .1%S (1000ppm) CIF Med Cargo	AAVJJ00	AAVJJ03	-	-	CIF	Med (basis Genoa)	10-25 days forward	25,000	30,000	US \$	metric ton	7.45
Gasoil 0.1%S FOB Med Cargo	AAVJI00	AAVJI03	-	-	FOB	Med (basis Genoa)	10-25 days forward	25,000	30,000	US \$	metric ton	7.45
Gasoil .1%S (1000ppm) FOB ARA Barge	AAYWT00	AAYWT03	-	-	FOB	ARA	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	3,000	US \$	metric ton	7.45
Gasoil .005%S (50ppm) FOB ARA Barge	AAUQC00	AAUQC03	-	-	FOB	ARA	5-15 days forward	1,000	3,000	US \$	metric ton	7.45
Gasoil FOB STS Lome West Africa Cargo	AGNWD00	AGNWD03	-	-	FOB STS	Lome	3-10 days	5,000	10,000	US \$	metric ton	-

Gasoil

European NWE gasoil assessments currently reflect 0.1% maximum sulfur content.

0.1% gasoil barges are FOB basis Amsterdam-Rotterdam-Antwerp (ARA). Bids, offers and transactions for Flushing-Ghent will also be published but normalized back to ARA.

Part Cargoes: Platts CIF European gasoil assessments reflect bids, offers and trades that allow a seller to deliver oil from a part-cargo providing the vessel was named at the time of sale, either as a named vessel in the offer or by hitting a bid with a named vessel.

Additionally, when selling on a part-cargo basis, a seller must commit to supplying the performing fuel in segregated tanks with separate bills of lading. A seller must also commit to discharging any additional fuel above the contractual size prior to discharging the main cargo, and also protect the buyer against any additional freight exposure caused by delivering on a part-cargo basis. When supplying on a part-cargo basis the seller must provide a vessel commensurate with typical trade patterns in that market.

Terminals and Ports: Platts reflects bids and offers where the seller endeavors to deliver oil on a vessel that will fit plausible

terminals and jetties within the port shown in the original bid or offer. Where the buyer needs a vessel that will fit the specific dimensions of a terminal or a jetty, the name of the terminal and/or jetty should be detailed in any bid communicated to Platts for publication. Upon performance of any resulting trade, a buyer may wish to take the vessel to a different port based on its charterparty options. In such a situation, the seller is obliged to provide a vessel fitting plausible terminals in the originally nominated port.

Operational Tolerance: Platts reflects bids, offers and trades that limit a counterparty's price exposure to operational tolerance. Operational tolerance is typically limited to plus or minus 10% of the transacted size for cargoes and 5% for barges. As an example, a barge size of 3,000 mt would have a maximum operational tolerance of plus or minus 150 mt. When pricing on a floating price basis, Platts reflects CIF cargoes where the operational tolerance prices after the completion of discharge, and barges where the operational tolerance prices after the bill of lading.

Gasoil 0.1% Cargoes CIF NWE (AAYWS00): This assessment reflects French Fuel Oil Domestique (FOD) quality gasoil fuel with a maximum sulfur content of 0.1% and normalized to a reference density of 0.845 kg/l. Platts also publishes bids, offers and trades for other qualities, including Spanish (B&C) and German Deutsche Industrie Norm (DIN) quality gasoil, which may

be normalized to the benchmark specification.

The assessment reflects typical cargo sizes of 10,000 mt to 30,000 mt, normalized to a 20,000 mt reference size, for CIF delivery basis Le Havre with normal charterparty options. Cargoes with charterparty options in the range of Hamburg and North Spain would typically be included. The assessment reflects material for delivery 10-25 days from the date of publication, with value reflecting the mean of the delivery period.

Platts currently publishes bids and offers for the following locations: Belgium: Antwerp, Ghent; France: Bordeaux, Brest, Donges, Dunkirk, La Pallice, Le Havre, Lorient, Pauillac, Rouen; Germany: Bremen, Kiel, Hamburg, Rostock, Wilhelms; Netherlands: Amsterdam, Rotterdam; Spain: Bilbao, Gijon; UK: Belfast, Milfordhaven, Thames

Gasoil 0.1% Cargoes FOB NWE (AAYWR00): This assessment is calculated as a freight netback from the Gasoil 0.1% Cargoes CIF NWE assessment, based on a basket of the following routes: Ventspils, Antwerp and Stockholm to Le Havre. Effective January 2, 2019, the Worldscales flat rate used to calculate the netback formula for Gasoil 0.1% FOB NWE is \$8.88/mt

Gasoil 0.1% Cargoes CIF Med (AAVJJ00): This assessment reflects Spanish (B&C) quality gasoil for heating oil use. Grades which are not widely merchantable may not be reflected in the

assessment - as an example, because of low cetane or above normal water content. The assessment reflects the value of 25,000 mt to 30,000 mt cargoes, CIF basis Genoa with normal charterparty options. The assessment reflects material for delivery 10-25 days from the date of publication, with value reflecting the mean of the delivery period.

Platts currently publishes bids and offers for the following locations: Algeria: Algiers, Arzew, Skikda; Cyprus: Vasilikos Power Station, VTT Vasiliko; Egypt: Alexandria France: La Nouvelle, Lavera, Sete; Greece: Agioi Theodori, Elefsis, Thessaloniki; Italy: Falconara, Fiumicino, Gaeta, Genoa, Naples, Trieste, Venice; Morocco: Tangier; Slovenia: Koper; Spain: Algeciras, Barcelona, Castellon, Huelva, Malaga, Valencia; Tunisia: La Skhirra ;Turkey: Aliaga, Aliaga (Total Terminal); Aliaga (PO Terminal), Mersin, Iskenderun (PO Terminal),

Platts schedules seasonal specification changes for its assessments of gasoil fuel in late winter ahead of the transition from winter grade to summer grade and then in late summer , ahead of the transition from summer to winter. Platts intends to follow broadly similar schedules each year, but the exact dates may vary in line with prevailing patterns of refining and trading activity. As trading and seasonal patterns change from year to year, any schedule is provisional and subject to change with limited notice.

Gasoil 0.1% Cargoes FOB Med (AAVJ100): This assessment is calculated as a freight netback from the Gasoil 0.1% Cargoes CIF Med assessment, based on the following routes: from Malta, Novorossiysk and Batumi to Genoa and Lavera. Effective January 2, 2019, the Worldscale flat rate used to calculate the freight netback formula for Gasoil 0.1% FOB Med is \$8.52/mt.

Gasoil 0.1% Barges FOB ARA (AAYWT00): This assessment reflects heating oil grades with a reference density of 0.845 kg/l and with a maximum sulfur content of 0.1%. The assessment reflects barges of 1,000 mt to 3,000 mt. In the eWindow communication environment, buyers have 30 seconds to

nominate size upon confirmation of a trade. If a size is not nominated by the buyer within 30 seconds, a default quantity of 2,000 mt applies. This corresponds to the most widely traded size in the market. Size nominations can be specified to the nearest 10 metric tons. Nominations should be confirmed using the eWindow size nomination box or other communication means.

The assessment reflects the value of barges loading FOB basis ARA 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward, with value reflecting the mean of the loading period. Bids, offers and transactions for Flushing and Ghent may also be published but normalized back to ARA.

Platts reflects undyed material in its assessment, but the buyer may request red dyeing of a barge loading in Flushing, Amsterdam, Rotterdam, Antwerp or Ghent at their own expense, and the seller should try to accommodate the request if dyeing is available at the loading terminal and possible to achieve logistically. The buyer should inform the seller of their intention to dye upon nomination of the barge.

Platts will reflect bids, offers and trades that are for the front end (first five days of the assessed period), middle window (middle five days of the assessed period) and back end (last five days of the assessed period).

Gasoil 50ppm Barges FOB ARA (AAUQC00): This assessment reflects German specification heating oil with a maximum sulfur content of 50 ppm. The typical density is basis 0.845 kg/l. The assessment reflects barges of 1,000 mt to 3,000 mt.

In the eWindow communication environment, buyers have 30 seconds to nominate size upon confirmation of a trade. If a size is not nominated by the buyer within 30 seconds, a default quantity of 2,000 mt applies. This corresponds to the most widely traded size in the market. Size nominations can be specified to the nearest 10 metric tons. Nominations should be confirmed using the eWindow size nomination box or other

communication means.

The assessment reflects the value of barges loading FOB basis ARA 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward, with value reflecting the mean of the loading period. Bids, offers and transactions for Flushing-Ghent may also be published but normalized back to ARA.

Platts reflects bids, offers and trades that are for the front end (first five days of the assessed period), middle window (middle five days of the assessed period) and back end (last five days of the assessed period).

Platts reflects undyed material in its assessment, but the buyer may request red dyeing of a barge loading in Flushing, Amsterdam, Rotterdam, Antwerp or Ghent at their own expense, and the seller should try to accommodate the request if dyeing is available at the loading terminal and possible to achieve logistically. The buyer should inform the seller of their intention to dye upon nomination of the barge.

Gasoil 0.3% FOB STS Lome (AGNWD00): This assessment reflects West African grade gasoil. The assessment reflects the value of gasoil with the following characteristics: Sulfur: max 0.3%; Flash Point: min 66 degrees Celsius with a reference flash point of 70 degrees Celsius; Density: 0.820-0.870 kg/l with a reference density of 0.860 kg/l. Platts may also take into account indications for other merchantable gasoil grades appropriate for West African delivery, and normalize them back to the reference specification. The basis of the assessment is FOB STS Lome, Togo. Indications from other locations in West Africa may be taken into account and normalized back to offshore Lome. The West African grade gasoil assessment represents parcels of 5,000-10,000 mt. Other cargo sizes may also be considered for assessment purposes but normalized back to the reference cargo size. The assessment reflects material for STS loading offshore Lome three to ten days forward from the date of publication. The assessment was launched on April 3, 2018.

FUEL OIL

Assessment	CODE	Mavg	Eur/mt	Eur/mt Mavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
FO 1%S CIF Med Cargo	PUAAJ00	PUAAJ03	ABWGF00	ABWGF03	CIF	Med (Milazo)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 1%S FOB Med Cargo	PUAAK00	PUAAK03	ABWGH00	ABWGH03	FOB	Med (Milazo)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 1%S CIF NWE Cargo	PUAAL00	PUAAL03	ABWGG00	ABWGG03	CIF	NWE (Antwerp)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 1%S FOB NWE Cargo	PUAAM00	PUAAM03	AAQCG00	AAQCG03	FOB	NWE (Antwerp)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 1%S FOB Rdam Barge	PUAAP00	PUAAP03	ABWGI00	ABWGI03	FOB	NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1,000	5,000	US \$	MT	6.35
FO 3.5%S CIF Med Cargo	PUAAY00	PUAAY03	ABWKG00	ABWKG03	CIF	Med (Italy)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 3.5%S FOB Med Cargo	PUAAZ00	PUAAZ03	ABWGM00	ABWGM03	FOB	Med (Genoa/Lavera)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 3.5%S CIF NWE Cargo	PUABA00	PUABA03	ABWGL00	ABWGL03	CIF	Rotterdam (NWE)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 3.5%S FOB NWE Cargo	PUABB00	PUABB03	ABWGN00	ABWGN03	FOB	NWE (Rotterdam)	10-25 days forward	25,000	30,000	US \$	MT	6.35
FO 3.5%S FOB Rdam Barge	PUABC00	PUABC03	AAQCK00	AAQCK03	FOB	NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	2,000	5,000	US \$	MT	6.35
Fuel Oil 3.5% 500 CST FOB Rdam Barge	PUAGN00	PUAGN03	PUAGO00	PUAGO03	FOB	NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	2,000	5,000	US \$	MT	6.23
FOB Rotterdam Marine Fuel 0.5% Barge	PUMFD00	PUMFD03	PUMFE00	PUMFE03	FOB	NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	2,000	5,000	US \$	MT	6.35

Fuel oil

Platts European fuel oil assessments represent the value of cracked fuel oil, unless otherwise stated. In the high and low sulfur cracked fuel oil markets, a multitude of qualities trade and varying qualities are considered in the assessment process. Platts may in some cases incorporate freight differentials in establishing FOB to CIF spreads. Platts assesses a number of European freight routes in Platts Dirty Tankerwire, which typically link FOB and CIF Northwest European, Mediterranean and NWE-to-Med fuel oil assessments.

Operational Tolerance: Platts reflects bids, offers and trades that limit a counterparty's price exposure to operational tolerance. Platts cracked fuel oil assessments reflect the value of cargoes of 25,000 to 30,000 mt or 30,000 mt plus/minus 10% for operation tolerance. When pricing on a floating price basis Platts reflects CIF cargoes where the operational tolerance prices after the completion of discharge, and barges where the operational tolerance prices after the bill of lading.

Sediment: In Low Sulfur Fuel Oil (LSFO) cargoes, Platts understands that it is typical for suppliers to meet broadly shared end-user requirements around sediment, namely a guarantee to meet 0.10 (mass %) maximum sediment under the three sediment tests covered within ISO:8217 standards: Total Sediment Existent (TSE), Total Sediment Potential (TSP), and Total Sediment Accelerated (TSA). Platts therefore considers that merchantable material should meet such a requirement. No addition of Used Lubricant Oil (ULO) is also a considered to be a typical expectation for merchantable specification LSFO. Offers of LSFO cargoes submitted for publication and consideration during the Platts Market on Close assessment process in Europe should clearly indicate if the material offered does not meet either, or both, of these requirements. Such offers may be subject to normalization in value for assessment. Similarly, sellers expressing interest in hitting bids published during the MOC process are also expected to supply material that meets merchantable standards, including the above specification expectations, to the buyer, unless the buyer has expressly stated different specifications in a published bid.

Combined Nomenclature Coding: Combined Nomenclature (CN) codes, which are designated by, and subject to the approval of, customs authorities within each EU member country, are an important component of settling tariffs and taxes for products including LSFO within the EU. LSFO of identical specification may be classified using either of two, existing CN codes. The choice of code may vary between customs authorities in Europe, and the choice may affect LSFO merchantability. Platts European and Mediterranean assessments reflect LSFO where the material has been assigned CN code 2710 1964. In all instances where a seller intends to deliver a fuel with a CN code other than 2710 1964, the seller must specify this CN code in the terms of any offer provided for publication. Buyers providing bids for publication by Platts must be willing to accept fuel with the CN code 2710 1964. Platts also publishes bids in which the buyer specifies that they will also accept CN code 2707 9999. Buyers should not bid for fuel with a CN code 2707 9999 designation only, as this may be unduly restrictive in nature. In instances where the CN code used has a material effect on LSFO value, Platts may normalize offers of fuel with CN code 2707 9999.

In CIF Mediterranean LSFO bids and offers, Platts considers the CN classification as a relevant factor in determining merchantability. Platts understands that LSFO classified as 2710 1964 is currently seen as generally merchantable in the Mediterranean market. Platts continues to monitor LSFO activity and flows under both of these codes.

Marine Fuel 0.5%: Platts launched daily cargo and barge assessments for Marine Fuel 0.5% reflecting residual marine fuels (RMG fuels as defined by the International Organization for Standardization in document ISO 8217:2010 Petroleum products - Fuels (class F) - Specifications of marine fuels) with a maximum sulfur limit of 0.5% across the globe starting January 2, 2019.

FOB Rotterdam Marine Fuel 0.5% Barge assessment

(PUMFD00): This assessment reflects parcels of 2,000 to 5,000 mt each. Barges are typically traded in 2,000 mt lots. In all cases the smallest tradable size is considered to be the strongest indication of value, and in this case the smallest size applicable is 2,000 mt. The assessment reflects the value of barges loading FOB basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward, with value normalized to reflect the mean value of these loading ranges. Barges typically trade for the front five days, middle five days or the back five days. The Platts 0.5% barge assessment is based on bids/offers and trades for 5-day loading windows.

Fuel Oil 1.0% Cargoes CIF Med (PUAAJ00): This assessment reflects a wide variety of specifications, normalized to material with a maximum sulfur content of 1%, material with a density of up to 0.991 kg/l and a maximum viscosity of 380 CST (at 50 degrees Celsius), a maximum combined aluminium and silicon content of maximum 60ppm, 30 degrees Celsius maximum Pour Point, Flash minimum 65 degrees Celsius, Conradson Carbon Residue (CCR) minimum 15%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 150 mg/kg, Net Calorific Value (NCV) minimum 9650 kcal/kg, asphaltene maximum 7%. Material with higher densities such as 0.998 kg/l may be

considered at a discount to this typical quality while material with lower densities such as 0.980kg/l may be considered at a premium.

The assessment reflects the value of cargoes of 25,000 to 30,000 mt or 30,000 mt plus/minus 10% operational tolerance, delivered CIF basis Milazzo. Platts considers bids, offers and transactions into a range of East and West Mediterranean locations and normalizes this value to basis Milazzo. The assessment represents EU-qualified material. The assessment reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

When the CIF Med market is illiquid, and when there is insufficient local supply to meet utility demand in the region, Platts may derive the CIF Med value using FOB NWE plus freight into the Mediterranean. Effective January 4, 2019, the Worldscale flat rate used to calculate the net-forward formula for 1% CIF Med Fuel Oil is \$11.34/mt.

Since January 2014, Platts has reflected bids, offers and trades into the North Africa port of Tangier Med, Morocco, in its Mediterranean cargo assessments. Under Platts methodology, certain approved alternative locations to the basis assessment port for many oil product assessments may be bid and offered during the Market on Close assessment process. Platts may normalize bids, offers or trades that include the port of Tangier Med as their basis location or as a charterparty option, which reflects Platts current assessment standards of non-basis locations and non-standard charterparty options. The Tangier Med basis location is subject to the same performance requirements as other ports already reflected in Platts assessment process. Platts currently publishes bids and offers for the following locations: Algeciras, Ceuta, Gibraltar, Malta, Milazzo, Lavrion, Vassilikos, Agioi Theodori, Eleusis and Barcelona.

Fuel Oil 1.0% Cargoes FOB Med (PUAAK00): This assessment

is established using a freight differential to the CIF Med assessment, using a flat rate based on a basket of typical tanker routes, multiplied by the daily Worldscale rate assessed in Platts Dirty Tankerwire. Effective January 2, 2019, the Worldscale flat rate used to calculate the netback formula for 1% FOB Med Fuel Oil is \$6.29/mt.

The assessment reflects a wide variety of specifications, normalized to material with a maximum sulfur content of 1%, material with a density of up to 0.991 kg/l and a maximum viscosity of 380 CST (at 50 degrees C), a maximum combined aluminium and Silicon content of maximum 60ppm, 30 degrees Celsius maximum Pour Point, Flash minimum 65 degrees Celsius, CCR maximum 15%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 150 mg/kg, NCV minimum 9650 kcal/kg, asphaltene maximum 7%. The assessment reflects the value of cargoes of typically 25,000 to 30,000 mt, loading FOB Mediterranean, for EU-qualified material, for loading 10-25 days from date of publication, with value normalized to reflect the mean value of the loading window. Platts currently does not publish bids or offers for 1% FOB Med Cargoes.

Fuel Oil 1.0% Cargoes CIF NWE (PUAAL00): This assessment reflects a wide variety of specifications, but normalized to material with a maximum sulfur content of 1% density of up to 0.991 kg/l and a maximum viscosity of 380 CST (at 50 degrees Celsius), a maximum combined aluminium and Silicon content of 60ppm, 30 degrees Celsius maximum Pour Point, Flash minimum 65 degrees Celsius, CCR maximum 15%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 150 mg/kg, NCV minimum 9650 kcal/kg, asphaltene maximum 7%.

The assessment reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

The CIF NWE assessment is calculated as a freight differential to the FOB NWE assessment using a flat rate based on a basket of

typical tanker routes, multiplied by the current Worldscale rate assessed in Platts Dirty Tankerwire. Effective January 2, 2019 the Worldscale basket flat rate used to calculate cross NWE low sulfur fuel oil is \$6.55/mt. Platts currently does not publish bids or offers for 1% FO CIF NWE Cargoes.

Fuel Oil 1.0% Cargoes FOB NWE (PUAAM00): This assessment reflects a wide variety of specifications, normalized to material with a maximum sulfur content of 1%, density of up to 0.991 kg/l and a maximum viscosity of 380 CST (at 50 degrees Celsius), a maximum combined aluminium and Silicon content of 60ppm, 30 degrees Celsius maximum Pour Point, Flash minimum 65 degrees Celsius, CCR maximum 15%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 150 mg/kg, NCV minimum 9650 kcal/kg, asphaltene maximum 7 %.

The assessment reflects the value of cargoes of 25,000 to 30,000 mt or 30,000 mt each, loading FOB basis Antwerp. Platts considers bids, offers and transactions into a range of NWE locations and normalizes these prices to basis Antwerp. The assessment represents EU-qualified material.

The assessment reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period. Platts currently publishes bids and offers for the following locations: Gothenburg, Pembroke and Rotterdam.

Fuel Oil 1.0% Barges (PUAAP00): This assessment reflects material with a maximum density of 0.991 kg/l and a viscosity of 380 CST (at 50 degrees Celsius) with a maximum combined aluminium and Silicon content of 80ppm and a maximum sulfur content of 1%, 30 maximum Pour Point, Flash minimum 60 degrees Celsius, CCR max 18%, ash maximum 0.15%, water maximum 0.5%, vanadium maximum 300 mg/kg, TSP 0.1%, zinc maximum 15 mg/kg, phosphorus maximum 15 mg/kg, calcium maximum 30 mg/kg Specifications otherwise typically conform to the ISO 8217: 2005 RMG reference.

The assessment reflects the value of barges of 1,000 mt each where the buyer specifies the actual size at the time of the deal, loading FOB Amsterdam-Rotterdam-Antwerp, basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward.

Fuel Oil 3.5% Cargoes CIF Med (PUAAY00): This assessment reflects 3.5% maximum sulfur content with 380 CST maximum viscosity (at 50 degrees Celsius) and 0.991kg/l density with a maximum combined aluminium and silicon content of 60ppm, maximum 30 degrees Pour Point, minimum 60 degrees Flash Point, CCR maximum 18%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 350 mg/kg, TSP 0.1%, asphaltene maximum 8 %, sodium maximum 100 mg/kg, acid number 2.5 mg/kg, zinc maximum 15 mg/kg, phosphorus maximum 15 mg/kg, calcium maximum 30 mg/kg, Free from used lubricating oils (ULO) (calcium > 30 and zinc > 15; or calcium > 30 and phosphorus > 15), H₂S 2ppm max. Platts takes an inclusive approach to the assessment, as the quality of fuel oil in the Mediterranean is less homogenous than that in North West Europe.

The assessment reflects the value of cargoes of 25,000 to 30,000 mt or 30,000 mt each (although smaller sizes may be considered), delivered CIF basis Genoa/Lavera.. The smaller size on CIF typically reflects local port constraints.

The assessment reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

Since January 2014, Platts has reflected bids, offers and trades into the North Africa port of Tangier Med, Morocco, in its Mediterranean cargo assessments. Under Platts methodology, certain approved alternative locations to the basis assessment port for many oil product assessments may be bid and offered during the Market on Close assessment process. Platts may normalize bids, offers or trades that include the port of Tangier Med as their basis location or as a charterparty option, which

reflects Platts current assessment standards of non-basis locations and non-standard charterparty options. The Tangier Med basis location is subject to the same performance requirements as other ports already reflected in Platts assessment process. Platts currently publishes bids and offers for the following locations: Algeciras, Barcelona, Ceuta, Genoa, Gibraltar, Malta and Tangier Med.

Buyers in the 3.5% Fuel Oil CIF Med cargoes Market on Close assessment process may request delivery onto multiple vessels, and such requests should not be unreasonably refused by the seller.

Platts understands that, in addition to delivery into shore tanks or a single vessel, delivery into multiple vessels is a recognized, if occasional, feature of this market.

In instances in which the buyer nominates multiple vessels to receive a cargo, ship-to-ship transfer costs would be for the buyer's account.

Platts expects the buyer to take delivery of the cargo during the original laycan period. Any demurrage costs due to late delivery of the cargo as a result of delivery onto multiple vessels should be for the buyer's account.

Fuel Oil 3.5% Cargoes FOB Med (PUAAZ00): This assessment is established using a freight differential to the CIF Med assessment, using a flat rate based on a basket of typical tanker routes, multiplied by the daily Worldscale rate assessed in Platts Dirty Tankerwire. Effective January 2, 2019, the Worldscale flat rate used to calculate the netback formula for 3.5% FOB Med Fuel Oil is \$6.21/mt.

The assessment reflects 3.5% maximum sulfur content with 380 CST maximum viscosity (at 50 degrees Celsius) and 0.991kg/l density with a maximum combined aluminium and silicon content of 60ppm, max 30 degrees Pour Point, minimum 60 degrees Flash Point, CCR maximum 18%, ash max 0.1%, water

maximum 0.5%, vanadium maximum 350 mg/kg, TSP 0.1%, asphaltenes max 8 %, sodium max 100 mg/kg, acid number 2.5 mg/kg, zinc maximum 15 mg/kg, phosphorus maximum 15 mg/kg, calcium maximum 30 mg/kg, Free from used lubricating oils (ULO) (calcium > 30 and zinc > 15; or calcium > 30 and phosphorus > 15), H2S 2ppm maximum. Platts takes an inclusive approach to the assessment, as the quality of fuel oil in the Mediterranean is less homogenous than that in Northwest Europe.

The assessment reflects the value of cargoes of 25,000 to 30,000 mt or 30,000 mt each, loading FOB Mediterranean basis Italy. Cargoes up to 50,000 mt may be taken into account when arbitrage openings present themselves, for instance to Asia.

The assessment reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

Fuel Oil 3.5% Cargoes CIF NWE (PUABA00): This assessment reflects the following: viscosity of 650-700 CST, density of 0.991 kg/l maximum, 60ppm maximum aluminium and silicon, and a water content of 0.50%. Typically, standard cracked Russian quality M-100 is reflected in the assessment. The quality of M-100 may vary widely in density, viscosity, water content, and metals among other factors.

The assessment reflects the value of cargoes of 25,000 to 30,000 mt or 30,000 mt each, delivered CIF NWE basis Rotterdam.

Timing: Reflects material for delivery 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

When the market is illiquid, CIF NWE value may be derived as a differential to 380 CST 3.5% FOB Rotterdam barges, reflecting blending economics, break-bulk cost and time gradients. Platts currently publishes bids and offers for the following locations: Amsterdam, Antwerp and Rotterdam.

Fuel Oil 3.5% Cargoes FOB NWE (PUABB00): This assessment reflects the following: viscosity of 650-700 CST, density of 0.991 kg/l maximum, 60ppm maximum aluminium and silicon, and a water content of 0.50%.

Typically, standard cracked Russian quality M-100 is reflected in the assessment.

Effective January 2, 2019, the Worldscale flat rate used to calculate the netback formula for FOB NWE 3.5% Fuel is \$8.73/mt.

These cargo assessments typically reflect parcels of 25,000 to 30,000 mt each, although smaller sizes may be considered, loading FOB Baltic ports, for loading 10-25 days from date of publication, with values normalized to the mid-point of this delivery period.

Platts recognizes that the quality of M-100 may vary widely in density, viscosity, water content, and metals among other factors, and reflects typical levels on other relevant parameters.

Fuel Oil 3.5% Barges (PUABC00): This assessment reflects the value of 3.5% maximum sulfur content with 380 CST maximum viscosity (at 50 degrees C) and 0.991 kg/l density with a maximum combined aluminium and Silicon content of 80ppm, 30 max Pour Point, Flash minimum 60 degrees Celsius, CCR maximum 18%, ash maximum 0.1%, water maximum 0.5%, vanadium maximum 300 mg/kg, TSP 0.1%, zinc maximum 15 mg/kg, phosphorus maximum 15 mg/kg, calcium maximum 30 mg/kg.

Barge assessments reflect parcels of 2,000 to 5,000 mt each. Barges are traded typically in 2,000 mt lots where the buyer specifies the actual size at the time of the deal. In all cases the smallest tradeable size is considered to be the strongest indication of value, and in this case the smallest size applicable is 2,000 mt.

The assessment reflects the value of barges loading FOB

basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward, with value normalized to reflect the mean value of these loading ranges.

Barges typically trade for the front five days, middle five days or the back five days. Platts 3.5% barge assessment is based on bids/offers and deals for 5-day loading windows.

Fuel Oil 3.5% 500 CST FOB Rdam Barges (PUAGN00): This assessment reflects the value of 3.5% maximum sulfur content with 500 CST maximum viscosity (at 50 degrees C) and 1.010 kg/l density with a maximum combined aluminium and Silicon content of 60ppm, 30 maximum Pour Point, Flash minimum 60 degrees Celsius, CCR maximum 20%, ash maximum 0.15%, water maximum 0.5%, vanadium maximum 300 mg/kg, TSP 0.1%, zinc maximum 15 mg/kg, Phosphorus maximum 15 mg/kg, Calcium maximum 30 mg/kg.

Barge assessments reflect parcels of 2,000 to 5,000 mt each. Barges are traded typically in 2,000 mt lots where the buyer specifies the actual size at the time of the deal. In all cases the smallest tradeable size is considered to be the strongest indication of value, and in this case the smallest size applicable is 2,000 mt.

The assessment reflects the value of barges loading FOB basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward, with value normalized to reflect the mean value of these loading ranges.

Barges typically trade for the front five days, middle five days or the back five days. Platts 3.5% barge assessment is based on bids/offers and deals for 5-day loading windows. When the market is illiquid, 3.5% 500 CST FOB Rdam Barge value may be derived as a differential to 380 CST 3.5% FOB Rotterdam barges.

FEEDSTOCKS

Assessment	CODE	Mavg	Pavg	Wavg	CONTRACT BASIS	LOCATION	DELIVERY PERIOD	MIN SIZE	MAX SIZE	CURRENCY	UOM	CONV
Straight Run 0.5-0.7%S FOB NWE cargo	PKABA00	PKABA03	ABWHG00	ABWHG03	FOB	NWE (Rotterdam)	10-25 days forward	25,000	55,000	US \$	MT	6.77
Straight Run 0.5-0.7% CIF Med Cargo	AAJNT00	AAJNU00			CIF	MED (Malta)	10-25 days forward	25,000	30,000	US \$	MT	6.77
VGO 0.5-0.6% Cargoes CIF NWE	AAHMZ00	AAHNA00			CIF	NWE (Rotterdam)	10-25 days forward	15,000	30,000	US \$	MT	6.84
VGO 0.5-0.6% FOB NWE	AAHMX00	AAHMY00	-	-	FOB	NWE (Rotterdam)	10-25 days forward	15,000	55,000	US \$	MT	6.84
VGO 2.0%S CIF NWE	AAHND00	AAHNE00	-	-	CIF	ARA (NWE)	10-25 days forward	15,000	35,000	US \$	MT	6.84
VGO 2.0%S FOB NWE	AAHNB00	AAHNC00	-	-	FOB	NWE (Rotterdam)	10-25 days forward	15000	55000	US \$	MT	6.84
VGO 2.0%S FOB Rdam barge	AAHNI00	AAHNJ00	-	-	FOB	ARA, NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1000	5000	US \$	MT	6.84
LSVGO Black Sea	ABBAD00	ABBAD03			FOB	Black Sea (basket of Black Sea ports)		15000	35000	US \$	MT	6.84
HSVGO Black Sea	ABBAC00	ABBAC03			FOB	Black Sea (basket of Black Sea ports)		15000	35000	US \$	MT	6.84
VGO 0.8% CIF Med Cargo	ABBAB00	ABBAB03			CIF	MED (Malta)	10-25 days	15000	35000	US \$	MT	6.84
VGO 2% MAX CIF Med Cargo	ABBAA00	ABBAA03			CIF	MED (Malta)	10-25 days	15000	35000	US \$	MT	6.84
VGO 0.5-0.6% Barges	AAHNF00	AAHNG00			FOB	NWE (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1000	5000	US \$	MT	6.84
VGO 2% MAX Barges	AAHNI00	AAHNJ00			FOB	ARA (Rotterdam)	3-15 days forward (Monday-Tuesday) 5-15 days forward (Wednesday-Friday)	1000	5000	US \$	MT	6.84

Feedstocks

Platts European refinery feedstocks assessments represent the value of straight-run fuel oil, unless otherwise stated. In the vacuum gasoil and low sulfur straight-run markets, a multitude of qualities trade and varying qualities are considered in the assessment process. Platts may in some cases incorporate freight differentials in establishing FOB to CIF spreads. Platts assesses a number of European freight routes in Platts Dirty Tankerwire, which typically link FOB and CIF Northwest European, as well as FOB Black Sea and CIF Mediterranean, refinery feedstocks assessments.

Operational Tolerance: Platts refinery feedstocks assessments typically price main quantity and operational tolerance as a full EFP.

Straight-run 0.5-0.7% Cargoes FOB NWE (PKABA00): This assessment reflects the value of Low Sulfur Straight-Run fuel oil (LSSR) from Northwest Europe with the following specifications: sulfur content 0.5-0.7%, normalized to 0.6% CCR maximum 7, viscosity 200 CST maximum (at 50 degrees Celsius), vanadium 10ppm, sodium 10ppm and nickel 10ppm. Platts reflects a density range of 0.920-0.950 kg/l at 15 degrees Celsius. A conversion factor between barrels and metric tons of 6.77 is used, in line with prevailing market standards. Cargo assessments typically reflect parcels of 25,000 to 30,000 mt each within NWE, but cargoes of up to 55,000 mt may be taken into account when arbitrage openings present themselves. The assessment reflects cargoes for loading FOB NWE basis Rotterdam, for loading 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

LSSR is commonly traded at a differential to ICE Brent crude oil

futures with the prevailing value of ICE Brent at 16:30 London time used, together with assessed differentials, in establishing an outright level for assessment. The ICE trading month used in the calculation is generally the front month, but can also be the second month where this reflects trading activity. A conversion factor of 6.77 is used to calculate the dollars per barrel value in dollars per metric ton.

Straight Run 0.5-0.7% CIF Med Cargo (AAJNT00): This assessment reflects delivered cargoes of Low Sulfur Straight Run (LSSR) with the following specifications: sulfur content 0.5-0.7%, normalized to 0.6%, although higher sulfur material may be taken into account where relevant, CCR maximum 7, Density 0.920-0.950 kg/l at 15 degrees, viscosity 200 CST maximum at 50 degrees, vanadium 10ppm, sodium 15ppm, nickel 20ppm. The CIF Mediterranean LSSR cargo assessment typically reflects parcels of 25,000-30,000 mt. The assessment reflects cargoes for

delivery CIF basis Malta 10-25 days from date of publication, with value normalized to reflect the mean value of the delivery period.

Platts currently publishes bids and offers for the following locations: Agioi Theodoroi, Elefsis, Izmit, Lavera, Malta, Sarroch and Tarragona.

VGO 0.5-0.6% Cargoes CIF NWE (AAHMZ00): Platts reflects European CIF basis ARA Vacuum Gasoil (VGO) cargo sizes of 15,000 to 35,000 mt, normalized to 30,000 mt. Platts considers CIF NWE (basis Rotterdam) and FOB NWE (basis Baltic Sea) as related markets which are frequently linked by freight costs. Platts accepts bids and offers for cargoes of VGO on both a CIF and FOB basis in Northern Europe. This assessment represents the value of VGO cargoes of sulfur: 0.6% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max; Sodium 2 ppm max; Nickel 1 ppm max; Copper 1 ppm max; vanadium 1 ppm max; CCR: 0.5% max; nitrogen: 1500 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 80 degrees celsius min; asphaltene: 700ppm max; Tan: 0.5 mg KOH/g max.

Platts also considers other merchantable HSVGO and LSVGGO specifications in its assessment process, and may normalize to the published standard specifications.

VGO 0.5-0.6% Cargoes FOB NWE (AAHMX00): Platts assessments of FOB NWE HSVGO and LSVGGO reflect the value of FOB cargoes of VGO loading in the Baltic. This is aligned with conventions for similar assessments for ULSD and fuel oil, which are labelled as FOB NWE and are assessed basis FOB Baltic ports. The basket of Baltic Sea ports for both HSVGO and LSVGGO is as follows: St.Petersburg, Ust Luga, Vysotsk, Sillamae and Tallinn. Oil loading elsewhere in Northern Europe will continue to be reflected in the FOB Baltic assessment, but will be normalized back to the Platts basket of ports. Platts considers CIF NWE (basis Rotterdam) and FOB Baltic as related markets which are frequently linked by freight costs. Platts accepts bids and offers for cargoes of VGO on both a CIF and FOB basis in Northern Europe.

This assessment represents the value of VGO cargoes of sulfur: 0.6% max; Density: 0.92 max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1500 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 80 degrees celsius min; asphaltene: 700ppm max; Tan: 0.5 mg KOH/g max.

Platts also considers other merchantable HSVGO and LSVGGO specifications in its assessment process, and may normalize to the published standard specifications. Cargo assessments reflect parcels of 15,000 to 35,000 mt, normalized to 30,000 mt. FOB cargoes of up to 55,000 mt are eligible for assessment when arbitrage openings make these a significant market factor. The assessment represents cargoes loading 10-25 days from date of publication, with value normalized to reflect the mean value of the loading window.

LSVGGO Black Sea (ABBAD00) : This assessment reflects the value of LSVGGO cargoes loading in the Black Sea with the following specifications: sulfur: 0.80% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max; Sodium 2 ppm max; Nickel 1 ppm max; Copper 1 ppm max; Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1500 ppm max; Pour point: 45 degrees Celsius max; Flashpoint: 100 degrees Celsius min; Aniline: 80 degrees Celsius min; Asphaltene: 700ppm max; Tan: 0.5 mg KOH/g max.

Platts will continue to consider other merchantable LSVGGO specifications in its assessment process, and may normalize to the published standard specifications.

HSVGO Black Sea (ABBAC00): This assessment reflects the value of VGO cargoes with the following specifications: 2.00% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1700 ppm max; Pour point: 45 degrees Celsius max; Flashpoint: 100 degrees Celsius min; Aniline: 75 degrees Celsius min; Asphaltene: 700ppm max; Tan: 0.5 mg KOH/g max.

Platts will continue to consider other merchantable HSVGO specifications in its assessment process, and may normalize to the published standard specifications.

VGO 2% MAX Cargoes CIF NWE (AAHND00): Platts assessments of CIF NWE HSVGO reflect the value of CIF cargoes of VGO loading in the Baltic. This is aligned with conventions for similar assessments for ULSD and fuel oil, which are labelled as FOB NWE and are assessed basis CIF Baltic ports. The basket of Baltic Sea ports for both HSVGO and LSVGGO is as follows: St.Petersburg, Ust Luga, Vysotsk, Sillamae and Tallinn. Oil loading elsewhere in Northern Europe will continue to be reflected in the CIF Baltic assessment, but will be normalized back to the Platts basket of ports. Platts considers CIF NWE (basis Rotterdam) and CIF related markets which are frequently linked by freight costs. Platts accepts bids and offers for cargoes of VGO on both a CIF and FOB basis in Northern Europe.

This assessment represents the value of VGO cargoes of sulfur: 2% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1700 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 75 degrees celsius min; asphaltene: 700ppm max; Tan: 0.5 mg KOH/g max. Platts will continue to consider other merchantable HSVGO and LSVGGO specifications in its assessment process, and may normalize to the updated specifications. Cargo assessments reflect parcels of 15,000 to 35,000 mt in size, normalized to 30,000 mt, for delivery CIF NWE basis ARA, for delivery 10-25 days from date of publication with value normalized to reflect the mean value of the delivery period.

VGO 2% MAX Cargoes FOB NWE (AAHNB00): Platts assessments of FOB NWE HSVGO reflect the value of FOB cargoes of VGO loading in the Baltic. This is aligned with conventions for similar assessments for ULSD and fuel oil, which are labelled as FOB NWE and are assessed basis FOB Baltic ports. The basket of Baltic Sea ports for both HSVGO and LSVGGO is as follows: St.Petersburg, Ust Luga, Vysotsk, Sillamae and

Tallinn. Oil loading elsewhere in Northern Europe will continue to be reflected in the FOB Baltic assessment, but will be normalized back to the Platts basket of ports. Platts considers CIF NWE (basis Rotterdam) and FOB Baltic as related markets which are frequently linked by freight costs. Platts accepts bids and offers for cargoes of VGO on both a CIF and FOB basis in Northern Europe.

This assessment represents the value of VGO cargoes of sulfur: 2% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1700 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 75 degrees celsius min; Asphaltenes: 700ppm max; Tan: 0.5 mg KOH/g max. Platts will continue to consider other merchantable HSVGO and LSVGO specifications in its assessment process, and may normalize to the updated specifications. Cargo assessments reflect parcels of 15,000 to 35,000 mt, normalized to 30,000 mt, with FOB cargoes of up to 55,000 mt eligible for assessment when arbitrage openings make these a significant market factor. The assessment represents cargoes loading FOB NWE basis Rotterdam, for loading 10-25 days from date of publication, with value normalized to reflect the mean value of the loading window.

VGO 2% MAX CIF Med Cargo (ABBAA00): Platts assessments of CIF MED HSVGO reflect the value of CIF cargoes of VGO loading in the Med. This assessment reflects delivered cargoes of High Sulfur VGO with the following specifications: sulfur content 2%, Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1700 ppm max; Pour point: 45 degrees Celsius max; Flashpoint: 100 degrees Celsius min; Aniline: 75 degrees Celsius min; Asphaltenes: 700ppm max; Tan: 0.5 mg KOH/g max.

VGO 0.8% CIF Med Cargo (ABBAB00): Platts assessments of CIF MED HSVGO reflect the value of CIF cargoes of VGO loading in the Med. This assessment reflects delivered cargoes of Low Sulfur VGO with the following specifications: sulfur: 0.80% max; density: 0.92 kg/l max; metals: iron 2 ppm max; sodium 2 ppm max; nickel 1 ppm max; copper 1 ppm max; vanadium 1 ppm max; CCR: 0.5% max; nitrogen: 1,500 ppm max; pour point: 45 degrees Celsius max; flashpoint: 100 degrees Celsius min; aniline: 80 degrees Celsius min; asphaltenes: 700 ppm max; tan: 0.5 mg KOH/g max.

VGO 0.5-0.6% Barges (AAHNF00): This assessment represents the value of VGO barges of sulfur: 0.5-0.6%; Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm

max, Copper 1 ppm max, Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1500 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 80 degrees celsius min; Asphaltenes: 700ppm max; Tan: 0.5 mg KOH/g max. Platts will continue to consider other merchantable specifications in its assessment process, and may normalize to the updated specifications. Barge assessments reflect parcels of 1,000 to 5,000 mt each, loading FOB ARA basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward.

VGO 2% MAX Barges (AAHNI00): This assessment represents the value of VGO barges of sulfur: 2% max; Density: 0.92 kg/l max; Metals: Iron 2 ppm max, Sodium 2 ppm max, Nickel 1 ppm max, Copper 1 ppm max, Vanadium 1 ppm max; CCR: 0.5% max; Nitrogen: 1700 ppm max; Pour point: 45 degrees celsius max; Flashpoint: 100 degrees celsius min; Aniline: 75 degrees celsius min; Asphaltenes: 700ppm max; Tan: 0.5 mg KOH/g max. Platts will continue to consider other merchantable specifications in its assessment process, and may normalize to the updated specifications. Barge assessments reflect parcels of 1,000 to 5,000 mt each, loading FOB ARA basis Rotterdam, for loading 3-15 (Monday to Tuesday) or 5-15 (Wednesday through Friday) days forward.

REVISION HISTORY

February 2019: Platts updated this Guide to include Marine Fuel 0.5% FOB Rotterdam Barges (PUMFD00).

January 2019: Platts updated the 2019 Worldscale rates to incorporate changes from 2018 to 2019. Platts updated the guide to incorporate the new FOB Rotterdam Marine Fuel 0.5% Barge assessment.

November 2018: Platts updated its CIF Refined Product Cargoes section and clarified procedures for delivery of 3.5% CIF Med cargoes onto vessels. June 2018: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in June 2018. In this update, Platts reviewed all content. Platts updated the guide to reflect and incorporate new 2016 Worldscale flat rates where applicable. Also, the description of Platts Diesel 10ppm NWE Cargoes CIF NWE net-forward was corrected. Also, language in the Fuel Oil and Feedstocks sections was updated and clarified. Biddable and offerable ports have been added for gasoline, jet, diesel, gasoil, VGO and fuel oil. Language on diesel CP options was further clarified. Also, the description of the minimum propane content of the Platts Propane FOB NWE Seagoing, Propane FOB ARA, Propane FCA ARA, Propane W Med FOB Ex-Ref/Stor and Propane W Med FCA Ex-Ref/Stor assessments was corrected.

June 2018: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in June 2018. In this update, Platts reviewed all content. Platts updated the guide to reflect and incorporate new 2016 Worldscale flat rates where applicable. Also, the description of Platts Diesel 10ppm NWE Cargoes CIF NWE net-forward was corrected. Also, language in the Fuel Oil and Feedstocks sections was updated and clarified. Biddable and offerable ports have been added for gasoline, jet, diesel, gasoil, VGO and fuel oil. Language on diesel CP options was further clarified. Also, the description of the minimum propane content of the Platts Propane FOB NWE Seagoing, Propane FOB ARA, Propane FCA ARA, Propane W Med FOB

Ex-Ref/Stor and Propane W Med FCA Ex-Ref/Stor assessments was corrected.

September 2017: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in September 2017. In this update, Platts reviewed all content. Platts updated guidance around how to report information and expectations for contactability, as well as updating contact details for Platts editors included in the guide. Guidance around seasonal switches in diesel and gasoline fuel grades was also clarified. The port of Terneuzen has also been added to the gasoline barge assessment, and Platts methodology guidance has been adjusted accordingly. Platts guidance on demurrage in the naphtha market has also been updated. Specifications on naphtha cargoes in the Med were also clarified. Platts treatment of Combined Nomenclature (CN) codes was also clarified. Platts also removed references to specification items for Gasoil 0.1% Cargoes CIF NWE that included typographical errors. Platts also updated references to jet fuel assessments to reflect the Defence Standard 91-091 nomenclature as defined by the UK Ministry of Defence and the Joint Fuelling System Checklist.

March 2017: Platts clarified a Worldscale rate used to calculate the netback formula for FOB Med Naphtha Cargoes. Previously, an incorrect value for the 2017 FOB Med naphtha cargo freight netback was published.

January 2017: Platts updated Worldscale rates to incorporate changes from 2016 to 2017. Platts updated its ULSD methodology to reflect the growing size of the vessels supplying the market. As such, the parcel size reflected in cargo assessments was increased to 30,000 mt, from 20,000 mt. LPG methodology was also updated to reflect the discontinuation of several freight based assessments, and the name changes of several more. Fuel oil methodology in NWE and the Med was updated to reflect changes in the treatment of freight and VGO density specifications in NWE were updated to reflect prevailing market standards. From January 2017, the CIF NWE assessment is calculated as a freight differential to the FOB

NWE assessment.

November 2016: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in November 2016. Details of Platts Europe and Africa bunker fuel assessments, which are now included in a separate global methodology guide for bunker fuel, were removed. Platts included previously published guidance regarding sediment and ULO in the merchantability of fuel oil reflected in assessments. Platts also updated language regarding operational tolerance for cargoes and barges to standardize descriptions across sections where possible, and incorporated a series of updates to its LPG assessments for the region. Platts also made a number of typographical edits for style and clarity.

February 2016: Platts updated the guide to reflect a change in its FOB ARA 50ppm gasoil barge methodology change and incorporate new 2016 Worldscale flat rates where applicable.

November 2015: Platts updated the guide to include new gasoline assessment methodology for West Africa Gasoline FOB NWE and West Africa Gasoline CIF West Africa. Platts also made updates to the gasoil and diesel sections, noting guidance on clear and bright specifications for ultra low sulfur diesel, requests to dye and new FBT standards in the UK. Platts added a reference to previously published standards for CIF cargo quality testing. Platts noted previously issued guidance that jet barge bids may not be for one port only, and noted guidance for vessel size expectations for cargos in various cargo assessments, particularly in relation to port destination changes requested by a buyer under charterparty options. Platts updated to the high sulfur fuel oil specification sections of the guide. Platts added details of a new assessment of ultra low sulfur bunker fuel. Platts amended the list of ports where 1% bunker fuel is assessed to better reflect Platts updated assessments.

July 2015: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in July 2015. In this update, Platts reviewed all content. Platts updated guidance around how

to report information and expectations for contactability. Platts also consolidated guidance regarding review of reported trades. In the specifications section of the guide, In specifications, Platts updated this guide to reflect changes in assessment sizes for European naphtha cargoes, diesel cargoes and barges, and gasoil barges, as well as including the Platts assessed specification for CIF Northwest naphtha cargoes. Platts removed all references to Falmouth bunker assessments, which were discontinued in July 2015. Platts incorporated guidance around operational tolerance for naphtha and nomination processes for ULSD and gasoil barges that had previously been published in subscriber notes. Platts removed descriptions for swaps assessments where those definitions are already provided in its Platts Forward Curve methodology guide.

December 2014: Platts updated this guide to reflect the addition of a new FOB AR reformat assessment and also to include a new fuel oil barge assessment reflecting Fuel Oil 3.5% 500 CST specifications. Platts also updated this guide to reflect a change in methodology in the CIF NWE naphtha assessment to reflect a broader cargo size range and also to reflect an increase in the cargo size reflected within the ULSD 10ppm CIF NWE assessment. Platts also updated the guide to reflect an update to the NWE LS and HS VGO specifications and also 2015 netback calculations for refined products. Platts added a notation for its 500 CST bunker fuel assessment. Platts also updated this guide to reflect methodology changes for 0.1% and ULSD 10ppm FOB ARA barge assessments. These updates included amending the size, loading dates and load port locations reflected in both assessments. Finally, Platts updated freight rates for netbacks described in this guide to 2015 value.

June 2014: Platts completed an annual update to the Europe & Africa Refined Oil Products Guide in June 2014. In this update, Platts reviewed all content. The guide was updated to

include a description of seasonal specification changes in the European gasoline market; remove database codes for monthly averages associated with Month-To-Date cumulative averages for LPG (monthly averages for cumulative MTD assessments were discontinued in July 2013); remove description of jet fuel Mediterranean assessments that were previously discontinued; and remove codes for discontinued MDO assessments in Europe and Africa. Platts added more information around typical size operational tolerance in the cargo market; the inclusion of Tangiers, Morocco as a location considered in Mediterranean cargo assessments for gasoline, middle distillates and fuel oil and clarified wording around CIF cargo destination deviations. Gasoline barge names were clarified in text to be simply "AR", not "ARA" where they had been erroneously labelled. Platts consolidated guidelines around publishing information during the MOC assessment process into the MOC Data Publishing Principles section, and incorporated clarification guidance about how to express interest in bids and offers that were published in January 2014 and May 2014.

March 2014: Platts updated the Europe & Africa Refined Oil Products Guide in February 2014. The updated guide includes nomination procedures for cargoes and barges that were published in an older copy of the guide, but were omitted from recent issues.

February 2014: Platts updated the Europe & Africa Refined Oil Products Guide in February 2014. The updated guide provides updates to 2014 netback calculations, clarifies wording and terminology in the bunker fuel section and updates the naphtha methodology to include guidance on inert gas system vessels that was originally published in 2010.

November 15, 2013: Platts updated this guide, making minor edits through the text, particularly clarifying statements

regarding how product assessments are normalized to reflect the mean value of loading and delivery dates. In this update, Platts noted that ex-duty cargoes of jet fuel will be reflected in its benchmark Jet CIF Northwest Europe Cargo assessment with effect from January 1, 2014. Platts also incorporated a clarification regarding how measurements of the quantity delivered are typically conducted in the ARA barge market. Platts also removed references to MDO assessments, which have been suspended.

September 2, 2013: Platts discontinued its European Marine Diesel assessments. Platts had been assessing MDO for several ports in the EMEA region since 1986. Since that time, demand for MDO had generally been replaced by demand for marine gasoil, or other similar fuels. As of mid-2013, MDO typically accounted for less than 1% of bunker fuel supplied at major ports in the EMEA region. Prior to the discontinuation, specifications had generally conformed with that for DMB. Kinematic viscosity at 40 Celsius, maximum 11 cst, Flash point 60 degrees celsius minimum; Pour point (upper) winter quality 0 degrees celsius; pour point upper summer quality 6 degrees celsius, ash 0.01% maximum, sulfur, maximum 2%; water, 0.3% maximum, zinc maximum 15 mg/kg, phosphorus maximum 15 mg/kg, calcium maximum 30 mg/kg.

August 2013: Platts revamped all Oil Methodology and Specifications Guides, including its Europe & Africa Refined Oil Products Guide, in August 2013. This revamp was completed to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.