

SUBMISSION COVER SHEET

IMPORTANT: Check box if Confidential Treatment is requested

Registered Entity Identifier Code (optional): 19-010 (6 of 8)

Organization: New York Mercantile Exchange, Inc. ("NYMEX")

Filing as a: DCM SEF DCO SDR

Please note - only ONE choice allowed.

Filing Date (mm/dd/yy): 02/22/2019 **Filing Description:** Initial Listing of Eight (8) Marine Fuel 0.5% (Platts) BALMO Futures Contracts

SPECIFY FILING TYPE

Please note only ONE choice allowed per Submission.

Organization Rules and Rule Amendments

- Certification § 40.6(a)
- Approval § 40.5(a)
- Notification § 40.6(d)
- Advance Notice of SIDCO Rule Change § 40.10(a)
- SIDCO Emergency Rule Change § 40.10(h)

Rule Numbers:

New Product

Please note only ONE product per Submission.

- Certification § 40.2(a)
- Certification Security Futures § 41.23(a)
- Certification Swap Class § 40.2(d)
- Approval § 40.3(a)
- Approval Security Futures § 41.23(b)
- Novel Derivative Product Notification § 40.12(a)
- Swap Submission § 39.5

Product Terms and Conditions (product related Rules and Rule Amendments)

- Certification § 40.6(a)
- Certification Made Available to Trade Determination § 40.6(a)
- Certification Security Futures § 41.24(a)
- Delisting (No Open Interest) § 40.6(a)
- Approval § 40.5(a)
- Approval Made Available to Trade Determination § 40.5(a)
- Approval Security Futures § 41.24(c)
- Approval Amendments to enumerated agricultural products § 40.4(a), § 40.5(a)
- "Non-Material Agricultural Rule Change" § 40.4(b)(5)
- Notification § 40.6(d)

Official Name(s) of Product(s) Affected:

Rule Numbers:

February 22, 2019

VIA ELECTRONIC PORTAL

Mr. Christopher J. Kirkpatrick
Office of the Secretariat
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, N.W.
Washington, D.C. 20581

Re: CFTC Regulation 40.2(a) Certification. Notification Regarding the Initial Listing of Eight (8) Marine Fuel 0.5% (Platts) BALMO Futures Contracts. NYMEX Submission No. 19-010 (6 of 8)

Dear Mr. Kirkpatrick:

New York Mercantile Exchange, Inc. (“NYMEX” or “Exchange”) is notifying the Commodity Futures Trading Commission (“CFTC” or “Commission”) that it is self-certifying the initial listing of eight (8) Marine Fuel 0.5% (Platts) BALMO Futures contracts (the “Contracts”) for trading on the CME Globex electronic trading platform and for submission for clearing via CME ClearPort effective on Sunday, March 10, 2019 for trade date Monday, March 11, 2019, as described below.

Contract Title	USGC Marine Fuel 0.5% Barges (Platts) BALMO Futures
NYMEX Rulebook Chapter	1403
Commodity Code	H5B
Settlement Type	Financial
Contract Size	1,000 barrels
Pricing Quotation	U.S. dollars and cents per barrel
Minimum Price Fluctuation	\$0.01 per barrel
Value per tick	\$10.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	10 contracts

Contract Title	European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures
NYMEX Rulebook Chapter	1404
Commodity Code	R5B
Settlement Type	Financial
Contract Size	1,000 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$1.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month

Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	5 contracts

Contract Title	Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures
NYMEX Rulebook Chapter	1405
Commodity Code	S5B
Settlement Type	Financial
Contract Size	1,000 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$1.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	5 contracts

Contract Title	Mini European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures
NYMEX Rulebook Chapter	1409
Commodity Code	RBM
Settlement Type	Financial
Contract Size	100 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$0.10
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	5 contracts

Contract Title	Mini Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures
NYMEX Rulebook Chapter	1410
Commodity Code	SBM
Settlement Type	Financial
Contract Size	100 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$0.10
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)

Block Trade Minimum Threshold	5 contracts
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Contract Title	Singapore FOB Marine Fuel 0.5% (Platts) vs. European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures
NYMEX Rulebook Chapter	1420
Commodity Code	SRB
Settlement Type	Financial
Contract Size	1,000 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$1.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	5 contracts

Contract Title	USGC Marine Fuel 0.5% Barges (Platts) vs. Gulf Coast HSFO (Platts) BALMO Futures
NYMEX Rulebook Chapter	1434
Commodity Code	HGB
Settlement Type	Financial
Contract Size	1,000 barrels
Pricing Quotation	U.S. dollars and cents per barrel
Minimum Price Fluctuation	\$0.01 per barrel
Value per tick	\$10.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	10 contracts

Contract Title	European FOB Rdam Marine Fuel 0.5% (Platts) vs. European 3.5% FOB Barges (Platts) BALMO Futures
NYMEX Rulebook Chapter	1435
Commodity Code	R5E
Settlement Type	Financial
Contract Size	1,000 metric tons
Pricing Quotation	U.S. dollars and cents per metric ton
Minimum Price Fluctuation	\$0.001 per metric ton
Value per tick	\$1.00
First Listed Contract	April 2019
Termination of Trading	Last business day of the contract month
Listing Schedule	Monthly BALMO contracts listed for 3 consecutive months. BALMO contracts which would have a start date within the final 5 business days of a contract month are not listed.
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Block Trade Minimum Threshold	5 contracts

Exchange Fees

Contracts trading in units of 1,000 metric tons – **R5B, S5B, R5E, SRB**

	Member	Non-Member	International Incentive Programs (IIP/IVIP)
CME Globex	\$7.00	\$9.00	\$8.00
EFP	\$7.00	\$9.00	
Block	\$7.00	\$9.00	
EFR/EOO	\$7.00	\$9.00	

Processing Fees	Member	Non-Member
Cash Settlement	\$1.00	\$1.00
Other Processing Fees		
Facilitation Fee		\$0.60
Give-Up Surcharge		\$0.05
Position Adjustment/Position Transfer		\$0.10

Contracts trading in units of 100 metric tons – **RBM, SBM**

	Member	Non-Member	International Incentive Programs (IIP/IVIP)
CME Globex	\$0.80	\$1.00	\$0.90
EFP	\$0.80	\$1.00	
Block	\$0.80	\$1.00	
EFR/EOO	\$0.80	\$1.00	

Processing Fees	Member	Non-Member
Cash Settlement	\$0.10	\$0.10
Other Processing Fees		
Facilitation Fee		\$0.60
Give-Up Surcharge		\$0.05
Position Adjustment/Position Transfer		\$0.10

Contracts trading in units of 1,000 U.S barrels – **H5B, HGB**

	Member	Non-Member	International Incentive Programs (IIP/IVIP)
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CME Globex	\$0.85	\$1.35	\$1.10
EFP	\$0.85	\$1.35	
Block	\$0.85	\$1.35	
EFR/EOO	\$0.85	\$1.35	

Processing Fees	Member	Non-Member
Cash Settlement	\$0.10	\$0.10
Other Processing Fees		Member/Non-Member Fee
Facilitation Fee		\$0.60
Give-Up Surcharge		\$0.05
Position Adjustment/Position Transfer		\$0.10

Trading and Clearing Hours

CME Globex and CME ClearPort	Sunday - Friday 6:00 p.m. - 5:00 p.m. Eastern Time/ET (5:00 p.m. - 4:00 p.m. Central Time/CT) with a 60-minute break each day beginning at 5:00 p.m. ET (4:00 p.m. CT)
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NYMEX is self-certifying block trading on the Contracts with a minimum block threshold of five (5) contracts for the European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures, Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures, Mini European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures, Mini Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures, Singapore FOB Marine Fuel 0.5% (Platts) vs. European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures, and the European FOB Rdam Marine Fuel 0.5% (Platts) vs. European 3.5% FOB Barges (Platts) BALMO Futures contracts.

NYMEX is self-certifying block trading on the Contracts with a minimum block threshold of ten (10) contracts for the USGC Marine Fuel 0.5% Barges (Platts) BALMO Futures and USGC Marine Fuel 0.5% Barges (Platts) vs. Gulf Coast HSFO (Platts) BALMO Futures contracts.

These minimum block threshold levels of five (5) and ten (10) contracts are aligned with the Exchange's existing petroleum futures and options contracts.

The Exchange reviewed the designated contract market core principles ("Core Principles") as set forth in the Commodity Exchange Act ("CEA" or "Act") and identified that the Contract may have some bearing on the following Core Principles:

- **Compliance with Rules:** Trading in the Contracts will be subject to the rules in Rulebook Chapter 4 which include prohibitions against fraudulent, noncompetitive, unfair and abusive practices. Additionally, trading in this Contracts will also be subject to the full panoply of trade practice rules, the majority of which are contained in Chapter 5 and Chapter 8 of the Rulebook. As with all products listed for trading on one of CME Group's designated contract markets, activity in the Contracts will be subject to extensive monitoring and surveillance by CME Group's Market Regulation Department. The Market Regulation Department has the authority to exercise its investigatory and enforcement power where potential rule violations are identified.
- **Contract Not Readily Subject to Manipulation:** The Contracts are not readily subject to manipulation because of its structural attributes, underlying market and reliance on a well

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administered index. Final settlements are based on an index published by S&P Global Platts and licensed to the Exchange.

- **Prevention of Market Disruption:** Trading in the Contracts will be subject to the Rules of NYMEX, which include prohibitions on manipulation, price distortion, and disruption to the cash settlement process. As with any new product listed for trading on a CME Group designated contract market, trading activity in the Contracts proposed herein will be subject to monitoring and surveillance by CME Group's Market Regulation Department.
- **Position Limitations or Accountability:** The speculative position limits for the Contracts as demonstrated in this submission are consistent with the Commission's guidance.
- **Availability of General Information:** The Exchange will publish on its website information regarding the Contract's specifications, terms, and conditions, as well as daily trading volume, open interest, and price information.
- **Daily Publication of Trading Information:** The Exchange will publish the Contract's trading volumes, open interest levels, and price information daily on its website and through quote vendors for the Contracts.
- **Execution of Transactions:** The Contracts will be listed for trading on the CME Globex electronic trading and for clearing through CME ClearPort. The CME Globex trading venue provides for competitive and open execution of transactions. CME Globex affords the benefits of reliability and global connectivity.
- **Trade Information:** All requisite trade information for the Contracts will be included in the audit trail and is sufficient for the Market Regulation Department to monitor for market abuse.
- **Financial Integrity of Contracts:** The Contracts will be cleared by the CME Clearing House, a derivatives clearing organization registered with the CFTC and subject to all CFTC regulations related thereto.
- **Protection of Market Participants:** NYMEX Rulebook Chapters 4 and 5 set forth multiple prohibitions that preclude intermediaries from disadvantaging their customers. These rules apply to trading in all of the Exchange's competitive trading venues.
- **Disciplinary Procedures:** Chapter 4 of the Rulebook contains provisions that allow the Exchange to discipline, suspend or expel members or market participants that violate the Rulebook. Trading in the Contracts will be subject to Chapter 4, and the Market Regulation Department has the authority to exercise its enforcement power in the event rule violations in these products are identified.
- **Dispute Resolution:** Disputes with respect to trading in the Contracts will be subject to the arbitration provisions set forth in Chapter 6 of the Rulebook. Chapter 6 allows all nonmembers to submit a claim for financial losses resulting from transactions on the Exchange to arbitration. A member named as a respondent in a claim submitted by a nonmember is required to participate in the arbitration pursuant to Chapter 6. Additionally, the Exchange requires that members resolve all disputes concerning transactions on the Exchange via arbitration.

Pursuant to Section 5c(c) of the Act and CFTC Regulation 40.2(a), the Exchange hereby certifies that listing the Contracts complies with the Act, including regulations under the Act. There were no substantive opposing views to listing of the Contracts.

The Exchange certifies that this submission has been concurrently posted on the Exchange's website at <http://www.cmegroup.com/market-regulation/rule-filings.html>.

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Should you have any questions concerning the above, please contact the undersigned at (212) 299-2200 or via e-mail at CMEGSubmissionInquiry@cmegroup.com.

Sincerely,

/s/ Christopher Bowen
Managing Director and Chief Regulatory Counsel

Attachments: Exhibit A: NYMEX Rulebook Chapters
Exhibit B: Position Limit, Position Accountability, and Reportable Level Table in
Chapter 5 of the NYMEX Rulebook (attached under separate cover)
Exhibit C: NYMEX Rule 588.H. – (“Globex Non-Reviewable Trading Ranges”) Table
Exhibit D: Cash Market Overview and Analysis of Deliverable Supply

Exhibit A

NYMEX Rulebook

Chapter 1403

USGC Marine Fuel 0.5% Barges (Platts) BALMO Futures

1403101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1403102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts Oilgram Price Report under the heading "Marine Fuel" for "0.5% FOB US Gulf Coast barge" starting from the selected start date through the end of the contract month, inclusive.

1403103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1403103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1403103B. Trading Unit

The contract quantity shall be 1,000 barrels. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1403103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per barrel. The minimum price fluctuation shall be \$0.01 per barrel. There shall be no maximum price fluctuation.

1403103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1403103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1403104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1403105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1404

European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures

1404101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1404102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts European Marketscan under the heading "Marine Fuel" for "0.5% FOB Rotterdam barge" starting from the selected start date through the end of the contract month, inclusive.

1404103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1404103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1404103B. Trading Unit

The contract quantity shall be 1,000 metric tons. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1404103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1404103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1404103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1404104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1404105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1405

Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures

1405101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1405102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts Asia-Pacific Marketscan under the heading "Marine Fuel" for "0.5% FOB Singapore cargo" starting from the selected start date through the end of the contract month, inclusive.

1405103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1405103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1405103B. Trading Unit

The contract quantity shall be 1,000 metric tons. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1405103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1405103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1405103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1405104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1405105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1409

Mini European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures

1409101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1409102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts European Marketscan under the heading "Marine Fuel" for "0.5% FOB Rotterdam barge" starting from the selected start date through the end of the contract month, inclusive.

1409103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1409103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1409103B. Trading Unit

The contract quantity shall be 100 metric tons. Each contract shall be valued as the contract quantity (100) multiplied by the settlement price.

1409103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1409103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1409103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1409104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1409105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1410

Mini Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures

1410101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1410102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts Asia-Pacific Marketscan under the heading "Marine Fuel" for "0.5% FOB Singapore cargo" starting from the selected start date through the end of the contract month, inclusive.

1410103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1409103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1409103B. Trading Unit

The contract quantity shall be 100 metric tons. Each contract shall be valued as the contract quantity (100) multiplied by the settlement price.

1409103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1409103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1409103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1410104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1410105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1420
Singapore FOB Marine Fuel 0.5% (Platts) vs. European FOB Rdam Marine Fuel
0.5% Barges (Platts) BALMO Futures

1420101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1420102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts Asia-Pacific Marketscan under the heading "Marine Fuel" for "0.5% FOB Singapore cargo" minus the balance of month arithmetic average of the high and low quotations from the Platts European Marketscan under the heading "Marine Fuel" for "0.5% FOB Rotterdam barge" from the selected start date through the end of the contract month, inclusive.

The Floating Price is calculated using the non-common pricing convention. In calculating the spread differential, the balance of month average for each component leg of the spread shall be calculated by using all days on which the prices are published in the month (from the selected start date through the end of the contract month, inclusive) for each component leg of the spread, followed by the calculation of the spread differential between the two averages.

1420103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1420103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1420103B. Trading Unit

The contract quantity shall be 1,000 metric tons. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1420103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1420103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1420103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1420104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1420105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1434
USGC Marine Fuel 0.5% Barges (Platts) vs. Gulf Coast HSFO (Platts) BALMO
Futures

1434101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1434102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the balance of month arithmetic average of the high and low quotations from the Platts Oilgram Price Report under the heading "Marine Fuel" for "0.5% FOB Gulf Coast barge" minus the balance of month arithmetic average of the high and low quotations from the Platts Oilgram Price Report under the heading "USGC HSFO" for "U.S. Gulf Coast" starting from the selected start date through the end of the contract month, inclusive.

1434103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1434103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1434103B. Trading Unit

The contract quantity shall be 1,000 barrels. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1434103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per barrel. The minimum price fluctuation shall be \$0.01 per barrel. There shall be no maximum price fluctuation.

1434103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1434103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1434104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1434105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Chapter 1435

European FOB Rdam Marine Fuel 0.5% (Platts) vs. European 3.5% FOB Barges (Platts) BALMO Futures

1435101. SCOPE OF CHAPTER

The provisions of these rules shall apply to all futures contracts bought or sold on the Exchange for cash settlement based on the Floating Price. The procedures for trading, clearing and cash settlement of this contract, and any other matters not specifically covered herein shall be governed by the general rules of the Exchange.

1435102. CONTRACT SPECIFICATIONS

The Floating Price for each contract month is equal to the arithmetic average of the high and low quotations from the Platts European Marketscan under the heading "Marine Fuel" for "0.5% FOB Rotterdam barge" minus the balance of month arithmetic average of the high and low quotations from the Platts European Marketscan under the heading "3.5% Fuel Oil" for "Barges FOB Rotterdam" starting from the selected start date through the end of the contract month, inclusive.

The Floating Price is calculated using the non-common pricing convention. In calculating the spread differential, the balance of month average for each component leg of the spread shall be calculated by using all days on which the prices are published in the month (from the selected start date through the end of the contract month, inclusive) for each component leg of the spread, followed by the calculation of the spread differential between the two averages.

1435103. TRADING SPECIFICATIONS

The number of months open for trading at a given time shall be determined by the Exchange.

1435103A. Trading Schedule

The hours of trading for this contract shall be determined by the Exchange.

1435103B. Trading Unit

The contract quantity shall be 1000 metric tons. Each contract shall be valued as the contract quantity (1,000) multiplied by the settlement price.

1435103C. Price Increments

Prices shall be quoted in U.S. dollars and cents per metric ton. The minimum price fluctuation shall be \$0.001 per metric ton. There shall be no maximum price fluctuation.

1435103D. Position Limits, Exemptions, Position Accountability and Reportable Levels

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5. A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion. Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

1435103E. Termination of Trading

Trading shall cease on the last business day of the contract month

1435104. FINAL SETTLEMENT

Delivery under the contract shall be by cash settlement. Final settlement, following termination of trading for a contract month, will be based on the Floating Price. The final settlement price will be the Floating Price calculated for each contract month.

1435105. DISCLAIMER

See [NYMEX/COMEX Chapter iv. \("DISCLAIMERS"\)](#) incorporated herein by reference.

Exhibit B

**NYMEX Rulebook
Chapter 5
("Trading Practices and Qualifications")**

Position Limit, Position Accountability, and Reportable Level Table

(Attached under separate cover)

Exhibit C

NYMEX Rulebook Chapter 5 ("Trading Practices and Qualifications") Rule 588.H. ("Globex Non-Reviewable Ranges") Table (Additions are underscored.)

Outright					Spreads	
Instrument Name	Globex Symbol	Globex Non-Reviewable Ranges (NRR)	NRR: Globex Format	NRR: Ticks	NRR: Globex Format	NRR: Minimum Outright Ticks
<u>USGC Marine Fuel 0.5% Barges (Platts) BALMO Futures</u>	<u>H5B</u>	<u>\$1.00 per barrel</u>	<u>100</u>	<u>100</u>	<u>N/A</u>	<u>N/A</u>
<u>European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures</u>	<u>R5B</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>2000</u>	<u>N/A</u>	<u>N/A</u>
<u>Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures</u>	<u>S5B</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>2000</u>	<u>N/A</u>	<u>N/A</u>
<u>Mini European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures</u>	<u>RBM</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>2000</u>	<u>N/A</u>	<u>N/A</u>
<u>Mini Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures</u>	<u>SBM</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>2000</u>	<u>N/A</u>	<u>N/A</u>
<u>Singapore FOB Marine Fuel 0.5% (Platts) vs. European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures</u>	<u>SRB</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>2000</u>	<u>N/A</u>	<u>N/A</u>
<u>USGC Marine Fuel 0.5% Barges (Platts) vs. Gulf Coast HSFO (Platts) BALMO Futures</u>	<u>HGB</u>	<u>\$1.00 per barrel</u>	<u>100</u>	<u>100</u>	<u>N/A</u>	<u>N/A</u>
<u>European FOB Rdam Marine Fuel 0.5% (Platts) vs. European 3.5% FOB Barges (Platts) BALMO Futures</u>	<u>R5E</u>	<u>\$2.00 per metric ton</u>	<u>2000</u>	<u>100</u>	<u>N/A</u>	<u>N/A</u>

Exhibit D

Cash Market Overview and Analysis of Deliverable Supply

The Exchange is planning on extending the suite of Marine fuel futures contracts and will be listing a series of BALMO futures to complement the existing Marine fuel 0.5% futures contracts on NYMEX.

The specification for Marine fuel is changing to 0.5% sulphur from the current level of 3.5% and is being mandated by the International Maritime Organisation (IMO) from January 1st, 2020. Platts announced in the summer of 2018 that they intended to launch a series of new assessments for 0.5% Marine Fuel for the Ports of Houston, Singapore and Rotterdam from January 2019. Shipping companies and trading firms are expected to begin trading financial hedges in 0.5% marine fuel for 2020 and beyond once the futures contracts are launched.

IMO 2020

The global shipping market is set to undergo significant change over the next 12 months following the 2016 ruling by the International Maritime Organisation (IMO)¹ to reduce the sulphur content in Marine Fuels from 3.5% to 0.5%. The change is expected to have a significant pricing impact on both the shipping markets and the refiners. Shipping companies face the prospect of having to comply with the 0.5% sulphur limits for bunker fuel unless they have installed scrubbers which clean the emissions. This means some shipping firms may opt to continue to bunker with 3.5% fuel oil. Other fuels such as LNG and Methanol may also be used.

At the key ports of Rotterdam, Houston and Singapore, the blenders and refiners are currently finalising plans to make sufficient fuels available. Each of these locations are significant blending centres with sufficient storage therefore the Exchange believes that sufficient quantities of compliant bunker fuel will be made available. The refiners are currently testing batches of IMO compliant fuel at the major ports and are marketing this is Very Low Sulphur Fuel Oil (VLSFO) and working to ensure compatibility between each location such that a shipping firm could bunker in any location and not face issues over fuel quality.

Data Sources:

The Exchange determined to use data collected by the **U.S. Department of Energy (“DOE”) Energy Information Administration (“EIA”)** for its analysis and evaluation of deliverable supply estimates for residual fuel oil in the Gulf Coast. The EIA provides detailed data on the key components of deliverable supply. The EIA provides such data on a weekly, monthly, and annual basis.

Data provided by **Eurostat**² was used in this analysis to review the production and import volumes for fuel oil and gasoil/diesel in the Netherlands and the broader ARA region. Eurostat is compiled by the statistical office of the European Union and aims to provide the EU with accurate statistics that enable comparisons between countries and regions. The statistical authorities in each individual member state are responsible for collecting the data. After verification and analysis, the individual authorities send the data to Eurostat who consolidate such data. In addition, Eurostat ensures that all parties are employing the same methodology in collecting and reporting data. The Exchange determined to use Eurostat data for fuel oil with less than 1% as this is the most prevalent quality of fuel oil and is expected to be a significant blendstock to achieve the IMO 2020 0.5% bunker fuel.

The **Singapore Energy Market Authority (EMA)**³ data is compiled by the Singapore Government and covers statistics on Production, Consumption, Stocks, Imports and Exports within the Energy sector in Singapore. This data is constantly being updated and is a reliable source for those looking to get the most

¹ IMO <http://www.imo.org/en/MediaCentre/HotTopics/Pages/Sulphur-2020.aspx>

² <http://ec.europa.eu/eurostat>

³ <http://www.ema.gov.sg/index.aspx>

complete and accurate data from this vibrant energy trading hub. We have referred to the EMA data in the second part of our analysis highlighting the Singapore Fuel Oil Market as it is the best and most reliable data source for this country's activity. In Singapore, the EMA does not break down the fuel oil data by quality like in the US and therefore it is not possible to provide the specific level of detail on deliverable supply for this location. However, as the production volume data becomes clearer, the Exchange would make any necessary adjustments to the spot month position limits if required.

The final settlement prices for each of the proposed new contracts are based on the price assessment of the respective underlying physical markets as assessed and published by Platts⁴, a division of **S&P Global ("Platts")**. Platts is a leading global provider of energy, freight, petrochemicals, metals and agriculture information, and a premier source of benchmark price assessments for those commodity markets. Since 1909, Platts has provided information and insights that help customers make sound trading and business decisions and enable the markets to perform with greater transparency and efficiency. The bunker market assessments for Europe and Singapore reflect the transactional value prevailing at 16:30 hours local time but the US Market assessments reflect the transactional value prevailing at 14:30 EST; and align with the closing Futures Settlement Prices as made public by NYMEX. The information is published in real time as it is received on Platts information services and Platts Global Alert; and is published daily in European Marketscan, the Asia Pacific/Arab Gulf Marketscan and the US Marketscan. The European Fuel oil assessments reflect the same timings as the proposed Marine Fuel assessments.

⁴ S&P Global Platts - <https://www.spglobal.com/platts/en>

Market Overview

Bunker fuel is the industry term for defining the fuel that ships burn. Typically, the fuel is a low-grade heavy oil used to power a ship. There are two basic types of **marine fuels** - distillate and residual. A third type is a mixture of these two, commonly called "intermediate". Distillate fuel is composed of petroleum fractions of crude oil that are separated in a refinery by a boiling or "distillation" process. High Sulphur Fuel Oil is the main bunker fuel for Europe and Singapore and based on the port sales volumes accounts for about 84% of the bunker fuels sold⁵ There are hundreds of bunkering ports around the world and thousands of firms that provide the actual bunkering service⁶.

There is a growing sector for Marine distillate fuels but this remains small when compared to the residual fuel sector. In the maritime sector, residual fuels tend to also be standardized by their maximum viscosity. For instance, IFO 380 is an intermediate fuel oil with a maximum viscosity of 380 centistokes (cst) and up to 3.5% Sulfur. These fuel oils are blended with blending components or cutter stocks to achieve internationally-accepted product specifications provided by the international standard, ISO 8217, that defines the requirements for fuel grades for use in marine diesel engines. Accordingly, marine fuel grades carry three letters: the first "D" or "R" specifies "distillate fuel" vs. "residual fuel." The second "M" signifies "marine fuel" use. The third letter designates the individual grade. Residual marine (RM) fuels have 15 grades depicted by letters A through H, K, and L. For example, RMG 380 stands for "residual marine fuel G at a maximum viscosity (at 100° C) of 380CST⁷ For the purposes of this analysis, the term HSFO will be used to refer to RFO, HFO, IFO 380CST and RMG 380CST (all with a maximum sulfur content of 3.5%), which are used interchangeably in the industry.

The low sulphur fuel oil markets are primarily the domain of the power generation sector however, over the last few years, most of the countries in the Mediterranean and Northwest Europe have switched away from fuel oil for generation leaving Cyprus and parts of Greece as the main buyers (or volumes get shipped outside of Europe). High sulphur fuel oil is also sold into parts of the Middle East for direct burning into power generation. In the United States there are six grades of fuel oil, numbered 1 through 6. The lower the number, the lighter the fuel is, with a lower boiling point, viscosity and energy content per gallon. No. 1 through No. 4 fuel oil grades are considered to be distillate fuels, while No. 5 and No. 6 fuel oils, also referred to as heavy fuel oil ("HFO") and residual fuel oil ("RFO"), are the heavier oil that remains after the distillate fuel oils are distilled away in refineries. The largest market for the heavy, No. 6 RFO is bunker fuel, where the material fuels large, sea-going vessels. This market sees upwards of a 250 million metric ton demand a year, globally⁸. RFO is also used for the production of electric power ("utility-grade RFO"), space heating and various industrial purposes. Since No. 6 RFO is the most common form of vessel fuel, the term "bunker fuel" or "bunker-grade RFO" is often used as a synonym for the No. 6 RFO. Between 6 and 15 major suppliers operate in the Houston Port area, though major suppliers like Shell Marine Products, Valero Marketing and Supply Co., Chemoil Corp., BP Marine Fuels, and Bominflot Atlantic LLC dominate⁹. In addition, several smaller suppliers have storage terminals in or near the port area and operate barge delivery services.

The distillate fuels like Marine Gasoil are much smaller, representing about 15% of the total volume and include Marine Gasoil and Marine Diesel, the largest of these is Marine Gasoil. More recently, bunker suppliers have sold low sulphur varieties of the Fuel oil-based bunker fuels and the equivalent distillate based bunker fuels. Refiners are working with their customers to test new Very Low Sulphur Bunker fuels

⁵ <https://www.iea.org/publications/freepublications/publication/TrackingCleanEnergyProgress2017.pdf>

⁶ <http://www.epa.gov/nonroad/marine/ci/420r08021.pdf>

⁷ <http://www3.epa.gov/nonroad/marine/ci/420r08021.pdf>

⁸ <http://www.platts.com/price-assessments/oil/fuel-oil>

⁹ <http://www3.epa.gov/nonroad/marine/ci/420r08021.pdf>

which will be compliant with the new 0.5% sulphur spec. This is being done to ensure compatibility between the different suppliers therefore ensuring that ships can bunker at any port without any operational difficulties (as all the major specs are compatible).

The Bunker fuel market represents a price in USD and cents per metric ton for Europe and Singapore and a price in USD and cents per barrel in the US. The standard industry conversion for the residual portion is 6.35 barrels per metric ton.

Northwest European Fuel Oil supply

The Northwest European fuel oil market is centred around Belgium, France, Germany and the Netherlands. There is a significant refining centre in ARA where there is close to 1.3 million barrels per day of refining capacity in the Netherlands, according to the Statistics website Statista¹⁰. The key Dutch refineries are also located close to the River Rhine where barges can be delivered into mainland Europe through the significant demand centres of the Benelux and Germany. A reduction of 50% has been made to the total volume for France to reflect only northwest Europe with the remaining 50% as the Mediterranean.

Fuel oil with a sulphur content of less than 1% is expected to be a significant blendstock into the 0.5% marine fuel market however there is insufficient data at this stage to show what proportion of the supply this is likely to be. Therefore, the Exchange has adopted a conservative approach and applied a haircut of 20% to the Northwest Europe Imports and Refinery Production volumes. Germany does not report volumes by fuel quality and reports data only within the total fuel oil category. Therefore, the Exchange has added the total German Refinery Production and Imports to the NWE Imports and Refinery Production however a haircut of 50% has been applied to the German figures. In the Net Total DS for NEW we have shown the deliverable supply for Northwest Europe as 1.244 million tons per month or 1,244 monthly futures contract equivalents. A full month by month breakdown is shown in Appendix A.

A summary table below shows the deliverable supply for Northwest Europe

	NWE Imports (ex Germany)*	NWE Refinery Production (ex Germany)*	German Refinery Production**	German Imports**	Net Total DS for NWE
May-15 to April 16	535	404	646	190	1,168
May-16 to April 17	555	590	593	195	1,311
May-17 to April 18	524	524	644	188	1,255
3-year average	538	506	627	191	1,244

*Haircut by 20% - shown in the net total DS for NWE

**German volumes haircut by 50% - reflected in the net total DS for NWE

The Exchange has excluded the data category for low Sulphur Fuel Oil (1%) in Northwest Europe as using this data category in aggregate with the existing spot month limits for low sulphur would have pushed the percentage of deliverable supply above the 25% level. The current spot month limit of 150 lots for low sulphur oil accounts for around 23% of deliverable supply. Using the Eurostat data, the Exchange has calculated the deliverable supply of 1% fuel oil (low sulphur) to be around 666,000 tons

¹⁰ Statista – Dutch Refining Capacity (2016). <https://www.statista.com/statistics/703117/refinery-capacities-of-netherlands/>

European High Sulphur Fuel oil

The Northwest European fuel oil market is centred around Belgium, France, Germany and the Netherlands. There is a significant refining centre in ARA where there is close to 1.3 million barrels per day of refining capacity in the Netherlands, according to the Statistics website Statista¹¹. The key Dutch refineries are also located close to the River Rhine where barges can be delivered into mainland Europe through the significant demand centres of the Benelux and Germany.

Based on the Eurostat data, fuel oil refinery production in Belgium, France (reduced by 50% to account for Med deliveries), the Netherlands and Germany was 1.2 million tons per month over an average of the previous 3 years up to April 2018. Over the same period, imports were around 2.1 million metric tons per month. The Eurostat data category shows fuel oil with a sulphur content of greater than or equals to 1% therefore the Exchange has applied a haircut to account for the volume within this category which is 3.5% versus that which is less than 3.5%. Based on the proportion of high sulphur to low sulphur physical trades, as reported in the cash market around 80% of the trades were high sulphur with the remainder at 1%. Therefore, total monthly production and imports of high sulphur fuel oil over the three-year average to April 2018 were 2.66 million tons per month. The breakdown of the Eurostat data is shown in **Appendix A**.

Port of Rotterdam and Bunker Sales

This is the 10th largest bunkering port in the world¹². There are many suppliers active at the port and several large refineries and storage operators are located close to the port. Situated at the end of the Rhine River network, it is ideally placed to supply energy products to the inland European market via barge. The Port authority publishes quarterly and yearly bunker sales volumes for marine fuel oil, gasoil and diesel. Based on the average volumes sold from 2016 to 2018 (annualised for 2018 from the Q2 2018 data), total volumes for marine fuel oil was 7.4 million tons per year (1 cubic metre = 0.745 metric tons) or 617,087 metric tons per month.

Bunker Sales in Port of Rotterdam

Source: Port of Rotterdam Authority¹³

Units: Metric tons

	Fuel Oil	MGO	MDO	Total
2013	8,740,919	378,391	2,437	9,121,746
2014	8,746,104	499,241	16,917	9,262,261
2015	7,777,274	1,217,369	124,451	9,119,094
2016	7,550,443	1,063,025	103,581	8,717,049
2017	7,347,366	1,033,995	109,541	8,490,902
2018*	3,658,661	499,970	51,271	4,209,901
FY 2018	7,317,322	999,939	102,542	8,419,803
3-year average	7,405,044	1,032,320	105,221	8,542,585
Average volumes per month	617,087	86,026	8,768	711,822

¹¹ Statista – Dutch Refining Capacity (2016). <https://www.statista.com/statistics/703117/refinery-capacities-of-netherlands/>

¹² Port of Rotterdam – Facts and Figures https://www.portofrotterdam.com/sites/default/files/facts-and-figures-port-of-rotterdam_0.pdf

¹³ Port of Rotterdam - <https://www.portofrotterdam.com/en>

Within parts of Northwest Europe such as the North Sea and in the Baltic sea area, the fuel oil sold is for 0.1% sulphur as these regions are part of an emission control area (ECA) that came into effect in 2015. The ECAs established under MARPOL Annex VI for SOx¹⁴ are: the Baltic Sea area; the North Sea area; the North American area (covering designated coastal areas off the United States and Canada); and the United States Caribbean Sea area (waters around Puerto Rico and the United States Virgin Islands). The fuel oil data shown in the table represents both high and low sulphur fuel oil as both grades of fuel oil are sold in Rotterdam to ships operating inside and outside the Emission Control Areas.

Fuel oil currently accounts for about 86% of the total marine fuel sales in Rotterdam with the distillates segment making up between 13% and 14%. There is a very small volume of lubes that are sold in Rotterdam however, they are insignificant in terms of volume, so the Exchange has excluded this data.

Dutch Refiners produced around 400,000 tons per month of fuel oil with a sulphur content of less than 1%. Imports into the Netherlands were an additional 377,000 tons per month. Both data sets were collated using the three-year average Eurostat data through April 2018 inclusive.

Singapore Fuel Oil supply

Singapore 180CST and 380CST Fuel Oil are part of the “residual” fuel oil segment, which is used by utilities and the shipping industry. Residual Fuel Oil is also used as a refinery input to produce additional petroleum products via a deeper conversion process at the refinery which breaks down the high sulphur molecules into lower sulphur. The main trading hub for the Asian fuel oil market is Singapore, where extensive storage capacity and refining infrastructure exists. Singapore is a vibrant import/export centre for petroleum products; and is also the primary location for energy trading firms.

The Singapore petroleum markets are highly diverse and actively traded by refiners, traders, importers, and smaller distributors. Singapore is a major trading hub for Fuel oil in Asia-Pacific with its two benchmark products used to price imports into China and beyond. The Port of Singapore is one of the largest Bunker fuel ports in the world and handles significant volumes of ships per year to re-fuel for both intra-Asian trade as well as the international markets i.e. voyages to and from Singapore from outside of Asia.

The Energy Markets Authority (EMA) does not break down the fuel oil data by quality and refers to the data as heavy distillates and residuum on the production and fuel oil for the imports. Therefore, it is not possible to breakdown the data into different grades like it is elsewhere such as the US Gulf Coast or Europe. Deliverable supply data for 380CST is sufficient in Singapore based on production and imports.

Refinery Production

Based on the data from EMA below, refinery production of **heavy distillates and residuum** were 13,754.20 ktoe over the 3-year average period from 2014 to 2016¹⁵. This is the latest data set that is available for Singapore. This equates to 15.64 million tons per year or 1.3 million tons per month. The data set was made public in August 2018.

¹⁴ IMO – Page 5 (Emission Control Areas)

<http://www.imo.org/en/MediaCentre/HotTopics/GHG/Documents/2020%20sulphur%20limit%20FAQ%20018.pdf>

¹⁵ EMA Statistics – Oil (August 2018) <https://www.ema.gov.sg/Statistics.aspx>

*As the data is shown in **ktoe**, the Exchange has shown the calculation to derive the volume in metric tons, based on the calorific value for the fuel oil as metric tons is the common unit for the Singapore market. The calculation is as follows:

$$X \text{ Mtoe} \times \frac{4.87 \times 10^4 \text{ TJ}}{1 \text{ Mtoe}} \times \frac{1000 \text{ GJ}}{1 \text{ TJ}} \times \frac{1 \text{ t}}{42.82 \text{ GJ}} = x \text{ tonnes}$$

The refinery production category includes both fuel oil and residuum which includes feedstocks to the refining process like Vacuum Gasoil (VGO). Based on market sources the most conservative estimate suggests that this figure should be reduced by 25% meaning that Fuel oil only represents around 75% or 975,000 tons per month. Therefore, the imported volumes of 380CST are around 731,250 tons per month and 180CST of 243,750 tons per month. The data is shown in the table below.

Energy Flows in the Oil Refining Sector, 2013 – 2016, Ktoe

Source: Energy Markets Authority (EMA)

	2013	2014	2015	2016	3-year average
Refinery Inputs	52,128.40	49,153.00	51,479.80	53,304.70	51,312.50
Crude Oil & Natural Gas Liquids	44,730.0	41,653.30	44,801.40	46,654.90	44,369.87
Other Feedstocks	7,398.4	7,499.8	6,678.5	6,649.80	6,942.70
Refinery Outputs	50,993.20	47,432.90	49,349.80	51,452.80	49,411.83
Light Distillates	12,915.10	14,071.70	13,161.10	14,183.00	13,805.27
Middle Distillates	23,582.30	21,369.90	22,098.70	22,088.60	21,852.40
Heavy Distillates & Residuum*	14,495.80	11,991.30	14,090.10	15,181.20	13,754.20

*based on an energy content of 42.82GJ/t – 75% of this volume is considered fuel oil with 25% Residuum.

Singapore Fuel Oil Imports

The EMA import data is published for Fuel oil and based on the three-year average, Singapore imports were 71,606.5 ktoe which equates to around 81.44 million tons per year or 6.79 million tons per month. Based on the volume of trades concluded in the Singapore fuel oil market, about 75% of the volume reflected the quality of 380CST with 25% reflecting the quality 180CST. Therefore, a further adjustment to the volume of 25% has been made. Based on this adjustment, around 5.09 million metric tons per month of 380CST Singapore fuel oil is imported into Singapore and 1.6975 million tons per month of 180CST.

*As the data is shown in **ktoe**, the Exchange has shown the calculation to derive the volume in metric tons, based on the calorific value for the fuel oil as metric tons is the common unit for the Singapore market. The calculation is as follows:

$$X \text{ Mtoe} \times \frac{4.87 \times 10^4 \text{ TJ}}{1 \text{ Mtoe}} \times \frac{1000 \text{ GJ}}{1 \text{ TJ}} \times \frac{1 \text{ t}}{42.82 \text{ GJ}} = x \text{ tonnes}$$

Imports of Energy Products, Ktoe
Source: Energy Markets Authority (EMA)¹⁶

Energy Products	2014	2015	2016	2017	3-year average
Petroleum Products	103,801.5	113,432.9	113,348.1	120,516.8	115,765.9
Fuel Oil*	62,279.9	69,902.8	68,560.6	76,356.2	71,606.5
Gas/ Diesel Oil	14,322.8	14,809.2	15,896.1	14,321.4	15,008.9
Gasoline	14,774.5	15,614.9	16,891.2	16,683.2	16,396.4
Jet Fuel Kerosene	2,041.2	2,007.7	3,131.1	3,085.8	2,741.5
Naphtha	8,981.5	9,684.5	7,221.5	8,258.9	8,388.3
Other Petroleum Products	1,401.6	1,413.8	1,647.5	1,811.3	1,624.2

*based on an energy content of 42.82GJ/t

Port of Singapore and Bunker Fuel Supply

The Port of Singapore is a major bunkering hub for the Asian market. According to the Port Authority¹⁷, a vessel arrives or leaves Singapore every 2-3 minutes. The port is also the top bunkering location in the world with ships opting to re-fuel there before sailing to other international markets. On an annual basis around 130,000 ships stop in Singapore.

Volumes for bunker sales are published by month and by year for all the different bunker fuel qualities that are sold to the shipping companies. The most prominent grade of bunker fuel in Singapore is the 380CST fuel, referred to as MFO 380cst. Using the 3-year average data, volumes were 36.5 million tons per year or 3.04 million tons per month. Total bunker sales volumes over the same period were 49.7 million tons therefore the 380CST volumes accounted for around 73.4% of the total.

Bunker sales volumes – Singapore, Thousand Metric Tons
Source: Port Authority of Singapore

	Total	MGO	MFO 180 cst	MFO 380 cst	MFO 500 cst	LS MGO	LSFO 180 cst	LSFO 380 cst	LSFO 500 cst	Others
2014	42,417	1,024	748	31,813	8,106	287	2	413	5	18
2015	45,156	936	673	34,107	8,600	785	0	24	0	29
2016	48,614	853	562	36,108	9,801	1,137	1	127	0	25
2017	50,636	736	291	37,814	10,053	1,285	40	103	2	311
2018 annualised*	50,021	699	330	35,836	10,908	1,397	203	57	17	575
3-year average data	49,757	763	394	36,586	10,254	1,273	81	96	6	304
Average volume per month	4,146	63.58	32.83	3,048	854.5	106.08	6.75	8	0.5	25.3

*Annualised data using the monthly volumes through June 2018

¹⁶ EMA - https://www.ema.gov.sg/Singapore_Energy_Statistics.aspx

¹⁷ Port of Singapore - <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/facts-and-trivia>

Gulf Coast 0.5% Marine Fuel

In its deliverable supply estimate for 0.5% marine fuel, the Exchange will focus on refinery production, imports, and stock levels. The IMO mandate will require that refiners and blenders produce a lower sulfur 0.5% marine fuel oil that will meet the tighter global sulfur specifications starting in January 2020. Currently, the EIA data for fuel oil does not provide a breakdown for 0.5% sulfur marine fuel oil. The EIA provides stocks, import and refinery production data¹⁸ for three categories of fuel oil Sulfur levels: 1) Less Than 0.31% Sulfur; 2) 0.31% to 1.00% Sulfur; and 3) Greater than 1.00% Sulfur. In its deliverable supply estimate for 0.5% marine fuel, the Exchange will utilize the EIA data for the category of “less than 0.31% sulfur and will assess a haircut of 50% for the category of “0.31% to 1.00% sulfur” to arrive at a supply estimate for 0.5% sulfur marine fuel. It is important to re-state that the fuel oil market is a “blend-to-spec” market, where the existing benchmarks that trade in the physical market (such as 1% Sulfur or 3% Sulfur fuel oil) are not necessarily the end-user product. Rather, the products are blended to meet the specifications of whatever end-use the product will be used in, mainly utility or bunkers. Therefore, the IMO mandate will require a new benchmark based on 0.5% sulfur marine fuel, which will be blended and produced for use in the bunkers market.

Refinery Production

According to the EIA and Table 1 below, the three-year average for refinery and blender production of residual fuel oil in the category of “less than 0.31% Sulfur” in PADD 3 (Gulf Coast) is 34,200 barrels per day. Further, after applying a 50% haircut for the category of “0.31% to 1.00% Sulfur”, the three-year average for refinery and blender production of residual fuel oil in the category of “0.31% to 1.00% Sulfur” in PADD 3 is 7,700 barrels per day. Therefore, the total three-year average for refinery and blender production is 41,900 barrels per day (34,200 b/d plus 7,700 b/d), which is equivalent to 1.3 million barrels per month.

Table 1: Net Refinery and Blender Production: Less Than 0.31% Sulfur, 0.31% to 1.00% Sulfur

Date	PADD 3 Refinery and Blender Net Production of Residual Fuel Oil, Less Than 0.31% Sulfur (Thousand Barrels per Day)	PADD 3 Refinery and Blender Net Production of Residual Fuel Oil, Less Than 0.31%-1.00% Sulfur (Thousand Barrels per Day)
Nov-2015	34	15
Dec-2015	27	15
Jan-2016	28	21
Feb-2016	34	17
Mar-2016	31	18
Apr-2016	33	12
May-2016	32	14
Jun-2016	32	11
Jul-2016	29	10
Aug-2016	27	6
Sep-2016	25	12
Oct-2016	32	18
Nov-2016	33	28
Dec-2016	35	15

¹⁸https://www.eia.gov/dnav/pet/pet_pnp_refp_a_eprx_ypr_mbbldpd_m.htm,
<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRMRPP32&f=M>,
http://www.eia.gov/dnav/pet/pet_pnp_refp_a_eprh_ypr_mbbldpd_m.htm

Jan-2017	31	17
Feb-2017	37	12
Mar-2017	33	16
Apr-2017	35	10
May-2017	37	9
Jun-2017	37	9
Jul-2017	29	5
Aug-2017	30	11
Sep-2017	33	11
Oct-2017	39	14
Nov-2017	33	13
Dec-2017	30	7
Jan-2018	47	22
Feb-2018	39	13
Mar-2018	42	15
Apr-2018	41	16
May-2018	30	38
Jun-2018	32	21
Jul-2018	40	31
Aug-2018	43	19
Sep-2018	42	18
Oct-2018	40	14
Three-Year Average	34.22	15.36

Imports

According to the EIA and Table 2 below, the three-year average of imports¹⁹ in the category of “less than 0.31%” are estimated at 11,530 barrels per day (b/d). To further refine the data, consistent with the approach to production data, the Exchange applied a 50% haircut for the category of “0.31% to 1.00% Sulfur”. After applying the 50% haircut, the three-year average of imports in the category of “0.31% to 1.00% Sulfur” are estimated at 3,540 b/d. Therefore, the total three-year average for imports is 14,980 b/d (11,530 b/d plus 3,540 b/d), which is equivalent to 452,100 barrels per month.

Table 2: Imports of Residual Fuel Oil: Less Than 0.31% Sulfur, 0.31% to 1.00% Sulfur (based on End-of Month Data)

Date	PADD 3 Imports of Residual Fuel Oil, Less Than 0.31% Sulfur (Thousand Barrels per Day)	PADD 3 Imports of Residual Fuel Oil, 0.31%-1.00% Sulfur (Thousand Barrels per Day)
Nov-2015	0	4
Dec-2015	5	0
Jan-2016	24	10
Feb-2016	0	7
Mar-2016	0	19

¹⁹ https://www.eia.gov/dnav/pet/pet_move_impcp_a2_r30_EPPRX_im0_mbbldpd_m.htm,
https://www.eia.gov/dnav/pet/pet_move_impcp_a2_r30_EPPRY_im0_mbbldpd_m.htm

Apr-2016	1	18
May-2016	0	7
Jun-2016	1	11
Jul-2016	11	18
Aug-2016	0	30
Sep-2016	2	4
Oct-2016	0	7
Nov-2016	24	14
Dec-2016	6	0
Jan-2017	8	0
Feb-2017	4	0
Mar-2017	6	9
Apr-2017	15	10
May-2017	0	10
Jun-2017	8	6
Jul-2017	6	10
Aug-2017	11	2
Sep-2017	18	0
Oct-2017	0	0
Nov-2017	8	6
Dec-2017	11	0
Jan-2018	18	2
Feb-2018	10	0
Mar-2018	7	9
Apr-2018	0	8
May-2018	61	5
Jun-2018	8	9
Jul-2018	49	0
Aug-2018	39	0
Sep-2018	22	9
Oct-2018	32	11
Three-Year Average	11.53	7.08

Stocks

The EIA provides stocks data²⁰ on a monthly basis by PADD for three categories of Sulfur levels: Less Than 0.31% Sulfur, 0.31% to 1.00% Sulfur and Greater than 1.00% Sulfur. According to the EIA, the three-year average of stocks in the category of “less than 0.31% sulfur” are estimated at 1.54 million barrels. Further, the three-year average of “0.31% to 1.00% sulfur” stocks are estimated at 3.58 million barrels. For the purposes of estimating deliverable supply, the Exchange will apply a haircut of 50% for the stocks in the category of “0.31% to 1.0% sulfur” so that the three-year average will be 1.80 million barrels. Therefore, the total estimated stock levels for Gulf Coast 0.5% marine fuel is 3.3 million barrels (1.54 million plus 1.80 million).

²⁰<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRLSTP31&f=M>,
<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRMSTP31&f=M>,
<http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRGSTP31&f=M>

Due to the level of production and imports in the Gulf Coast, the Exchange has also included stocks in its estimate of deliverable supply. However, to be conservative, the Exchange will apply a further 50% haircut to the estimated stocks levels to account for variability, operational minimums and contingency storage. Consequently, the Exchange has estimated the stocks component of deliverable supply to be 1.7 million barrels (50% of 3.3 million barrels). The level of stocks in the USGC is shown in the table below.

Table 3: EIA Stocks of Residual Fuel Oil: Less Than 0.31% Sulfur, 0.31% to 1.00% Sulfur

Date	Gulf Coast (PADD 3) Stocks of Residual Fuel Oil, Less Than 0.31% Sulfur (Thousand Barrels)	Gulf Coast (PADD 3) Stocks of Residual Fuel Oil, 0.31%-1.0% Sulfur (Thousand Barrels)
Nov-2015	2,359	2,773
Dec-2015	2,325	2,483
Jan-2016	2,629	2,704
Feb-2016	3,120	3,190
Mar-2016	2,808	3,650
Apr-2016	2,440	3,438
May-2016	2,545	2,980
Jun-2016	2,612	3,117
Jul-2016	2,271	2,245
Aug-2016	2,174	2,962
Sep-2016	2,177	3,235
Oct-2016	1,800	5,543
Nov-2016	2,269	5,413
Dec-2016	2,271	5,289
Jan-2017	1,496	4,273
Feb-2017	1,623	4,065
Mar-2017	1,382	5,119
Apr-2017	1,096	4,812
May-2017	950	4,979
Jun-2017	888	3,741
Jul-2017	1,043	3,196
Aug-2017	753	3,342
Sep-2017	1,074	4,099
Oct-2017	976	3,468
Nov-2017	978	3,794
Dec-2017	650	4,467
Jan-2018	860	3,710
Feb-2018	954	3,648
Mar-2018	1,129	3,667
Apr-2018	1,235	2,736
May-2018	841	2,863
Jun-2018	773	2,424
Jul-2018	675	3,070
Aug-2018	741	2,486
Sep-2018	705	2,748
Oct-2018	844	3,086
Three-Year Average	1,541	3,578

High Sulfur Fuel Oil Market

In its deliverable supply estimate for High Sulfur Fuel Oil (HSFO), the Exchange will focus on refinery production, imports, and stock levels. Currently, the EIA data for fuel oil does not provide a breakdown for High Sulfur Fuel Oil, which contains 3.5% sulfur. The EIA provides stocks, import and refinery production data²¹ for three categories of fuel oil Sulfur levels: 1) Less Than 0.31% Sulfur; 2) 0.31% to 1.00% Sulfur; and 3) Greater than 1.00% Sulfur.

According to industry sources about 50% of the “Greater than 1.00% Sulfur” category is composed of HSFO with Sulfur levels at or above 3.50%. Consequently, the Exchange will apply a 50% haircut to the “greater than 1.00% Sulfur” category to arrive at a supply estimate for HSFO of 3.5% sulfur.

It is important to re-state that the fuel oil market is a “blend-to-spec” market, where the benchmarks that trade in the physical market (such as 1%S or 3%S) are not necessarily the end-user product. Rather, the products are blended to meet the specifications of whatever end-use the product will be used in, mainly utility or bunkers.

Refinery Production

According to the EIA and Table 4 below, the three-year average for refinery and blender production of residual fuel oil greater than 1.00% Sulfur in PADD 3 (Gulf Coast) is 152,000 barrels per day. Taking a 50% haircut of this value, the production of HSFO is estimated to be 76,000 barrels per day in the November 2015 – October 2018 time period. Thus, the monthly production estimate is 2.3 million barrels per month, or 2,280 contract equivalents per month.

Table 4: Net Refinery and Blender Production: Greater Than 1% Sulfur, Greater Than 3.5% Sulfur

Date	PADD 3 Refinery and Blender Net Production of Residual Fuel Oil, Greater Than 1.00% Sulfur (Thousand Barrels per Day)	PADD 3 Refinery and Blender Net Production of Residual Fuel Oil, Greater Than 3.5% Sulfur (Thousand Barrels per Day)
Nov-2015	114	57
Dec-2015	122	61
Jan-2016	110	55
Feb-2016	119	60
Mar-2016	122	61
Apr-2016	170	85
May-2016	155	78
Jun-2016	143	72
Jul-2016	167	84
Aug-2016	165	83
Sep-2016	178	89

²¹https://www.eia.gov/dnav/pet/pet_pnp_refp_a_eprx_ypr_mbbldpd_m.htm,
https://www.eia.gov/dnav/pet/pet_move_res_a_EPPRH_IM0_mbbldpd_m.htm,
<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRGSTP31&f=M>

Oct-2016	196	98
Nov-2016	193	97
Dec-2016	155	78
Jan-2017	167	84
Feb-2017	202	101
Mar-2017	156	78
Apr-2017	166	83
May-2017	154	77
Jun-2017	147	74
Jul-2017	145	73
Aug-2017	200	100
Sep-2017	187	94
Oct-2017	159	80
Nov-2017	144	72
Dec-2017	124	62
Jan-2018	179	90
Feb-2018	174	87
Mar-2018	156	78
Apr-2018	189	95
May-2018	124	62
Jun-2018	84	42
Jul-2018	128	64
Aug-2018	112	56
Sep-2018	134	67
Oct-2018	122	61
Three-Year Average	151.72	75.86

Imports

According to the EIA and Table 5 below, the three-year average of imports in the category of “Greater than 1.00% Sulfur” was 55,300 barrels per day. Consistent with the approach utilized for production data, the Exchange applied a 50% discount to the “Greater than 1.00% Sulfur” category to represent the HSFO market. According to the EIA and Table 5 below, after applying a 50% haircut, the three-year average HSFO imports are estimated at 27,700 barrels per day, or 831,000 barrels per month.

Table 5: Imports of Residual Fuel Oil: Greater Than 1.00% Sulfur, Greater than 3.5% Sulfur (based on End-of Month Data)

Date	PADD 3 Imports of Residual Fuel Oil, Greater Than 1.00% Sulfur (Thousand Barrels per Day)	PADD 3 Imports of Residual Fuel Oil, Greater Than 3.5% Sulfur (Thousand Barrels per Day)
Nov-2015	31	16
Dec-2015	45	23
Jan-2016	70	35
Feb-2016	38	19
Mar-2016	106	53
Apr-2016	62	31

May-2016	51	26
Jun-2016	106	53
Jul-2016	55	28
Aug-2016	25	13
Sep-2016	37	19
Oct-2016	16	8
Nov-2016	69	35
Dec-2016	39	20
Jan-2017	39	20
Feb-2017	83	42
Mar-2017	79	40
Apr-2017	35	18
May-2017	68	34
Jun-2017	58	29
Jul-2017	43	22
Aug-2017	36	18
Sep-2017	69	35
Oct-2017	44	22
Nov-2017	29	15
Dec-2017	77	39
Jan-2018	42	21
Feb-2018	46	23
Mar-2018	33	17
Apr-2018	48	24
May-2018	84	42
Jun-2018	94	47
Jul-2018	48	24
Aug-2018	70	35
Sep-2018	67	34
Oct-2018	49	25
Three-Year Average	55.31	27.65

Stocks

As explained above, the EIA provides stocks data²² for fuel oil for three categories of Sulfur levels: 1) Less Than 0.3% Sulfur; 2) 0.31% to 1.00% Sulfur; and 3) Greater than 1.00% Sulfur. According to industry sources, about 50% of the “Greater than 1.00% Sulfur” category for stocks data is composed of HSFO with Sulfur levels at or above 3.50%.

According to the EIA and Table 6 below, the three-year average for HSFO stocks are estimated at 7.9 million barrels, which represents 50% of the stocks in the “Greater than 1.00% Sulfur” category. Due to the relatively stable level of stocks in the USGC, the Exchanges believes that this is a valid reason for including this in the analysis of deliverable supply. However, for the purposes of estimating deliverable supply, the Exchange has applied a further haircut of 50% to account for the variability of the stock levels, operational

²² <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MRGSTP31&f=M>

minimums and contingency purposes, and accordingly, the three-year average for HSFO stocks is 4.0 million barrels.

Table 6: EIA Stocks of Residual Fuel Oil: Greater Than 1.00% Sulfur, Greater than 3.5% Sulfur

Date	Gulf Coast (PADD 3) Ending Stocks of Residual Fuel Oil, Greater Than 1% Sulfur (Thousand Barrels)	Gulf Coast (PADD 3) Ending Stocks of Residual Fuel Oil, Greater Than 3.5% Sulfur (Thousand Barrels)
Nov-2015	20,380	10,190
Dec-2015	20,058	10,029
Jan-2016	20,584	10,292
Feb-2016	19,747	9,874
Mar-2016	19,416	9,708
Apr-2016	19,799	9,900
May-2016	18,280	9,140
Jun-2016	19,120	9,560
Jul-2016	18,044	9,022
Aug-2016	17,885	8,943
Sep-2016	16,801	8,401
Oct-2016	15,353	7,677
Nov-2016	17,190	8,595
Dec-2016	16,796	8,398
Jan-2017	15,847	7,924
Feb-2017	15,564	7,782
Mar-2017	15,150	7,575
Apr-2017	14,933	7,467
May-2017	15,838	7,919
Jun-2017	13,859	6,930
Jul-2017	12,910	6,455
Aug-2017	14,853	7,427
Sep-2017	13,647	6,824
Oct-2017	12,795	6,398
Nov-2017	11,953	5,977
Dec-2017	11,257	5,629
Jan-2018	14,194	7,097
Feb-2018	14,722	7,361
Mar-2018	15,675	7,838
Apr-2018	14,978	7,489
May-2018	15,096	7,548
Jun-2018	14,296	7,148
Jul-2018	12,912	6,456
Aug-2018	11,493	5,747
Sep-2018	11,610	5,805
Oct-2018	12,546	6,273
Three-Year Average	15,711	7,855

Analysis of Deliverable Supply

The Commission defines deliverable supply as the quantity of the commodity meeting a derivative contract's delivery specifications that can reasonably be expected to be readily available to short traders and saleable by long traders at its market value in normal cash marketing channels at the derivative contract's delivery points during the specified delivery period, barring abnormal movement in interstate commerce.²³

Europe Marine Fuel 0.5%

For Northwest Europe, the Exchange has calculated the basis of deliverable supply as production and imports of fuel oil with a sulphur content of less than 1%. To be conservative in our approach, we have applied a haircut of 20% to the deliverable supply volumes. For Germany, they do not report statistics by fuel oil quality therefore the Exchange has used the total fuel oil production numbers and applied a haircut of 50% to the German numbers to account for fuel oil with a sulphur content of less than 1% with the remainder being fuel oil with a sulphur content of greater than or equals to 1%. Northwest Europe has been classified as Belgium, the Netherlands, Germany and 50% of France with the remainder of France being considered as the Mediterranean.

Deliverable supply for fuel oil with a sulphur content of less than 1% in Northwest Europe is around 836,000 tons per month for Belgium, France (50%), the Netherlands and in addition to this, the Exchange has included 50% of the total fuel oil figures for Germany of 409,000 tons per month. Based on discussions with market participants and industry reports, it is understood that German production for high sulphur fuel oil is limited with most volumes falling into the lower sulphur categories. Therefore, a haircut of 50% to the German Production volumes could be considered to be very conservative. A haircut of 50% has also been applied to the German import volumes for total fuel oil. Using the Production and imports for fuel oil of less than 1% coupled with a haircut production and import number for Germany, the Exchange has estimated deliverable supply for Northwest Europe is around 1.244 million tons per month or 1,244 monthly contracts equivalent (based on a futures contract with a 1,000mt lot size).

We have excluded fuel oil from the category of greater than or equals to 1% as there is no capacity to include adding these products into the existing NYMEX spot month position limits without breaking through the 25% of deliverable supply volumes on an aggregate basis. By excluding the existing 1% fuel oil as the basis of deliverable supply, the Exchange believes that the deliverable supply volumes for Northwest Europe are extremely conservative since a proportion of this quality of fuel oil will be diverted into the very low sulphur bunker pool.

The Exchange has excluded **stocks** due to the month on month variability in the overall levels. The stock levels tend to fluctuate depending on local supply and demand factor and due to this variability in the levels, the Exchange decided to exclude stock levels from the calculation of deliverable supply and has not been included in this analysis.

Term supply contracts do exist but in a typical term agreement in the cash market there is a provision that allows flexibility for re-trading of the contracted quantity in the spot market, so the term agreements do not restrict the potential deliverable supply.

Europe High Sulphur Fuel oil 3.5%

²³ http://www.ecfr.gov/cgi-bin/text-idx?SID=74959c3dbae469e2efe0a42b45b8dfae&mc=true&node=ap17.1.38_11201.c&rgn=div9

For the Rotterdam market, the Exchange has based its calculation of deliverable supply on the refinery production and imports for Belgium, France (haircut by 50%), the Netherlands. There is no data for Germany therefore we have excluded this from the analysis. Based on market feedback, our understanding is that there is limited production of high sulphur fuel oil in Germany with any high sulphur volumes sold into the ARA markets or into the Northern German ports like Hamburg.

The Exchange has used the Eurostat data which categorises fuel by quality. For the high sulphur market this is contained within the category of fuel oil with a sulphur content of greater than or equal to 1%. Therefore, we have applied a haircut to split out the percentage of supply that can be considered to be high sulphur fuel oil. Based on the volume of reported cash traded in the high and low sulphur markets, the split is 80% high sulphur and 20% low sulphur therefore we have applied a haircut of 20% to the Eurostat data. A full month by month breakdown of the data is shown in **Appendix A**.

The Exchange has excluded **stocks** due to the month on month variability in the overall levels. The stock levels tend to fluctuate depending on local supply and demand factor and due to this variability in the levels, the Exchange decided to exclude stock levels from the calculation of deliverable supply and has not been included in this analysis.

Term supply contracts do exist but in a typical term agreement in the cash market there is a provision that allows flexibility for re-trading of the contracted quantity in the spot market, so the term agreements do not restrict the potential deliverable supply.

Singapore Marine Fuel 0.5% and 380CST Fuel Oil

The Singapore data source providers do not break down the fuel oil data by grade or quality therefore it is not possible to provide a comprehensive analysis of the precise size of the overall market for marine fuel or other lower sulphur grades. Therefore, the Exchange has used the deliverable supply for 380CST as the basis of analysis for both the existing 380CST Fuel oil market and the Marine fuel oil market due to the large production and import volumes. The Exchange proposes to apply a 500 lots spot month position limit for the Marine fuel 0.5% and maintain the 500 lots spot month position limit for the existing Singapore 380CST market. The position limit for both markets at 500 lots equates to around 17.4% of deliverable supply for 380CST fuel oil in Singapore. As more granular data becomes available for the Singapore market, the Exchange proposes to make any further adjustments to the spot month limits as deemed relevant and will notify the CFTC accordingly. Based on discussions with market based participants it is expected that Singapore 380CST fuel oil will be used in part of the blending process for Marine fuel oil 0.5% therefore we believe that given the data that is available it is appropriate to use the 380CST fuel oil as the basis of the analysis for both the existing 380CST market and the Marine fuel market as the combined limit remains well below the 25% threshold. In other words, 380CST fuel oil can be blended into the market for 0.5% marine fuel and the two markets are not considered to be mutually exclusive from each other.

The Exchange has based its analysis of deliverable supply on the production and imports of 380CST fuel oil in the Singapore market and has used the EMA data as the basis of that analysis. The Exchange has used the 2014-2016 production data (Energy Flows in the Oil Refining Sector) and the 2015 – 2017 import data, being the latest data sets available. The Exchange has made an adjustment of 25% to the Singapore production data as the data includes Heavy Fuel oil and Residuum to account for fuel oil only. The EMA data does not distinguish between 380CST and 180CST so the Exchange reviewed the volume of physical transaction data to determine an appropriate split. Based on traded volumes in the Platts assessment process and in discussion with market-based participants a split of 75% for 380CST and 25% 180CST was deemed appropriate. Therefore, the Exchange has made an adjustment of 25% to the Singapore fuel oil data for production and has applied the same haircut to the Singapore fuel oil import data.

The Exchange has excluded **stocks** due to the month on month variability in the overall levels. The stock levels tend to fluctuate depending on local supply and demand factor and due to this variability in the levels, the Exchange decided to exclude stock levels from the calculation of deliverable supply and has not been included in this analysis.

Term supply contracts do exist but in a typical term agreement in the cash market there is a provision that allows flexibility for re-trading of the contracted quantity in the spot market, so the term agreements do not restrict the potential deliverable supply.

Monthly imports for Singapore fuel oil (380CST and 180CST) are about 6.79 million tons per month and adjusted to reflect 380CST the import figure is around 5.09 million tons per month or 5,009 contract month equivalents (based on a futures contract size of 1,000 metric tons). Fuel oil production, adjusted for fuel oil only (excluding the portion for Residuum) represents about 975,000 metric tons per month, however a further adjustment has been made to reflect 380CST only and therefore the production volume is around 731,250 metric tons per month or 731 contract month equivalents. Total imports and production of 380CST are therefore about 5.740 million metric tons per month or 5,740 contract month equivalents.

Gulf Coast 0.5% Marine Fuel

In its analysis of deliverable supply, the Exchange relied on: 1) production, 2) imports, and 3) stocks data. Table 1 below summarizes the deliverable supply components for Gulf Coast 0.5% marine fuel oil. The deliverable supply of Gulf Coast 0.5% marine fuel is estimated 4.16 million barrels per month, which is equivalent to 4,160 contracts. The Exchange has set spot month limits at 800 contracts (equivalent to 800,000 barrels), which is approximately 19% of the monthly deliverable supply.

Table 1: Deliverable Supply Components for Gulf Coast 0.5% Fuel Oil, Thousand Barrels per Month

	Production (Thousand Barrels per Month)	Imports (Thousand Barrels per Month)	Stocks (After Applying 50% Haircut of Total) (Thousand Barrels per Month)	Deliverable Supply (Thousand Barrels per Month)
2015 (Nov-Dec)	1,140	105	2,485	3,730
2016	1,155	354	3,037	4,546
2017	1,178	304	2,594	4,076
2018 (Jan-Oct)	1,499	818	1,960	4,277
Average	1,243	395	2,519	4,157

High Sulfur Fuel Oil

In its analysis of deliverable supply, the Exchange relied on: 1) production, 2) imports, and 3) stocks data. Table 2 below, summarizes the components for high sulfur fuel oil. The deliverable supply of Gulf Coast HSFO is estimated at 7.08 million barrels per month, which is equivalent to 7,080 contracts. The Exchange has set conservative speculative limits at 1,000 contracts (equivalent to one million barrels), which is approximately 14% of the monthly deliverable supply.

Table 2: Deliverable Supply Components, Gulf Coast HSFO, Thousand Barrels per Month

	Production (Thousand Barrels per Month)	Imports (Thousand Barrels per Month)	Stocks (After Applying 50% Haircut of Total) (Thousand Barrels per Month)	Deliverable Supply (Thousand Barrels per Month)
2015 (Nov-Dec)	1,770	570	5,055	7,395
2016	2,341	843	4,563	7,747
2017	2,439	825	3,513	6,777
2018 (Jan-Oct)	2,103	872	3,438	6,413
Average	2,163	777	4,142	7,083

Positions in the **USGC Marine Fuel 0.5% Barges (Platts) BALMO Futures** will aggregate into USGC Marine Fuel 0.5% Barges (Platts) Futures (commodity code H5F and rulebook chapter 1400). The deliverable supply of Gulf Coast 0.5% marine fuel is estimated 4.16 million barrels per month, which is equivalent to 4,160 contracts. The Exchange has set spot month limits at 800 contracts (equivalent to 800,000 barrels), which is approximately 19% of the monthly deliverable supply.

Positions in the **USGC Marine Fuel 0.5% Barges (Platts) vs Gulf Coast HSFO (Platts) BALMO Futures** market will aggregate into USGC Marine Fuel 0.5% Barges (Platts) Futures (commodity code H5F and rulebook chapter 1400) and Gulf Coast HSFO (Platts) Futures (commodity code MF and rulebook chapter 612). The deliverable supply of Gulf Coast 0.5% marine fuel is estimated 4.16 million barrels per month, which is equivalent to 4,160 contracts. The Exchange has set spot month limits at 800 contracts (equivalent to 800,000 barrels), which is approximately 19% of the monthly deliverable supply. The deliverable supply of Gulf Coast HSFO is estimated at 7.08 million barrels per month, which is equivalent to 7,080 contracts. The Exchange has set conservative speculative limits at 1,000 contracts (equivalent to one million barrels), which is approximately 14% of the monthly deliverable supply and below the 25% maximum threshold.

Positions in the **European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures** will aggregate into the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures (commodity code R5F and rulebook chapter 1401). The deliverable supply for 0.5% Marine Fuel in Northwest Europe has been calculated as 1.244 million tons per month or 1,244 contract month equivalents. The Exchange has set spot month position limits for the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures of 300 lots which equates to around 24.1% of the total deliverable supply in Northwest Europe and below the 25% maximum threshold.

Positions in the **Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures** will aggregate into the Singapore FOB Marine Fuel 0.5% (Platts) Futures (commodity code S5F and rulebook chapter 1402). The Exchange has set spot month position limits of 500 lots for the FOB Marine Fuel 0.5% and positions will aggregate into the **Singapore FOB Marine Fuel 0.5% (Platts) Futures**. The level of production and imports for 380CST in Singapore is high enough to support this limit. The deliverable supply of 380CST Singapore fuel oil is 5.740 million tons per month or 5,740 monthly futures lots equivalents. Therefore, the spot month limit of 500 lots for **Singapore FOB Marine Fuel 0.5% (Platts) Futures** and the spot month limit of 500 lots for the Singapore 380CST (Platts) Futures equates to around 17.42% of the deliverable supply using the deliverable supply for 380CST.

Positions in the **Mini European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures** will aggregate into the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures (commodity code R5F and rulebook chapter 1401). The deliverable supply for 0.5% Marine Fuel in Northwest Europe has been calculated as 1.244 million tons per month or 1,244 contract month equivalents. The Exchange has set spot month position limits for the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures of 300 lots which equates to around 24.1% of the total deliverable supply in Northwest Europe and below the 25% maximum threshold. The contract size for the Mini futures contract is 100 metric tons therefore the equivalent spot month position limit will be applied on a ratio of 10:1 (to account for the different volume) when compared to the 1,000 metric tons equivalent Futures contract.

Positions in the **Mini Singapore FOB Marine Fuel 0.5% (Platts) BALMO Futures** will aggregate into the Singapore FOB Marine Fuel 0.5% (Platts) Futures (commodity code S5F and rulebook chapter 1402). The Exchange has set spot month position limits of 500 lots for the FOB Marine Fuel 0.5% and positions will aggregate into the **Singapore FOB Marine Fuel 0.5% (Platts) Futures**. The level of production and imports for 380CST in Singapore is high enough to support this limit. The deliverable supply of 380CST Singapore fuel oil is 5.740 million tons per month or 5,740 monthly futures lots equivalents. Therefore, the spot month limit of 500 lots for **Singapore FOB Marine Fuel 0.5% (Platts) Futures** and the spot month limit of 500 lots for the Singapore 380CST (Platts) Futures equates to around 17.42% of the deliverable supply using the deliverable supply for 380CST. The contract size for the Mini futures contract is 100 metric tons therefore the equivalent spot month position limit will be applied on a ratio of 10:1 (to account for the different volume) when compared to the 1,000 metric ton equivalent Futures contract.

Positions in the **Singapore FOB Marine Fuel 0.5% (Platts) vs. European FOB Rdam Marine Fuel 0.5% Barges (Platts) BALMO Futures** will aggregate into the Singapore FOB Marine Fuel 0.5% (Platts) Futures (commodity code S5F and rulebook chapter 1402) and the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures (commodity code R5F and rulebook chapter 1401). The Exchange spot month limit for each contract is 500 lots. The deliverable supply of 380CST Singapore fuel oil is 5.740 million tons per month or 5,740 monthly futures lots equivalents. Therefore, the spot month limit of 500 lots for **Singapore FOB Marine Fuel 0.5% (Platts) Futures** represents around 8.71% of the total deliverable supply below the 25% maximum threshold. The deliverable supply for 0.5% Marine Fuel in Northwest Europe has been calculated as 1.244 million tons per month or 1,244 contract month equivalents. The Exchange has set spot month position limits for the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures of 300 lots which equates to around 24.1% of the total deliverable supply in Northwest Europe and below the 25% maximum threshold.

Positions in the **European FOB Rdam Marine Fuel 0.5% (Platts) vs. European 3.5% FOB Barges (Platts) BALMO Futures** will aggregate into European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures (commodity code R5F and rulebook chapter 1401) and the European 3.5% Fuel Oil Barges FOB Rdam (Platts) Futures (commodity code UV and rulebook chapter 660). The deliverable supply for 0.5% Marine Fuel in Northwest Europe has been calculated as 1.244 million tons per month or 1,244 contract month equivalents. The Exchange has set spot month position limits for the European FOB Rdam Marine Fuel 0.5% Barges (Platts) Futures of 300 lots which equates to around 24.1% of the total deliverable supply in Northwest Europe and below the 25% maximum threshold. The deliverable supply of European 3.5% Fuel Oil is 2.66 million tons per month or 2,660 futures lots equivalent. Therefore, the spot month limit of 500 lots represents around 18.79% of the total deliverable supply below the 25% maximum threshold.

Appendix A

Eurostat data – Imports of Fuel oil (Less than 1% Sulphur), Thousand Tons per Month

	Belgium	Germany*	France	Netherlands	Total imports
Jan-15	30	0	146	515	618
Feb-15	30	0	67	412	476
Mar-15	51	0	119	486	597
Apr-15	27	0	185	492	612
May-15	30	0	229	636	781
Jun-15	31	0	139	539	640
Jul-15	20	0	122	574	655
Aug-15	38	0	176	502	628
Sep-15	5	0	145	372	450
Oct-15	29	0	124	489	580
Nov-15	26	0	153	335	438
Dec-15	6	0	181	164	261
Jan-16	65	0	131	236	367
Feb-16	80	0	130	346	491
Mar-16	47	0	121	431	539
Apr-16	61	0	159	448	589
May-16	40	0	164	607	729
Jun-16	73	0	112	488	617
Jul-16	56	0	137	392	517
Aug-16	46	0	212	213	365
Sep-16	77	0	106	440	570
Oct-16	90	0	159	326	496
Nov-16	89	0	115	343	490
Dec-16	113	0	125	371	547
Jan-17	136	0	168	397	617
Feb-17	111	0	173	343	541
Mar-17	86	0	341	330	587
Apr-17	70	0	174	435	592
May-17	96	0	162	446	623
Jun-17	111	0	144	245	428
Jul-17	122	0	187	312	528
Aug-17	128	0	158	410	617
Sep-17	115	0	150	376	566
Oct-17	153	0	212	498	757
Nov-17	188	0	165	184	455
Dec-17	123	0	173	309	519
Jan-18	129	0	199	199	428
Feb-18	72	0	169	186	343
Mar-18	85	0	190	244	424
Apr-18	80	0	223	414	606

3-year average	79	0	82	377	538
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Eurostat data – Refinery Production of Fuel oil (Less than 1% Sulphur), Thousand Tons per Month

	Belgium	Germany	France	Netherlands	Total Production
Jan-15	73	0	96	181	302
Feb-15	70	0	147	231	374.5
Mar-15	65	0	134	202	334
Apr-15	15	0	88	153	212
May-15	45	0	33	270	331.5
Jun-15	28	0	35	198	243.5
Jul-15	35	0	45	199	256.5
Aug-15	52	0	116	309	419
Sep-15	45	0	210	277	427
Oct-15	13	0	331	388	566.5
Nov-15	11	0	82	319	371
Dec-15	61	0	86	369	473
Jan-16	13	0	173	457	556.5
Feb-16	14	0	114	353	424
Mar-16	23	0	102	236	310
Apr-16	26	0	141	367	463.5
May-16	26	0	76	439	503
Jun-16	26	0	133	370	462.5
Jul-16	41	0	245	394	557.5
Aug-16	35	0	186	469	597
Sep-16	45	0	62	462	538
Oct-16	51	0	238	592	762
Nov-16	41	0	199	484	624.5
Dec-16	33	0	335	669	869.5
Jan-17	28	0	46	455	506
Feb-17	22	0	65	402	456.5
Mar-17	56	0	64	503	591
Apr-17	51	0	79	524	614.5
May-17	52	0	216	478	638
Jun-17	66	0	57	363	457.5
Jul-17	43	0	96	266	357
Aug-17	59	0	62	324	414
Sep-17	34	0	173	418	538.5
Oct-17	67	0	266	440	640
Nov-17	17	0	90	305	367
Dec-17	39	0	93	447	532.5
Jan-18	45	0	136	634	747

Feb-18	48	0	152	483	607
Mar-18	55	0	115	439	551.5
Apr-18	32	0	56	380	440
3-year average	38	0	65	402	506

Eurostat data – Germany Refinery Production and Imports of Total Fuel oil, Thousand Tons per Month

	German Imports*	German Production*
Jan-15	221	796
Feb-15	144	715
Mar-15	146	723
Apr-15	126	738
May-15	139	642
Jun-15	214	492
Jul-15	216	722
Aug-15	160	744
Sep-15	111	462
Oct-15	150	631
Nov-15	108	640
Dec-15	186	647
Jan-16	222	762
Feb-16	250	691
Mar-16	296	642
Apr-16	227	671
May-16	244	500
Jun-16	187	509
Jul-16	197	554
Aug-16	181	588
Sep-16	218	607
Oct-16	142	608
Nov-16	181	561
Dec-16	180	682

Jan-17	188	671
Feb-17	195	685
Mar-17	233	528
Apr-17	197	622
May-17	143	520
Jun-17	178	555
Jul-17	193	570
Aug-17	228	552
Sep-17	193	643
Oct-17	179	716
Nov-17	166	610
Dec-17	176	706
Jan-18	185	763
Feb-18	172	772
Mar-18	225	725
Apr-18	223	590
3-year average	191	627
Net volumes of less than 1% sulphur	95.5	313.5

*German total fuel oil volumes been reduced by 50% for less than 1%

Eurostat – Fuel oil Imports with a sulphur content of greater than or equals to 1%, Thousand Tons per Month

	Belgium	Germany	France	Netherlands	Net Total Imports
2015M01	323	0	129	2,650	3037.5
2015M02	362	0	71	2,655	3052.5
2015M03	251	0	130	3,451	3767
2015M04	268	0	107	2,640	2961.5
2015M05	267	0	37	3,091	3376.5
2015M06	307	0	49	2,482	2813.5
2015M07	373	0	179	2,542	3004.5
2015M08	342	0	171	2,696	3123.5
2015M09	313	0	104	2,529	2894
2015M10	348	0	140	2,455	2873
2015M11	272	0	21	2,404	2686.5
2015M12	260	0	179	3,457	3806.5

2016M01	303	0	224	2,396	2811
2016M02	280	0	128	2,275	2619
2016M03	305	0	247	2,549	2977.5
2016M04	278	0	274	2,000	2415
2016M05	274	0	302	2,741	3166
2016M06	245	0	118	1,951	2255
2016M07	187	0	63	2,164	2382.5
2016M08	195	0	139	2,438	2702.5
2016M09	328	0	151	1,932	2335.5
2016M10	306	0	25	1,764	2082.5
2016M11	418	0	21	2,287	2715.5
2016M12	258	0	124	2,354	2674
2017M01	324	0	88	1,858	2226
2017M02	333	0	114	1,301	1691
2017M03	293	0	126	986	1342
2017M04	244	0	159	1,095	1418.5
2017M05	269	0	104	875	1196
2017M06	289	0	170	902	1276
2017M07	273	0	185	901	1266.5
2017M08	236	0	63	715	982.5
2017M09	224	0	83	585	850.5
2017M10	345	0	70	740	1120
2017M11	360	0	61	593	983.5
2017M12	346	0	88	763	1153
2018M01	352	0	158	689	1120
2018M02	284	0	152	781	1141
2018M03	365	0	237	1,042	1525.5
2018M04	272	0	163	868	1221.5
3-year average	296	0	66	1,756	2,117

**Eurostat – Fuel oil Refinery Production with Sulphur Content of Greater Than or Equal to 1%,
Thousand Tons per Month**

	Belgium	Germany	France	Netherlands	Net Total Production
2015M01	455	0	408	485	1144
2015M02	407	0	396	473	1078
2015M03	496	0	526	435	1194
2015M04	404	0	382	605	1200
2015M05	339	0	450	424	988
2015M06	203	0	289	331	678.5
2015M07	335	0	405	351	888.5
2015M08	311	0	397	403	912.5
2015M09	263	0	430	447	925

2015M10	362	0	319	410	931.5
2015M11	606	0	457	363	1197.5
2015M12	479	0	485	579	1300.5
2016M01	426	0	526	578	1267
2016M02	430	0	516	526	1214
2016M03	436	0	486	600	1279
2016M04	444	0	460	833	1507
2016M05	396	0	435	614	1227.5
2016M06	423	0	294	564	1134
2016M07	509	0	457	520	1257.5
2016M08	478	0	535	574	1319.5
2016M09	428	0	511	600	1283.5
2016M10	320	0	439	413	952.5
2016M11	165	0	524	477	904
2016M12	519	0	452	371	1116
2017M01	518	0	508	544	1316
2017M02	461	0	414	548	1216
2017M03	616	0	497	542	1406.5
2017M04	645	0	470	513	1393
2017M05	573	0	468	617	1424
2017M06	607	0	443	517	1345.5
2017M07	604	0	469	570	1408.5
2017M08	605	0	495	454	1306.5
2017M09	562	0	469	621	1417.5
2017M10	511	0	406	590	1304
2017M11	644	0	465	691	1567.5
2017M12	588	0	490	568	1401
2018M01	595	0	511	419	1269.5
2018M02	484	0	411	439	1128.5
2018M03	555	0	474	426	1218
2018M04	456	0	398	579	1234
3-year average	469	0	226	517	1,212