



## **Rim Bunker Fuel Price Assessment Methodology**

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### **Relevance of Rim Assessment Methodology**

**Rim Assessment Methodology is considered appropriate since it is based on the following:**

#### **1. Purpose of price assessment**

The purpose of price assessment in all of Rim's reports is to enable traders to take place at prices that are transparent and reasonable. We achieve that by indicating levels at which deals can be transacted among players in the energy market.

#### **2. Transactions taken into consideration**

For each price index, our price assessment is based on quantities, delivery period and areas with the most liquidity. Further, details such as the value and quantity on which the assessment is based, market information which is used as a reference, and other platforms such as the Rim Trading Board and specific markets including trades carried out in Exchanges are included in the methodology of each report.

#### **3. Time window taken into consideration**

For each price index, the time window considered appropriate for our price assessment is that which is deemed to be the most convenient and effective during Asian trading hours including Japan.

#### **4. Priority in price assessment**

For each price index, among traded prices in transactions that take place between agreed parties or in other markets, bids and offers, the priority as to which price is considered first for assessment is determined and details are given in the methodology of each report.

#### **5. Selection of players to gather information from**

When selecting players to obtain information from, we take into account the quantity handled and the amount of influence on the market, without any bias towards buyers or sellers. We gather market information from many players including Majors, oil and gas producers, oil companies, traders, dealers and end-users. Each report team determines that there is no bias in the players it obtains information from in terms of area and the type of information they have. Should the player found to be suspicious or to be an exception, the reporter and team leader may, after obtaining approval from the president, remove him from the list of players to gather information from.

#### **6. Method of information gathering**

The quality of reporters performing price assessments is vital. From a fair and neutral standpoint, the reporter has to exert due diligence on a regular basis to cultivate such quality and improve his skills. Reporters that have received such training will carry out information gathering mainly by telephone but also by email and chat. To ensure the credibility of the player from whom information is gathered, the reporter will call the player's company directly to confirm that the player is indeed working for that company.

## **7. Reliability and adequacy of market information**

Each reporter performing price assessment determines whether information obtained from market players is adequate, whether the trade was done by the parties involved, whether the information was suspicious by checking with the relevant parties and other multiple parties, with further investigation carried out if necessary. If a piece of information is found to be suspicious, additional information gathering will be carried out before making a judgement as to whether or not to remove the information for consideration for price assessment. The player providing market information is expected to all information relevant that meets the conditions for price assessment stated in Rim's Assessment Methodology, which is published on our website. If it is necessary to check whether the information provided is suspicious, we may consider obtaining information from the back office.

## **8. Supervisor Role of Supervisor**

At least one independent supervisor is assigned to each report. Before each report is issued, the supervisor checks if the price assessment and its basis are in line with the Assessment Methodology. After the review is conducted, a proof of the review either in the form of an email sent by the supervisor to each team or a PDF copy signed by the supervisor is kept in the folder of each team.

### **Maintaining quality of the review**

Where necessary, the president conducts checks to determine if the supervisor's review is appropriate. After a spot check, a proof of the spot check in the form of a PDF document signed by the president will be kept in the folder of each team.

### **Selection of supervisor**

In principle, a supervisor is selected from outside the relevant report team and has knowledge and experience in the product and market for which price assessment is conducted. The selection of supervisors requires approval from the Board of Directors.

## **9. Maintaining consistency in price assessment**

Internal training and thorough reviews by supervisors are conducted to maintain consistency in price assessment.

## **10. Making the Assessment Methodology available**

The Assessment Methodology approved by the Board of Directors is uploaded on our website, whereby external market players involved in trading, players providing market information and our subscribers can access. The Assessment Methodology includes the following:

- Trades considered for price assessment
- Standard quantity
- Assessment window
- Priority for assessment
- Selection of players providing market information
- Method of information gathering
- Reliability and adequacy of market information
- Reasons for using specific units for quantity (barrel, BTU etc.)
- System of review by supervisor
- Trades not considered for price assessment
- Policy of maintaining consistency in price assessment
- Process of regular reviews and amendments to Methodology
- Amendments to price assessments

### **11. Regular reviews of Methodology**

The Methodology is reviewed at least once a year (during the Board of Directors' meeting held in October) or when substantial changes have taken place in the market, and revisions will be considered where necessary. When reviewing the Methodology, we obtain views from external market players and our subscribers. If necessary, we disclose the inquiries we pose to external parties in our reports or website but basically, their replies are not disclosed for confidentiality reasons. If, however, our sources agree, we may disclose their replies.

### **12. Amendments to Methodology**

If amendments to the Methodology is deemed to be necessary, discussions are conducted within each report team and amendments are submitted to the Board of Directors for approval. After the amendments are decided, the effective date of the amendments is clearly stated and changes to the Methodology will be announced on our website in principle one month before, but at least two weeks prior to the effective date.

### **13. Amendments/Changes to price assessment**

Although typing and spelling mistakes may be amended, we do not change our price assessments with information provided after the price assessments are issued.

### **Price Assessment Principle**

Rim price assessments indicate the current range in which a standard spot transaction could take place on the day of publication.

Rim understands values of commodities change even in the absence of deals. Rim defines prices as measures to indicate fluctuating values of commodities.

Rim understands values of commodities are determined by a variety of factors such as supply-demand fundamentals, production costs, conditions in other markets and players' speculation.

Rim understands the latest transactions, bids/offers and buying/selling interest represent current values of commodities.

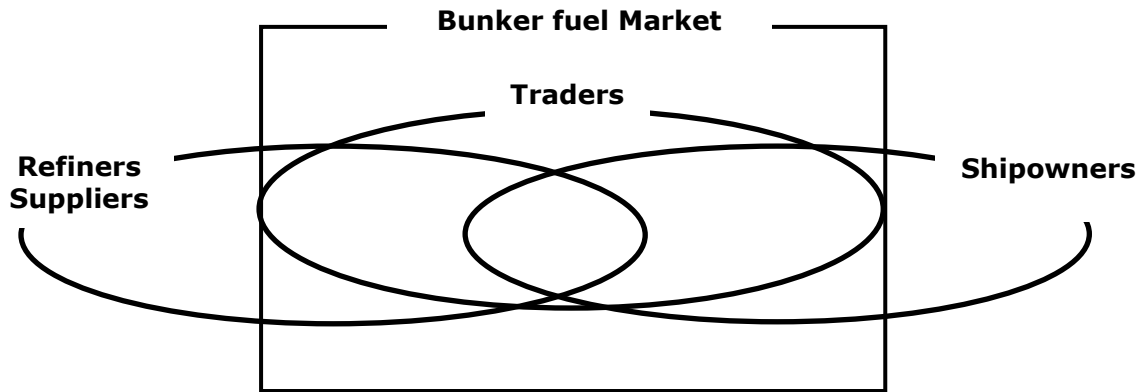
Rim understands values of commodities are determined by competition among sellers and competition among buyers. Rim considers higher bids to be closer to the current values than lower bids. Rim considers lower offers to be the closer to current values than higher offers.

Rim understands prices for each transaction reported from any party are to be translated into prices based on standard terms and conditions such as cargo sizes, timing of delivery or loading, product specifications and payment terms.

**Bunker Fuel Price Assessments**

Rim assesses bunker fuel oil prices for lots traded on a spot basis at main ports in North America, South America, Asia, Africa/ Mideast, and Europe. All prices are assessed based on information collected in the course of market research by Rim reporters each business day. Rim also quotes posted prices for bunker fuel by dominant suppliers in certain ports.

**STRUCTURE of the BUNKER FUEL MARKET**



Rim understands that the bunker fuel oil markets are structured with three groups of business parties: Refiners/Suppliers, Traders, and Shipowners. Rim assesses bunker fuel oil prices at which a standard spot transaction could take place.

Rim defines a standard spot transaction as follows:

Case 1	A refiner or supplier sells a bunker fuel cargo to a trader who is buying on behalf of a shipowner on a spot basis.
Case 2	A refiner or supplier sells a bunker fuel oil cargo directly to a shipowner on a spot basis.
Case 3	A trader sells on behalf of a refiner or supplier to a shipowner on a spot basis.

Rim defines the three business parties as follows:

<b>Refiner/Supplier</b>	A company that produces or imports bunker fuel and sells into the bunker fuel markets.
<b>Trader</b>	A company that sells bunker fuel on behalf of a refiner/supplier and buys bunker fuel on behalf of a shipowner.
<b>Shipowner</b>	A company that buys bunker fuel for consumption by its own ships or ships it operates.

**<NORTH AMERICA>**

**Rim Assesses bunker fuel oil prices for cargoes to be traded in Vancouver BC, Seattle/Tacoma, Portland, Los Angeles, New York, Philadelphia, Norfolk, Houston, and New Orleans.**

**The delivery basis and grades for prices assessed are as follows:**

<b>Port</b>	<b>Basis</b>	<b>Grade</b>			
Vancouver BC	Ex-Wharf	180cst	280cst	380cst	MGO
Seattle/Tacoma	Ex-Wharf	180cst	280cst	380cst	MGO
Portland	Ex-Wharf	180cst	280cst	380cst	MGO
Los Angeles	Ex-Wharf	180cst	280cst	380cst	MGO
New York	Ex-Wharf	180cst	280cst	380cst	MGO
Philadelphia	Ex-Wharf	180cst	280cst	380cst	MGO
Norfolk	Ex-Wharf	180cst	280cst	380cst	MGO
Houston	Ex-Wharf	180cst	280cst	380cst	MGO
New Orleans	Ex-Wharf	180cst	280cst	380cst	MGO

\*Assessments for LS380cst were abolished in January 2015 due to a change in ECA sulfur regulation.

<b>Assessment Window</b>	Rim's assessment window for North America bunker fuel oil prices closes at 12:30 Tokyo time.
<b>Price Unit</b>	All Rim North America bunker fuel oil prices are in \$/mt
<b>Time Window</b>	All Rim North America bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 7 days ahead from the publication day. *Assessment for bunker fuel oil delivery shifts to the following month during the last five days of the current month.
<b>Standard Size</b>	All Rim North America bunker high sulfur fuel oil prices are for a 200-2,000mt lots, that Rim considers standard. Prices for smaller or larger cargoes are to be translated into estimated values that the prices could be if the cargoes were within the standard volumes.
<b>Quality Specifications</b>	All Rim North America bunker fuel oil prices are for cargoes of which quality is equivalent to the ISO standard for each grade (See "Quality Specifications" at the bottom).

**<SOUTH AMERICA>****Rim Assesses bunker fuel oil prices for cargoes to be traded in Panama.**

Port	Basis	Grade			
Panama	Ex-Wharf	180cst	280cst	380cst	MGO

**Rim quotes the posted prices by Petrobras for the following Brazilian ports.**

Port	Basis	Grade			
Rio De Janeiro	Delivered	180cst	280cst	380cst	MGO
Santos	Delivered	180cst	280cst	380cst	MGO

\*Assessments for LS380cst were abolished in January 2015 due to a change in ECA sulfur regulation.

<b>Assessment Window</b>	Rim's assessment window for South America bunker fuel oil prices closes at 12:30 Tokyo time.
<b>Price Unit</b>	All Rim South America bunker fuel oil prices are in \$/mt
<b>Time Window</b>	All Rim South America bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 7 days ahead from the publication day. *Assessment for bunker fuel oil delivery shifts to the following month during the last five days of the current month.
<b>Standard Size</b>	All Rim South America bunker fuel oil prices are for a 200-2,000mt lots, that Rim considers standard. Prices for smaller or larger cargoes are to be translated into estimated values that the prices could be if the cargoes were within the standard volumes.
<b>Quality Specifications</b>	All Rim South America bunker fuel prices are for cargoes of which quality is equivalent to the ISO standard for each grade (See "Quality Specifications" at the bottom).

**<ASIA>**

**Rim Assesses bunker fuel oil prices for cargoes to be traded in Japan, South Korea, Russian Far East, Hong Kong, Singapore, Thailand, China and Sri Lanka.**

<b>Port</b>	<b>Basis</b>	<b>Grade</b>			
Japan, Tokyo Bay	Delivered	180cst	280cst	380cst	MDO
Japan, West Japan	Delivered	180cst	280cst	380cst	MDO
Japan, Ise Bay	Delivered	180cst	280cst	380cst	MDO
South Korea (Southern ports)	Delivered	180cst	280cst	380cst	MGO
Russian Far East (Nakhodka, Vostochny, Vladivostok)	Delivered	180cst	-	380cst	MGO
Hong Kong	Delivered	180cst	280cst	380cst	MGO
Singapore	Delivered	180cst	280cst	380cst	MGO
Thailand	Delivered	180cst	280cst	380cst	MGO
China, Dalian	Delivered	180cst	--	--	MGO
China, Shanghai	Delivered	180cst	--	380cst	MGO
China, Qingdao	Delivered	180cst	--	380cst	MGO
Sri Lanka, Colombo	Delivered	180cst	--	--	MGO

\*Assessments for LS380cst were abolished in January 2015 due to a change in ECA sulfur regulation.

**Rim quotes posted prices of CPC in Taiwan**

<b>Port</b>	<b>Supplier</b>	<b>Basis</b>	<b>Grade</b>			
Taiwan (Kaohsiung)	CPC Corp, Taiwan	Delivered	180cst	--	380cst	MGO

<b>Assessment Window</b>	Rim's assessment window for Asia bunker fuel oil prices closes at 18:30 hours Tokyo time the day before the report is published.
<b>Price Unit</b>	All Rim Asia bunker fuel oil prices are in \$/mt

<b>Time Window</b>	<p>All Rim Asia bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 7 days ahead from the day the report is published.</p> <p>*Singapore bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 10 days ahead.</p> <p>*Assessment for bunker fuel oil delivery shifts to the following month during the last five days of the current month.</p>
<b>Standard Size</b>	<p>All Rim Asia bunker fuel oil prices are for volumes in the range of 300-2,000mt, that Rim considers standard. Prices for smaller or larger cargoes are to be translated into estimated values that the prices could be if the cargoes were within the standard volumes.</p>
<b>Quality Specifications</b>	<p>All Rim Asia bunker fuel prices are for cargoes of which quality is equivalent to the ISO standard for each grade (See "Quality Specifications" at the bottom).</p>



**<AFRICA/MIDEAST>**

**Rim Assesses bunker fuel oil prices for cargoes to be traded in Suez, Kuwait, Fujairah, Dammam/Ras Tanura and Jeddah/Yanbu.**

**The delivery basis and grades for prices assessed are as follows:**

<b>Port</b>	<b>Basis</b>	<b>Grade</b>			
Suez	Delivered	180cst	--	380cst	MGO
Kuwait	Delivered	180cst	--	380cst	MGO
Fujairah	Delivered	180cst	--	380cst	MGO

<b>Assessment Window</b>	Rim's assessment window for Africa/Mideast bunker fuel oil prices closes at 12:30 Tokyo time.
<b>Price Unit</b>	All Rim Africa/Mideast bunker fuel oil prices are in \$/mt
<b>Time Window</b>	All Rim Africa/Mideast bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 10 days ahead from the publication day. *Assessment for bunker fuel oil delivery shifts to the following month during the last five days of the current month.
<b>Standard Size</b>	All Rim Africa/Mideast bunker fuel oil prices are for a 500-2,000mt portion lots, that Rim considers standard. Prices for smaller or larger cargoes are to be translated into estimated values that the prices could be if the cargoes were within the standard volumes.
<b>Quality Specifications</b>	All Rim Africa/Mideast bunker fuel prices are for cargoes of which quality is equivalent to the ISO standard for each grade (See "Quality Specifications" at the bottom).

**Rim quotes posted prices of Saudi Aramco for the ports below**

<b>Port</b>	<b>Basis</b>	<b>Grade</b>			
Dammam/ Ras Tanura	Delivered	180cst	--	--	MGO
Jeddah/Yanbu	Delivered	180cst	--	--	MGO

**<EUROPE>**

**Rim Assesses bunker fuel oil prices for cargoes to be traded in Rotterdam, Antwerp, and Hamburg.**

**The delivery basis and grades for prices assessed are as follows:**

<b>Port</b>	<b>Basis</b>	<b>Grade</b>			
Rotterdam	Delivered	180cst	280cst	380cst	MGO
Antwerp	Delivered	180cst	280cst	380cst	MGO
Hamburg	Delivered	180cst	280cst	380cst	MGO

\*Assessments for LS380cst were abolished in January 2015 due to a change in ECA sulfur regulation.

<b>Assessment Window</b>	Rim's assessment window for the Europe bunker fuel oil prices closes at 12:30 Tokyo time.
<b>Price Unit</b>	All Rim Europe bunker fuel oil prices are in \$/mt
<b>Time Window</b>	All Rim Europe bunker fuel oil prices are for lots to be delivered to ships during the period from 3 to 10 days ahead from the publication day. *Assessment for bunker fuel oil delivery shifts to the following month during the last five days of the current month.
<b>Standard Size</b>	All Rim Europe bunker fuel oil prices are for a 200-2,000mt portion lots, that Rim considers standard. Prices for smaller or larger cargoes are to be translated into estimated values that the prices could be if the cargoes were within the standard volumes.
<b>Quality Specifications</b>	All Rim Europe bunker fuel prices are for cargoes of which quality is equivalent to the ISO standard for each grade (See "Quality Specifications" at the bottom).

**[QUALITY SPECIFICATIONS]**

All bunker fuel prices in Rim Bunker Reports are for cargoes of which quality is equivalent to the following ISO standard.

**380cst : RMG380**

<b>Density at 15 degree Celsius</b>	Maximum 991.0kg/m <sup>3</sup>
<b>Kinematic Viscosity</b>	Maximum 380
<b>Flash Point</b>	Minimum 60 degree Celsius
<b>Upper Pour Point</b>	Maximum 30 to the twenty first power degree Celsius
<b>Carbon Residue Content</b>	Maximum 18%
<b>Ash Content</b>	Maximum 0.15%
<b>Water Content</b>	Maximum 0.5%
<b>Sulfur Content</b>	Maximum 3.5%
<b>Vanadium Content</b>	Maximum 300mg/kg
<b>Aluminum plus Silicon Content</b>	Maximum 80mg/kg
<b>Total Sediment Content</b>	Maximum 0.1%

**180cst : RME180**

<b>Density at 15 degree Celsius</b>	Maximum 991.0kg/m <sup>3</sup>
<b>Kinematic Viscosity</b>	Maximum 180
<b>Flash Point</b>	Minimum 60 degree Celsius
<b>Upper Pour Point</b>	Maximum 30 to the twenty first power degree Celsius
<b>Carbon Residue Content</b>	Maximum 15%
<b>Ash Content</b>	Maximum 0.10%
<b>Water Content</b>	Maximum 0.5%
<b>Sulfur Content</b>	Maximum 3.5%
<b>Vanadium Content</b>	Maximum 200mg/kg
<b>Aluminum plus Silicon Content</b>	Maximum 80mg/kg
<b>Total Sediment Content</b>	Maximum 0.1%

**280cst Quality in between 180cst and 380cst.**

**MDO: ISO specification**

<b>Kinematic Viscosity at 100 degree Celsius</b>	Maximum 10.0mm <sup>2</sup> /s
<b>Flash Point</b>	Minimum 60 degree Celsius
<b>Upper Pour Point</b>	Maximum 24 to the thirty first power degree Celsius
<b>Carbon Residue Content</b>	Maximum 10%
<b>Ash Content</b>	Maximum 0.01%
<b>Water Content</b>	Maximum 0.3%
<b>Sulfur Content</b>	Maximum 2.0%

**MGO: ISO specification**

<b>Kinematic Viscosity at 100 degree Celsius</b>	Maximum 10.0mm <sup>2</sup> /s
<b>Flash Point</b>	Minimum 60 degree Celsius
<b>Upper Pour Point</b>	For the Winter spec, Maximum 0 degree Celsius For the Summer spec, Maximum 6 to the thirty first power degree Celsius
<b>Carbon Residue Content</b>	Maximum 10%
<b>Ash Content</b>	Maximum 0.01%
<b>Water Content</b>	Maximum 0.3%
<b>Sulfur Content</b>	Maximum 1.5%