

SUBMISSION COVER SHEET

IMPORTANT: Check box if Confidential Treatment is requested

Registered Entity Identifier Code (optional): 23-007

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): 02/24/23 Filing Description: Initial Listing of the NY Harbor ULSD Brent Crack Spread Average Price Option Contract

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: See filing.

Rule Numbers: See filing.



Christopher Bowen
Managing Director and Chief Regulatory Counsel
Legal Department

February 24, 2023

VIA ELECTRONIC PORTAL

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

**Re: CFTC Regulation 40.2(a) Certification. Initial Listing of the NY Harbor ULSD Brent Crack Spread Average Price Option Contract.
NYMEX Submission No. 23-007**

Dear Mr. Kirkpatrick:

The New York Mercantile Exchange, Inc. (“NYMEX” or “Exchange”) is notifying the Commodity Futures Trading Commission (“CFTC” or “Commission”) that it is self-certifying the listing of the NY Harbor ULSD Brent Crack Spread Average Price Option contract (the “Contract”) for trading on the CME Globex electronic trading platform and for submission for clearing via CME ClearPort effective Sunday, March 12, 2023, for trade date Monday, March 13, 2023.

Contract Title	NY Harbor ULSD Brent Crack Spread Average Price Option
CME Globex and CME ClearPort Code	HBO
Rulebook Chapter	1099
Settlement Type	Financial
Contract Size	1,000 barrels
Pricing Quotation	U.S. dollars per barrel
Minimum Price Fluctuation	\$0.001 per barrel
Value Per Tick	\$1.00
Termination of Trading	Trading terminates on the last business day of the contract month
Listing Schedule	Monthly contracts listed for the current year and the next 3 calendar years. List monthly contracts for a new calendar year following the termination of trading in the December contract of the current year.
First Listed Month	March 2023
Block Trade Minimum Threshold	10 contracts – subject to a 15-minute reporting window
CME Globex Match Algorithm	First-In, First-Out (FIFO)
Underlying Futures Contract Title/Commodity Code	NY Harbor ULSD Brent Crack Spread Futures / HOB
Strike Price Increment	\$0.25 per barrel
Strike Price Listing Rule	At the money strikes at \$0.25 per barrel increments for the nearest 6 months then dynamic strikes thereafter at \$0.25 per barrel increments
Option Type	European Style
Margining Style	Equity Style
Trading and Clearing Hours	CME Globex Pre-Open: Sunday 4:00 p.m. - 5:00 p.m. Central Time/CT Monday - Thursday 4:45 p.m. - 5:00 p.m. CT CME Globex: Sunday - Friday 5:00 p.m. CT with a daily maintenance period from 4:00 p.m. - 5:00 p.m. CT

	CME ClearPort: Sunday - Friday 5:00 p.m. - 4:00 p.m. CT with no reporting Monday - Thursday from 4:00 p.m. - 5:00 p.m. CT
--	--

The Exchange is also notifying the CFTC that it is self-certifying the insertion of the terms and conditions for the Contract into the Position Limit, Position Accountability and Reportable Level Table and Header Notes located in the Interpretations and Special Notices Section of Chapter 5 of the NYMEX Rulebook in relation to the listing of the new contract. These terms and conditions establish the all-month/any one-month accountability levels, expiration month position limit, reportable level, and aggregation allocation for the new contract. Please see Exhibit B, attached under separate cover.

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

- **Compliance with Rules:** Trading in the Contract will be subject to the rules in Rulebook Chapter 4 which includes prohibitions against fraudulent, noncompetitive, unfair and abusive practices. Additionally, trading in this Contract will also be subject to the full range 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 this product 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.
- **Contracts Not Readily Subject to Manipulation:** The Contract is not readily subject to manipulation because of its structural attributes, underlying market and reliance on two highly liquid underlying legs. The Contract is financially settled against the NYMEX NY Harbor ULSD futures and the ICE Brent crude futures contract which are the two underlying components on which the option is traded.
- **Prevention of Market Disruption:** Trading in the Contract will be subject to 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 Contract 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 Contract 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 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 trading volumes, open interest levels, and price information daily on its website and through quote vendors for the Contract.
- **Execution of Transactions:** The Contract will be listed for trading on the CME Globex electronic trading and for clearing through the 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 Contract will be included in the audit trail and is sufficient for the Market Regulation Department to monitor for market abuse.

- **Financial Integrity of Contract:** The Contract 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 contract 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 the product are identified.
- **Dispute Resolution:** Disputes with respect to trading in the Contract will be subject to the arbitration provisions set forth in Chapter 6 of the Rulebook. Chapter 6 allows all non-members 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 Contract complies with the Act, including regulations under the Act. There were no substantive opposing views to listing of the Contract.

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>.

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

Sincerely,

/s/Christopher Bowen
 Managing Director and Chief Regulatory Counsel

Attachments:	Exhibit A:	NYMEX Rulebook Chapter 1099
	Exhibit B:	Position Limit, Position Accountability, and Reportable Level Table in Chapter 5 of the NYMEX Rulebook (attached under separate cover)
	Exhibit C:	Exchange Fees
	Exhibit D:	NYMEX Rule 588.H. – (“Globex Non-Reviewable Trading Ranges”) Table
	Exhibit E:	NYMEX Rule 300.20. – Strike Price Listing and Exercise Procedures Table
	Exhibit F:	Cash Market Overview and Analysis of Deliverable Supply

EXHIBIT A

NYMEX Rulebook

Chapter 1099

NY Harbor ULSD Brent Crack Spread Average Price Option

1099100. 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.

1099101. OPTION CHARACTERISTICS

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

1099101.A. Trading Schedule

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

1099101.B. Trading Unit

A ULSD Brent Crack Spread Average Price Call Option traded on the Exchange represents the differential between the underlying spread and the strike price, multiplied by 1,000 barrels, or zero, whichever is greater. The underlying spread is equal to the arithmetic average of the ULSD futures contract first nearby settlement price minus the Brent Crude Oil (ICE) Futures contract first nearby settlement price for each business day during the contract month (using Non-common pricing), except for (A) below. For purposes of determining the Floating Price, the ULSD assessment price will be converted each day to U.S. dollars and cents per barrel, rounded to the nearest cent. (A) The settlement prices of the 1st nearby contract month will be used except on the last day of trading for the expiring Brent Crude Oil Futures contract when the settlement prices of the 2nd nearby contract will be used. The underlying spread is also the final settlement price of the underlying ULSD Brent Crack Spread futures. A ULSD Brent Crack Spread Average Price Put Option traded on the Exchange represents the differential between the strike price and the underlying spread, multiplied by 1,000 barrels, or zero, whichever is greater. The underlying spread is equal to the arithmetic average of the ULSD futures first nearby contract settlement price minus the Brent Crude Oil (ICE) Futures contract first nearby settlement price for each business day during the contract month (using Non-common pricing), except for (A) below. For purposes of determining the Floating Price, the ULSD assessment price will be converted each day to U.S. dollars and cents per barrel, rounded to the nearest cent. (A) The settlement prices of the 1st nearby contract month will be used except on the last day of trading for the expiring Brent Crude Oil Futures contract when the settlement prices of the 2nd nearby contract will be used.

1099101.C. Price Increments

Prices shall be quoted in dollars and cents per barrel. A cabinet trade may occur at the price of \$0.001 per barrel or \$1.00. Trading in NY Harbor ULSD Brent Crack Spread Average Price Option shall be subject to a price fluctuation of \$0.001 per barrel.

1099101.D. Position Limits and 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.

1099101.E. Termination of Trading

The option contract shall expire on the last business day of the delivery month. The option cannot be exercised prior to expiration.

1099101.F. Option Type

The option is a European-style option which can only be exercised on the expiration day.

1099102. EXERCISE PRICES

Transactions shall be conducted for option contracts as set forth in Rule 300.20.

EXHIBIT B

NYMEX Rulebook

Chapter 5

(“Trading Qualifications and Practices”)

Position Limit, Position Accountability, and Reportable Level Table

(under separate cover)

EXHIBIT C

Exchange Fees

	Member	Non-Member
CME Globex	\$2.20	\$2.70
Block	\$2.20	\$2.70
EFR/EOO	\$2.20	\$2.70
Processing Fees	Member	Non-Member
Cash Settlement	\$0.90	\$1.15
Facilitation Fee	\$0.60	
Give-Up Surcharge	\$0.05	
Position Adjustment/Position Transfer	\$0.10	

EXHIBIT D

NYMEX Rulebook

Chapter 5

(“Trading Qualifications and Practices”)

NYMEX Rule 588.H. – (“Globex Non-Reviewable Trading Ranges”) Table

(additions underscored)

Instrument Name	Globex Symbol	Outright Globex Non-Reviewable Ranges (NRR)
<u>NY Harbor ULSD Brent Crack Spread Average Price Option</u>	<u>HBO</u>	The greater of the following: <ul style="list-style-type: none">• <u>Delta multiplied by the underlying futures non-reviewable range</u>• <u>20% of premium up to ¼ of the underlying futures non-reviewable range</u>• <u>5 ticks</u>

EXHIBIT E

NYMEX Rulebook

Chapter 300

(“Options Contracts”)

NYMEX Rule 300.20. – (“Strike Price Listing and Exercise Procedures”) Table

Commodity Code	CME Globex Code	Product Name	Product Group	Product Subgroup	Exchange	Rulebook Chapter	Strike Price Listing Rule	Exercise Style	Contrary Instructions	Margin Style	Exact At-The-Money Characteristics	Underlying Commodity Code	Underlying Product Name
HBO	HBO	NY Harbor ULSD Brent Crack Spread Average Price Option	Energy	Refined Products	NYMEX	1099	At the money strikes at \$0.25 per barrel increments for the nearest 6 months then dynamic strikes thereafter at \$0.25 per barrel increments	European	N/A - Financially Settled	Equity	N/A - Financially Settled	HOB	NY Harbor ULSD Brent Crack Spread Futures

EXHIBIT F

Cash Market Overview and Deliverable Supply

New York Mercantile Exchange, Inc. (“NYMEX” or “Exchange”) will list the NY Harbor ULSD Brent Crack Spread Average Price Option contract (the “Contract”) for trading on the CME Globex electronic trading platform and for submission for clearing via CME ClearPort effective Sunday, March 12, 2023, for trade date Monday, March 13, 2023.

Contract Title	Rulebook Chapter	CME Globex and CME ClearPort Code
NY Harbor ULSD Brent Crack Spread Average Price Option	1099	HBO

Market overview

The North Sea market is comprised of a series of smaller oil fields in the UK and Norwegian North oil sectors. Each of the “satellite fields” connect into the large production systems such as Brent, Forties, Oseberg or Ekofisk. Norwegian crude oil Troll was added to the basket of Brent deliverable streams from January 2018.¹

The most important streams in the North Sea are Brent, Forties, Oseberg and Ekofisk and Troll. Each stream has a principal operator that is responsible for the day to the day control of the operations including the scheduling of the cargoes based on the production from each of the smaller producing fields. The Brent, Forties, Oseberg, Ekofisk and Troll fields collectively known as BFOET underpins the Brent complex. These crude grades are the key grades of oil that make up the trading of Dated Brent – the international crude oil physical benchmark price. Brent and Forties lie in the UK sector of the North Sea with Ekofisk, Oseberg and Troll in the Norwegian sector.

Dated Brent is a critical component of the Brent complex which also includes physically deliverable crude oil in the future, in the form of cash Brent or cash BFOET and a liquid EFP market. There is also a large set of financial derivatives contracts such as the Contract for Differences (CFDs), Dated to Frontline (DFLs).

The Brent forward market consists of the trading of cargoes of any of the BFOET streams for delivery beyond month ahead, with no specific dates assigned for loading. The cargoes are 600,000 barrels and, in the forward market, precise loading dates are not provided with cargoes labelled as June BFOET for example. However, the commercial contracts, which are standardized, underlying the forward market to specify the minimum notification a seller must provide to a buyer is 10 days but the standard range is between 10 days and month ahead. After a holder of a BFOET forward notifies the buyer as to the loading date and which stream is being loaded, the contract is now considered to have moved from the forward market to the Dated Brent market, historically this moment is referred to as the cargo going “wet” i.e., it has loading dates attached to it and can therefore be sold as a Dated Brent cargo.

The Brent cash market is essentially a reseller market where buyers either: resell the oil to someone else; transport the cargo and resell it later; or transport the cargo to consume it. Most of the sales in the Brent market are conducted as spot-market transactions; in fact, Brent cargoes in the physical market are estimated to trade 10 or more times. Typically, there is a chronology of sales and purchases of crude oil in the Brent cash market that starts with a sale from the equity producer in a spot market transaction, and finishes with a purchase by an end-user to consume the crude oil. Equity producers typically utilize the robust spot market to sell their BFOET production at the cargo loading terminal, as a “Free on Board” (FOB) delivery. Traders play an active role in the Brent market as middlemen with the expressed responsibility of reselling the oil. Further, the refiners typically

¹ Platts press release – Troll into Brent basket <https://www.platts.com/pressreleases/2017/022017>

rely on the spot market to purchase Brent crude oil, because there is vibrant liquidity in the spot market, and hence, the refiners have developed a preference for short-term spot market purchases, rather than long-term contracts. This applies to refiners affiliated with equity producers as well as those not affiliated; this is the standard practice, established and institutionalized over the past 34 years.

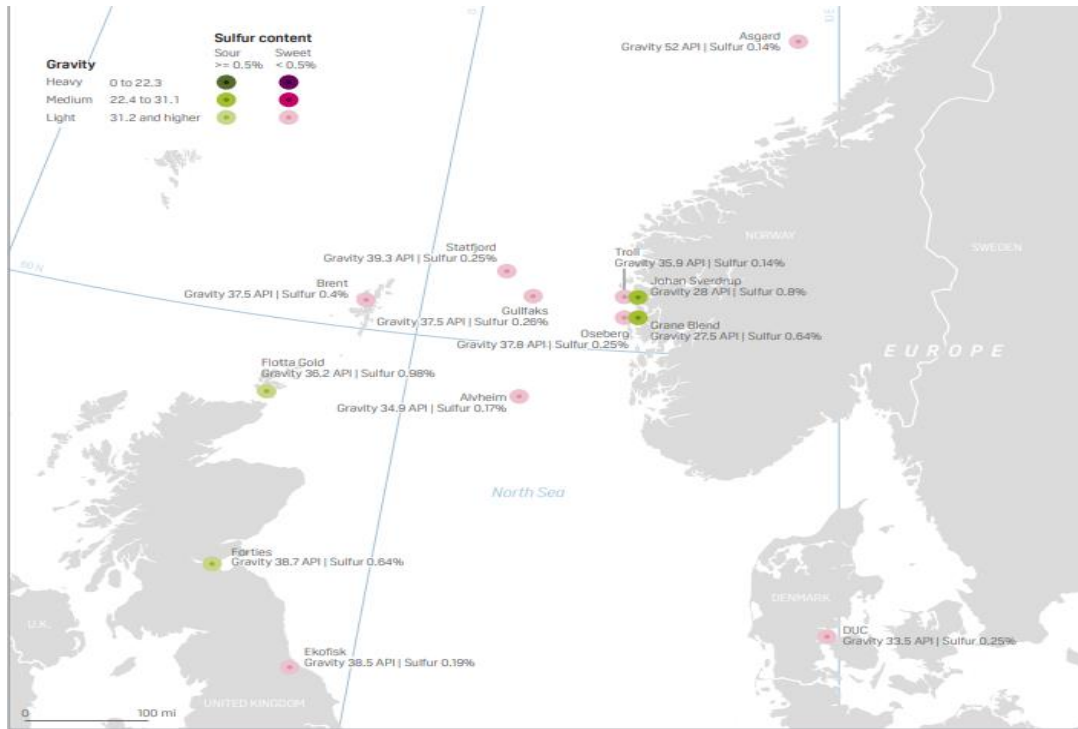
Production of BFOE has been declining over the past few years due to the cost of drilling and the returns on investment compared to other regions in the world. This was one of the main reasons why the Troll crude stream was added to the Brent basket. All the Brent grades are segregated blends delivered at different locations in the North Sea, and each can be substituted by the seller in the BFOET cash market (“the forward market”).

Quality adjustments ensure that all four grades can be delivered to a buyer under the standardized forward contract. In March 2015, the nomination period in the forward market was changed to reflect 10 days to month ahead. The change took effect with from January 2016 which reflected the March 2016 cash Brent month. The process of moving from a forward to the physical market where a forward Brent cargo becomes a physical North Sea Dated Brent cargo happens as follows:

1. Refiners, producers and traders enter into a forward agreement for a specific month.
2. The Operator of each field being Shell for Brent; BP for Forties; ConocoPhillips for Oseberg and Statoil for Ekofisk and Troll will announce the loading programs for each contract month a few days prior to the beginning of the month (one month prior) to each loading month (i.e., cargoes in the delivery month start to load). For example, for a June 2018 contract month, the field operators will announce the loading schedules a few days prior to the beginning of April 2018. The equity producers will begin the chain of nominating cargoes to buyers (or they can decide to keep the cargo). A buyer benefiting from a nomination can keep the cargo or pass it to another player with whom it has another forward contract.
3. Buyers trade the cash BFOET on the basis that they will accept any cargo as nominated, provided it is done so within the agreed notice period (10 days to month ahead) by 4pm London time. Any cargo not nominated by this time will remain with the participant last notified. After 4pm London time, the cargo becomes wet physical with precise loading dates attached.
4. Cargoes that are wet physical will be sold as a Dated Brent cargo with cargo loading dates between 10 days and month ahead (forward).

Chart 1 shows the main North Sea fields. The main BFOET crude grades are also shown.

Chart 1: The North Sea crude market supply²



The quality of the Forties crude oil stream changed in 2007 when a sour crude Buzzard began flowing into the blend that was delivered to the terminal. Buzzard remains the largest field within the forties pipeline system (FPS). Buzzard crude oil is a medium gravity, sour crude oil with an API of 32.6° and a sulphur content of 1.44% therefore the yield is very similar to that of Urals crude. INEOS FPS produces a monthly blend quality on a forward basis as laid out in the table below. They also provide indications to the market about the volume of forties crude oil that is expected to be made available on receipt of the data from all of the individual field operators within the FPS (see table below).

Table 1: The volume of Buzzard crude in the Forties Blend Estimates³

Date	Buzzard percentage in Forties	Forties Blend unstabilised crude oil (kbd)
March 2022	26.0%	294.7
April 2022	26.2%	289.0
May 2022	26.4%	288.8
June 2022	28.3%	284.8

Bloomberg LP (“Bloomberg”) provides details of the BFOET loading programs for the grades that comprise the Brent market. Based on the 3-year average of the Bloomberg data on BFOET loadings (from June 2019 to May 2022).

² https://www.spglobal.com/commodity-insights/plattscontent/_assets/files/en/our-methodology/methodology-specifications/emea-crude-methodology.pdf

³ Ineos Forties Pipeline System – Forties Blend Assay <https://www.ineos.com/businesses/ineos-fps/business/forties-blend-quality/>

Based on the data, total loadings of Brent (BFOET) crude oil were approximately 819,124 barrels per day, which is equivalent to approximately 24.57 million barrels per month. The Bloomberg data, in **Appendix 2**, shows the loaded volume of crude oil for Brent, Forties, Oseberg, Ekofisk and Troll (collectively known as BFOET).

The Brent market is priced in USD and cents per barrel. There are two significant Futures contracts based on trading activity in the forward BFOE market; NYMEX and ICE Futures Europe offer trading of Brent Futures on their respective Exchanges. The cash market is traded in partials of 100,000 barrels or larger full-size cargo transactions of 600,000 barrels. Physical convergence can occur through the partials market mechanism upon the trading of six parcels with the same counterparty in a single delivery month. If physical convergence does not occur then trades are booked out at the prevailing cash value on the last day of trading day of the cash market for the specific delivery month (i.e. this is currently month ahead prior to the 1st loading date of the delivery month). Full sized physical cargo BFOE trades will be used by ICE in the establishment of the Brent Index which is the mechanism by which the futures open on expiry are cash settled.⁴

The Dated Brent or Dated BFOET, as it is sometimes referred, reflects the value of the cheapest of Brent, Forties, Oseberg, Ekofisk and Troll, of 600,000 barrels, loading 10 days to Month Ahead. Dated Brent is estimated to price around 50% of the global crude oil supply.⁵ Within the North Sea and beyond, grades are traded as a differential to Dated Brent or as a differential to cash Brent (BFOE). Each of the crude oil grades within BFOE are not the same quality, several adjustments have been made. In 2007 Platts included a sulphur de-escalator for Forties crude oil within its Dated Brent and Brent related instruments. The change was made in response to inclusion of sour crude Buzzard into the Forties pipeline system (see chart 1). The de-escalator of price is applied to deliveries above a minimum sulphur level of 0.6%. Every month, Platts establishes a USD and cents value de-escalator for every 0.1% of sulphur above the maximum level 0.6% (for Forties crude oil). The value of de-escalator is established by reviewing evidence of significant and sustained changes in the crude market, as affected by refined products (crack spread values of both heavy fuel oils and light ends) and other relevant factors that affect the economics of Forties crude.

In February 2022⁶, Platts has launched a consultation to the Brent basket of crudes to accommodate a growing supply of Midland US crude being traded into Rotterdam on a delivered basis. Effective for cargoes loading from June 2023, Platts has proposed to include Midland crude oil as one of the deliverable crude oil streams into the Brent or BFOET forward market. Importantly, Platts would also change the traded cargo size volume from 600,000 to 700,000 barrels as US crude is traded on larger vessel sizes.

⁴ https://www.theice.com/publicdocs/futures/ICE_Futures_Europe_Brent_Index.pdf

⁵ <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2012/03/Brent-Prices-Impact-of-PRA-methodology-on-price-formation.pdf>

⁶ <https://www.spglobal.com/commodity-insights/en/market-insights/latest-news/oil/021422-s-p-global-platts-proposes-including-us-wti-midland-crude-in-dated-brent-keeps-benchmark-on-fob-basis>

Analysis of Deliverable Supply

In estimating deliverable supply for the futures contract, the Exchange relied on long-standing precedent, which provides that the key component in estimating deliverable supply is the portion of typical production and supply stocks that could reasonably be considered to be readily available for delivery. In its guidance on estimating deliverable supply, the Commodity Futures Trading Commission (“CFTC” or “Commission”) states:

In general, the term “deliverable supply” means 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. Typically, deliverable supply reflects the quantity of the commodity that potentially could be made available for sale on a spot basis at current prices at the contract’s delivery points. For a non-financial physical-delivery commodity contract, this estimate might represent product which is in storage at the delivery point(s) specified in the futures contract or can be moved economically into or through such points consistent with the delivery procedures set forth in the contract and which is available for sale on a spot basis within the marketing channels that normally are tributary to the delivery point(s).⁷

Brent Crude Oil

The basis of the analysis in the Brent market is BFOET loadings in the North Sea. The Exchange determined that the volume of loaded barrels of BFOE crude oil from Brent, Forties, Oseberg and Ekofisk and Troll best meets the definition of supply readily available for delivery. In addition, the Exchange has reduced the deliverable supply of Forties to account for the long-term commitment for crude oil purchases by the Grangemouth refinery. The Grangemouth oil refinery is located close to the delivery point of the Forties pipeline and volumes from the outer fields are connected directly via a series of pipelines to the refinery.⁸ Based on the 3-year average of the Bloomberg data on BFOE loadings (June 2019 to May 2022), total loadings of Brent (BFOET) crude oil was approximately 819,924 barrels per day, which is equivalent to approximately 24.597 million barrels per month, or 24,597 contract equivalents (contract size: 1,000 barrels). Further, to account for the crude oil purchases by the Grangemouth refinery, the deliverable supply (using the three-year average BFOET figures) would be reduced by 3 million barrels⁹ per month.¹⁰ Therefore, the total deliverable supply of BFOE is approximately **21.597 million barrels per month** which is equivalent to 21,597 contracts.

The spot month limit of the Brent Futures market (commodity code BZ) is 5,000 lots and therefore based on the deliverable supply of 21,597 contract month equivalents, this represents around 23.15% of deliverable supply. A breakdown of the data is shown in Appendix 2.

⁷ http://www.ecfr.gov/cgi-bin/text-idx?SID=74959c3dbae469e2efe0a42b45b8dfae&mc=true&node=ap17.1.38_11201.c&rgn=div9

⁸ http://www.bp.com/en/global/forties-pipeline/about_fps/Technical/technical_information.html - BP Forties Pipeline system

⁹ UKPia – Petroineos Grangemouth Refinery capacity http://www.ukpia.com/industry_information/refining-and-uk-refineries/Petroineos-grangemouth-refinery.aspx

¹⁰ Market suggests 50% of the processing capacity for Grangemouth is Forties therefore we have reduced the deliverable supply of Forties by 3-million barrels per month (the full capacity of the refinery is 6 million barrels per month).

NY Harbor ULSD

In estimating deliverable supply for the NY Harbor ULSD Futures, the New York Mercantile Exchange, Inc. (“NYMEX” or “Exchange”) relied on long-standing precedent, which provides that the key component in estimating deliverable supply is the portion of typical production and supply stocks that could reasonably be considered to be readily available for delivery. In its guidance on estimating deliverable supply, the Commodity Futures Trading Commission (“CFTC” or “Commission”) states:

In general, the term “deliverable supply” means 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. Typically, deliverable supply reflects the quantity of the commodity that potentially could be made available for sale on a spot basis at current prices at the contract’s delivery points. For a non-financial physical-delivery commodity contract, this estimate might represent product which is in storage at the delivery point(s) specified in the futures contract or can be moved economically into or through such points consistent with the delivery procedures set forth in the contract and which is available for sale on a spot basis within the marketing channels that normally are tributary to the delivery point(s).¹¹

I. Methodology and Data Sources

The Exchange considered four components in evaluating deliverable supply estimates of Ultra Low Sulfur Diesel (“ULSD”) for the New York Harbor delivery location of the NY Harbor ULSD Futures contract:

- A. ULSD production at Bayway Refinery;
- B. ULSD deliveries to the NY Harbor on Colonial Pipeline;
- C. ULSD storage levels in the delivery area;
- D. ULSD imports and exports into the delivery area.

For production, storage and import/exports, 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 ULSD in New York Harbor. The EIA provides detailed data on the key components of deliverable supply. The EIA provides such data on a weekly, monthly, and annual basis.

For ULSD pipeline deliveries, the Exchange relied on a combination of public information disseminated by the EIA, Federal Energy Regulatory Commission (“FERC”) as well as private interviews with reliable industry sources with whom the Exchange has had a long-standing relationship.

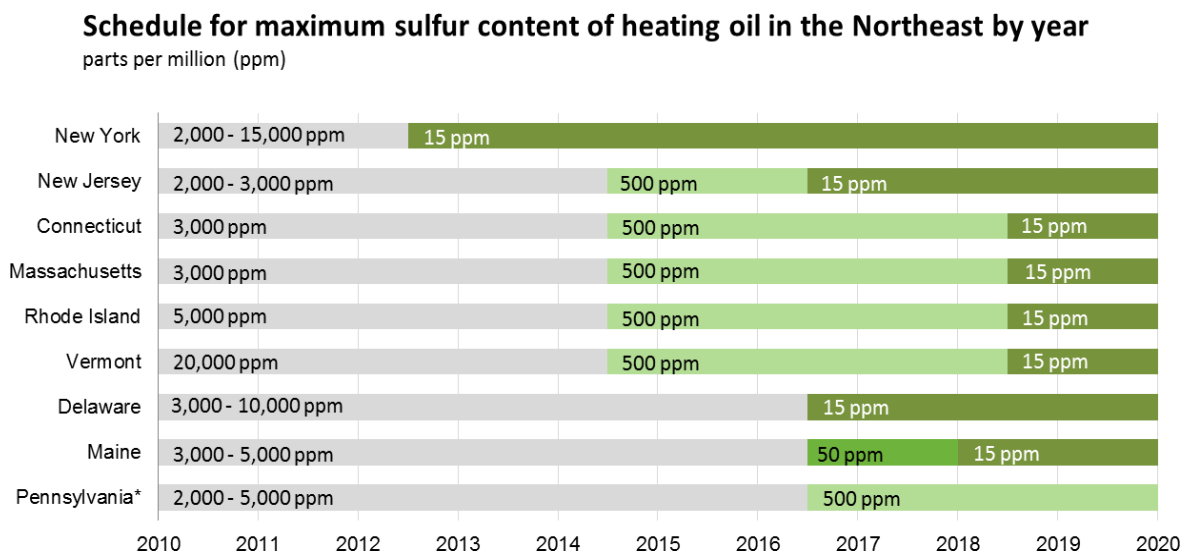
II. Introduction

ULSD is a distillate fuel that has a dual-use as heating oil and as a transportation fuel. As of December 1, 2010, all on-highway diesel fuel consumed in the United States is ULSD as mandated by federal regulations. Unlike diesel fuel used in transportation, heating oil has no federal sulfur content restrictions. However, various State initiatives to apply comparable sulfur limits to heating oil are in planning or implementation stages in the Northeast, the main heating oil consuming region.

¹¹ http://www.ecfr.gov/cgi-bin/text-idx?SID=74959c3dbae469e2efe0a42b45b8dfae&mc=true&node=ap17.1.38_11201.c&rqn=div9

According to the EIA, New England and the Central Atlantic Coast of the United States (collectively known as the “Northeast” for data purposes) are the main consumers of heating oil, typically accounting for 80% of the sales. As of July 1, 2012, New York State mandated that all heating oil sold for residential, commercial and industrial heating applications within the State contain no more than 15 parts per million (ppm) of sulfur. Following New York’s path, Delaware and New Jersey transitioned to 15ppm sulfur content in 2016. As of July 1, 2018, Connecticut, Maine, Massachusetts, Rhode Island and Vermont transitioned to ULSD for heating purposes. Figure 1 below is a summary of the specification changes to Heating Oil by State.

Figure 1 - Heating Oil Sulfur Specification Changes per State¹²



The NY Harbor ULSD Futures contract is the main benchmark used for pricing the distillate products market, which includes diesel fuel, heating oil, and jet fuel. The Exchange has amended the grade and quality specifications in response to changes in environmental regulations in the Northeast, requiring cleaner, lower sulfur diesel standards for heating oil. Effective beginning with the May-2013 delivery month, the NY Harbor ULSD Futures contract required delivery of on-road ULSD with a maximum of 15ppm sulfur content.

After transitioning to lower sulfur grade in May-2013, the NY Harbor ULSD Futures serves as a dual-use contract that is a price reference and hedging instrument for both the heating oil and on-road diesel markets. The heating oil pool will eventually be fully integrated into the ULSD market and the widespread adoption of a 15ppm sulfur content limit for heating oil is likely to encourage the development of a seamless ULSD distillate market throughout the entire East Coast, according to the EIA. Consequently, due to the phase-out of high-sulfur heating oil delivery specifications, the Exchange has focused its deliverable supply analysis on the ULSD sector of the distillate fuel market.

New York Harbor Delivery Region

New England and the Central Atlantic Coast of the United States, collectively defined by the EIA as the “Northeast”, is a well-connected and integrated geographical region in terms of oil and products infrastructure. The region is part of the larger PADD 1 (Petroleum Administration Defense District)¹³.

¹² http://www.eia.gov/forecasts/steo/special/winter/2014_winter_fuels.pdf

¹³ <http://www.eia.gov/analysis/petroleum/nerefining/prelim/>

Located in both New York and New Jersey, the New York Harbor area is the largest oil importing and third largest container port in the nation and is the main oil and refined products pricing and trading hub. Petroleum products in New York Harbor are supplied by refineries located in New Jersey, Delaware and Pennsylvania, all located within 100 miles of the New York Harbor area. East Coast refineries, a majority of which are located in New Jersey and Philadelphia, send products by local pipelines into New York Harbor.

Among the refineries serving the NY Harbor area, Bayway refinery is the largest supplier of ULSD. Located on the New York Harbor in Linden, New Jersey, the Phillips-66-owned refinery processes mainly light, low-sulfur crude oil. Bayway's refining units include fluid catalytic cracking (FCC), hydrodesulfurization units, a naphtha reformer, an alkylation unit and other processing equipment. The refinery's total crude capacity is 258,000 barrels per day (b/d), while its ULSD capacity is 108,000-115,000 b/d.¹⁴

The Colonial Pipeline is the largest refined products pipeline in the US and a key products supply link for the Northeast. The pipeline connects the Northeast to refinery output from the US Gulf Coast and foreign imports, principally from Canada, Virgin Islands, Caribbean and Europe. Colonial's network of pipelines crosses 11 states, serving more than 260 marketing terminals in the Southern and Eastern United States. The pipeline provides a link from the US Gulf Coast to the New York Harbor area through the south and across the Eastern seaboard. It generally takes from 14 to 24 days for a product batch on the Colonial Pipeline to get from Houston, Texas to the New York Harbor, with 18.5 days the average time. The Philadelphia-area refineries are strategically located along the Colonial Pipeline.

Earlier in 2011, Colonial expanded the northern end of its Houston-to-New York system, adding 100,000 barrels per day (b/d) of capacity. In addition, the company completed a series of system upgrades leading to more than 100,000 b/d of capacity for distillates¹⁵ specifically serving the New Jersey, Pennsylvania, and New York markets. Also, Colonial Pipeline added an additional 100,000 b/d of gasoline and distillates capacity in early 2013¹⁶ to meet demand in on the northern portion of the line (Greensboro, NC to Linden, NJ).

The Harbor Pipeline is an approximately 80-mile 171,000 b/d¹⁷ refined product common carrier pipeline originating near Woodbury, New Jersey and terminating in Linden, New Jersey. It is majority-owned and operated by Sunoco Logistics.

Many of the petroleum products delivered to New York Harbor are redistributed to smaller ports where they supply local demand. In particular, the Hudson River, which meets the Atlantic Ocean in New York Harbor, provides a major inland water route for petroleum product barges supplying eastern New York and parts of western New England. Significant volumes are shipped to New England via barge from New York Harbor. On the other side of the State, western New York product markets are primarily supplied from Canada at the Port of Buffalo, and via the Buckeye and Sunoco Logistics pipeline systems from Pennsylvania and the Midwest.¹⁸ Figure 2 below illustrates the logistics of refining and products transportation in the Northeast.

¹⁴ <http://www.phillips66.com/EN/about/our-businesses/refining/Pages/Bayway-Refinery.aspx>

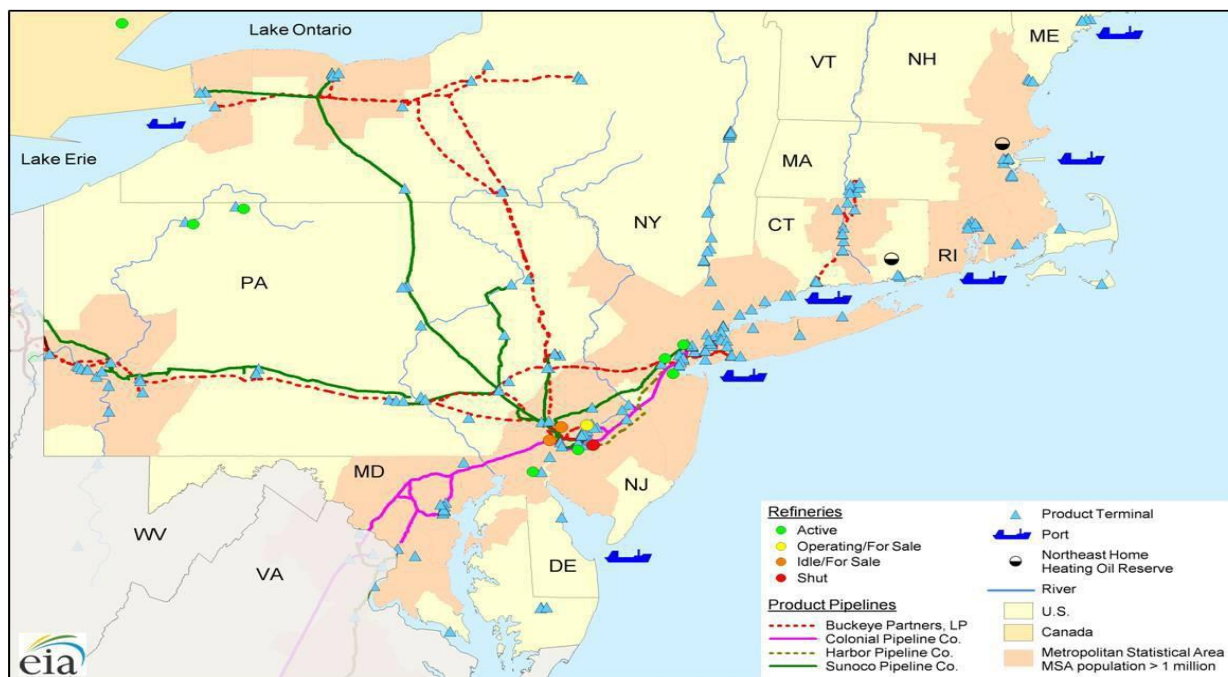
¹⁵ http://www.eia.gov/pressroom/presentations/sieminski_10102012.pdf

¹⁶ <http://www.colpipe.com/home/news-media/press-releases/pressdetail?ID=7cb2e327-d0b3-6eb4-9c07-ff00009907dd>

¹⁷ <http://inveharstor.phillips66.com/financial-information/sec-filings/sec-filings-details/default.aspx?FilingId=11867386>

¹⁸ <http://205.254.135.7/state/state-energy-profiles-analysis.cfm?sid=NY>

Figure 2 - Northeast Refined Products Market Logistics¹⁹



As of January 1, 2021, there were 130 operating refineries, in which 125 were operating in the United States with total atmospheric crude oil distillation capacity of 17.9 million barrels per calendar day.²⁰ On the East Coast (PADD 1), there are seven operable refineries with 818 thousand b/d of atmospheric crude distillation capacity. The region has 310,000 b/d of fluid catalytic cracking (FCC) capacity. PADD 1 includes all states in New England, the Mid-Atlantic, and the South Atlantic and is subdivided into three sub-PADDs.

- PADD 1A – New Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
- PADD 1B – New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia
- PADD 1C - West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida

Supply dynamics for each of the three sub-PADDs vary. PADD 1A, New England, has no refineries and relies on imports and transfers from other PADDs, primarily PADD 1B. PADD 1C, the South Atlantic, also has no operating refineries and relies primarily on pipeline transfers and marine shipments from PADD 3 and imports. PADD 1B is supplied by a combination of in-region refineries, transfers from other PADDs - primarily from PADD 3- and imports.²¹

The majority of PADD 1B refineries are located in New Jersey, Delaware and Pennsylvania, and within 100 miles of the New York Harbor area. These refineries are directly connected to the New York Harbor market by local pipelines and/or waterborne barges. A list of Northeast refineries is provided in Table 1.

¹⁹ <http://www.eia.gov/analysis/petroleum/nerefining/update/pdf/neprodmkts.pdf>

²⁰ http://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm

²¹ http://www.eia.gov/petroleum/refinery/outage/pdf/refinery_outage.pdf

Table 1 – Mid-Atlantic (PADD 1B) Refineries

Name	State	Owner	Capacity	Status
Delaware City Refining Co LLC	Delaware City, DE	PBF Energy Co LLC	171,200 b/d	Operational
Paulsboro Refining Co LLC	Paulsboro, NJ	PBF Energy Co LLC	100,000 b/d	Operational
Phillips 66 Company	Linden, NJ	Phillips 66 Company	258,000 b/d	Operational
American Refining Group Inc	Bradford, PA	American Refining Group Inc	11,000 b/d	Operational
United Refining Co	Warren, PA	Red Apple Group Inc	65,000 b/d	Operational
Monroe Energy LLC	Trainer, PA	Delta Airlines Inc	190,000 b/d	Operational

III. Deliverable Supply Estimates

A. ULSD Production

According to EIA’s “Refinery Capacity by Individual Refinery” data²² as well as data reported by Phillips-66²³, the total distillate fuel capacity at the Bayway refinery is approximately 108,000-130,000 b/d. Industry interviews indicate that almost all of Bayway’s distillate fuel capacity is used for ULSD production. In estimating ULSD production at the Bayway refinery, the Exchange adjusted the capacity figure downward due to seasonal factors, to 108,000 barrels per day. Further, EIA provides operable refinery utilization rates for the “East Coast” area of PADD 1, which is an accurate representation of the utilization rate for the Bayway refinery. EIA’s operable utilization rates represent the utilization of the atmospheric crude oil distillation units and are calculated by dividing the gross input to these units by the operable calendar day refining capacity of the units. Accordingly, the EIA refinery utilization rate is 71.6% utilization for the three-year period of 2019 through 2021²⁴ (71.3.0%, 60.0% and 83.6% respectively). Finally, according to industry sources at Phillips 66, it was explained that approximately 10,000 barrels per day of ULSD production are committed to long-term customers. Therefore, after accounting for long- term commitments, the net ULSD production at Bayway Refinery is estimated at 67,328 b/d, or approximately 2.02 million barrels per month.

Table 2 - Bayway Refinery Production

ULSD Capacity (b/d)	Capacity Utilization (3-Year Average)	Net ULSD Production (b/d)	ULSD Production committed to Long-Term Contracts (b/d)	Net ULSD Production Barrels per Month
108,000	71.6%	77,328	10,000	2,019,840

B. ULSD Deliveries

The main pipeline supplying ULSD to the NY Harbor market is the Colonial Pipeline. Data for precise ULSD flows are not publicly shared by pipeline operators, however the Exchange estimated these figures using a combination of publicly available data and industry interviews.

²² Refinery Capacity by Individual Refinery Data: <https://www.eia.gov/petroleum/refinerycapacity/refcap21.xls> under the category “desulfurization, diesel fuel”

²³ <http://www.phillips66.com/EN/about/our-businesses/refining/Pages/Bayway-Refinery.aspx>

²⁴ http://www.eia.gov/dnav/pet/pet_pnp_unc_dcu_rec_a.htm

To estimate the amount of ULSD on the Colonial Pipeline, the Exchange took a five-step approach.

- Step 1: The Exchange collected data on distillate fuel oil delivered on the pipeline as reported to the FERC in Form 6 for years 2019-2021.²⁵ These reports are designed to collect both financial and operational informational from oil pipeline companies subject to FERC jurisdiction. Table 3 illustrates total deliveries in barrels per year. Accordingly, the three-year average is reported at 271,057,489 barrels.

Table 3 – Colonial Pipeline Distillate Fuel Deliveries

	Total Delivered Out (YTD Barrels)
2019	280,507,795
2020	287,406,116
2021	245,258,556
Average	271,057,489

- Step 2: To estimate the portion of shipped distillates that is ULSD, the Exchange used the percentage of ULSD shipments for PADD 1 as reported by the EIA. The Exchange believes that the share of ULSD out of total distillates shipped from PADD 3 to PADD 1 is representative of the ULSD shipments on the Colonial Pipeline. As illustrated in Table 4 below, in the 2019-2021 timeframe, total distillates shipped from the Gulf Coast (PADD 3) to PADD 1 averaged at 310,658,000 barrels²⁶ per year. In the same time period, the ULSD (0-15 ppm Sulfur) shipments from PADD 3 into PADD 1 averaged at 298,654,000 barrels²⁷ per year, which is 96.15% of all distillates.

Table 4 – PADD 1 Receipts by Pipeline, Tanker and Barge from PADD 3 (Thousand Barrels)

	ULSD (0-15 ppm)	Total Distillates	%ULSD
2019	299,756	315,207	95.10%
2020	314,061	325,632	96.45%
2021	282,145	291,134	96.91%
Average	298,654	310,658	96.15%

- Step 3: To estimate ULSD shipments specific to the Colonial Pipeline, the Exchange applied the ULSD percentages applicable to PADD 1 from Step 2 above on total ULSD distillate fuel deliveries

²⁵ See Page 601.2, Line 19, Column (i) at:

FERC Form 6 2019, page 601.2 box i19, <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15513650>

FERC Form 6 2020, page 600 box i33, <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020CD8A3-66E2-5005-8110-C31FAFC91712>

FERC Form 6 2021, page 601.2 box i19, <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9DDCCC5F-E2E1-C84F-9260-803E93F00000>

²⁶ <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mdimxp1p31&f=a>

²⁷ http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=md0mx_r10r30_1&f=a

from Step 1. Table 5 below shows that approximately 260,544,320 barrels of ULSD per year which is equivalent to 21,712,027 barrels per month was shipped on the Colonial Pipeline in the 2019-2021 timeframe.

Table 5 – Colonial Pipeline ULSD Deliveries

	Total Delivered (Step 1)	% ULSD (Step 2)	ULSD Shipped on Colonial Pipeline (Barrels)	ULSD Shipped on Colonial Pipeline (Barrels per Month)
2019	280,507,795	95.10%	266,757,701	22,229,808
2020	287,406,116	96.45%	277,189,261	23,099,105
2021	245,258,556	96.91%	237,685,998	19,807,166
Average 2019- 2021			260,544,320	21,712,027

- Step 4: Previously, the Exchange calculated the amount of ULSD that was shipped on the Colonial Pipeline and delivered to the NY Harbor market, which is the terminus of the Colonial Pipeline. This calculation methodology was based on the surcharge that was assessed by FERC on ULSD shipments on Colonial Pipeline for the time period of 2014 through 2016. This ULSD surcharge was a temporary fee that was mandated by FERC and publicly reported by Colonial Pipeline for all ULSD shipments during the time period of 2014 through 2016. This FERC surcharge was discontinued at the end of 2016. Based on this reported surcharge data, the Exchange was able to calculate the amount of ULSD that was shipped on Colonial Pipeline and delivered in NY Harbor. Not all ULSD shipped on Colonial Pipeline is delivered to the NY Harbor delivery region, so the Exchange performed a calculation to estimate the NYH-delivered ULSD shipments using FERC Form 6 and tariff data. Per FERC Order IS07-86²⁸ ULSD that was delivered south of Philadelphia to the Colonial Pipeline terminal in Booth, PA was subject to an annual total surcharge that was reported to the FERC through Form 6²⁹ for the time period of 2014 through 2016.

According to Table 6 below, in the 2014-2016 timeframe, the ULSD surcharge on the Colonial Pipeline averaged \$8,837,556. In addition, on January 1, 2017, Colonial Pipeline discontinued the ULSD surcharge, therefore the Exchange used the time period of 2014 – 2016 for which the surcharge data is available³⁰. This FERC surcharge data provides valuable information that can be used to calculate the amount of ULSD that is delivered to the NY Harbor market on the Colonial Pipeline.

Table 6 – Colonial Pipeline Surcharge for ULSD Deliveries South of Booth, PA

	Total Surcharge (\$)
2014	7,666,428
2015	9,319,899
2016	9,526,342
Average	8,837,556

²⁸ https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20061228-0167

²⁹ See Schedule Page 300, Line 2, Column C at:

FERC Form 6 2013, page 601.2 box i19, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20140418-8063

FERC Form 6 2014, page 601.2 box i19, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20150417-8045

FERC Form 6 2015, page 601.2 box i19, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20160418-8033

³⁰ Docket Number IS17-106, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20161220-5087

To calculate the number of ULSD barrels subject to the surcharge, the Exchange used a per barrel surcharge rate applicable to each year. These rates are reported to the FERC via tariff schedules³¹ and illustrated in Table 7 below. The average surcharge was calculated by taking an average of the surcharges that were in place, weighted by how long they were in effect over the course of the year. In 2014, the surcharge of \$0.04 was in effect for the first half of the year (January-June) and the surcharge of \$0.054 was in effect for the second half of the year (July- December) so the weights are equally distributed. In 2015, there were three reported surcharges; the surcharge of \$0.054 was effective for the first half of the year (January - June) while the surcharge of \$0.056 was effective July-December, so despite having only three reported surcharges instead of four, the weights are also distributed equally. In 2016, there were four reported surcharges in which the rate remained unchanged. For the 2014-2016 timeframe, the average surcharge rate per barrel was \$0.053.

Table 7 – Colonial Pipeline ULSD Surcharge Rate for Delivery South of Booth

Year	Docket Number	Reported Surcharge (per barrel)	Average Annual Surcharge
2014	IS14-122	\$0.040	\$0.047
2014	IS14-272	\$0.040	
2014	IS14-516	\$0.054	
2014	IS14-673	\$0.054	
2015	IS15-51	\$0.054	\$0.055
2015	IS15-124	\$0.054	
2015	IS15-403	\$0.056	
2016	IS16-61	\$0.056	\$0.056
2016	IS16-258	\$0.056	
2016	IS16-628	\$0.056	
2016	IS16-694	\$0.056	

Dividing total surcharge by average surcharge rate gives the estimated ULSD shipments south of Booth, PA as displayed in Table 8. ULSD barrels delivered North of Booth, PA were calculated by subtracting ULSD barrels delivered South of Booth from the total ULSD shipped on Colonial Pipeline as shown in Table 5. This calculation derives the amount of ULSD that is shipped North of Booth, PA on Colonial Pipeline to the NY Harbor market. The calculation results as performed by the Exchange are displayed in Table 8 below. The Exchange estimated the total ULSD shipments delivered North of Booth, PA to be 105,360,102 barrels per year in 2014-2016. This is equivalent to 8,780,008 barrels of ULSD per month shipped on the Colonial Pipeline to destinations that are North of Booth, PA. which is approximately 40% of the total amount of ULSD shipped on the Colonial Pipeline as reported in Table 5 above.

³¹ To locate these documents, go to <http://elibrary.ferc.gov/idmws/search/fercgensearch.asp> For the "Date Range" field, select "All". In the "Docket Number" field, type the relevant Docket Numbers provided in Table 7. Then click "Submit" at the bottom. The result will be the full docket file. In the furthest right column, click "FERC Generated PDF". In the PDF, search for Item 125 and the surcharge is found within the text.

Table 8 – Colonial Pipeline ULSD Barrels

	Total Surcharge (\$)	Surcharge Rate per Barrel	ULSD Barrels South of Booth	ULSD Barrels North of Booth (Annual)	ULSD Barrels North of Booth (Monthly)
2014	7,666,428	0.047	163,115,489	95,514,435	7,959,536
2015	9,319,899	0.055	169,452,709	119,179,504	9,931,625
2016	9,526,342	0.056	170,113,250	101,386,367	8,448,864
Average	8,837,556	0.053	167,560,483	105,360,102	8,780,008

- As the last step in estimating the amount of ULSD shipped on the Colonial Pipeline and delivered to the NYH area, the Exchange reduced the amount of ULSD shipments delivered North of Booth, PA to account for ULSD barrels supplied by Philadelphia refiners to the Pennsylvania market that are not destined for the New York Harbor market. According to the EIA Prime Suppliers Sales Volumes data³² for Pennsylvania in 2019-2021, sales of total distillates from Pennsylvania refineries averaged 6,149,700 gallons per day (or 146,421 barrels per day), which is equivalent to 4,392,643 barrels per month. The EIA data reports the volume of total distillates supplied to Pennsylvania, of which around 90% or more is ULSD. To arrive at the estimated amount of ULSD shipped on the Colonial Pipeline to the NYH area (excluding Philadelphia refinery supplies), the Exchange subtracted 4,392,643 barrels from 8,780,008 from Table 8 to obtain 4,387,365 barrels per month.

Previously, based on the FERC surcharge data for the three-year period from 2014-2016, the Exchange estimated 8,780,008 ULSD barrels per month were shipped north of Booth, PA in the Philadelphia area which represented approximately 40% percent of total Colonial Pipeline ULSD shipments from PADD 3 to PADD 1.

Although Colonial Pipeline discontinued the FERC surcharge on ULSD as of January 1, 2017, the Exchange believes the percentage of pipeline shipments on average has remained fairly constant and is still a reliable estimate of the amount of ULSD that reaches New York Harbor which is the end point of the Colonial pipeline.

To be conservative, the Exchange did not take a haircut from the total distillates supplied by Pennsylvania refiners because ULSD accounts for over 90% of total distillates shipped to PADD 1. Therefore, the previous surcharge methodology is still valid for determining the percentage of ULSD shipments that flow on the Colonial Pipeline to the NY Harbor market. Therefore, the Exchange has determined that the total ULSD supplied to NY Harbor via Colonial Pipeline is 4.39 million barrels per month.

C. Inventories of ULSD in the New York Harbor Market

New York Harbor has a petroleum bulk terminal storage capacity of over 75 million barrels, making it the largest petroleum product hub in the country. For the purposes of ULSD delivery in NY Harbor against the NYMEX NY Harbor ULSD Futures contract, the Exchange has 17 approved delivery terminals. Based on conversations with these facilities the total cumulative working tank capacity for ULSD at all Exchange-approved delivery terminals equals 19,634,293 barrels. Table 9 below details the list of facilities approved by the Exchange.

Table 9 – ULSD Facilities in NY Harbor

³² <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=C200012421&f=A>

Name of Facility	Facility Code
PHILLIPS 66 - TREMLEY POINT	E78
INTERNATIONAL MATEX TANK TERMINAL (IMTT) - BAYONNE	E79
BUCKEYE PERTH AMBOY TERMINAL LLC	E80
BUCKEYE BRONX TERMINAL	E81
CITGO - LINDEN	E82
FEDERAL TERMINAL - ELIZABETH	E84
KINDER MORGAN - CARTERET	E85
KINDER MORGAN - CARTERET TRUCK RACK	E76
BUCKEYE PORT READING TERMINAL LLC	E86
SPRAGUE - BRONX SEC TERMINAL	E88
SHELL OIL PRODUCTS US - SEWAREN	E89
SHELL OIL PRODUCTS US - NEWARK	E83
ST TERMINAL - LINDEN	E91
BUCKEYE BAYONNE TERMINAL	E92
KINDER MORGAN - PERTH AMBOY	E94
BUCKEYE RARITAN BAY TERMINAL LLC	E96
PHILLIPS 66 - BAY WAY	E97
CENTER POINT TERMINAL NEWARK, LLC	E99

In addition to commercial stocks held in New York Harbor terminals, the Northeast Home Heating Oil Reserve (NEHHOR), which was established in 2000 to provide heating fuel supply security in the Northeast, has a one-million-barrel supply of ultra low sulfur diesel. The ULSD is stored in four terminals in the NY Harbor area: Groton, Connecticut, Port Reading, New Jersey, Chelsea and Revere, Massachusetts.

The three-year average of ULSD stocks held in the Central Atlantic, or PADD 1B, region is approximately 21.74 million barrels (See Table 10). According to market participants, the New York Harbor area, which includes storage terminals in New York and New Jersey, accounts for 50% to 60% of the inventories reported in EIA's PADD 1B statistics. Using a conservative estimate of 50% of PADD 1B inventories, the average stock level of ULSD is estimated to be approximately 10.87 million barrels in New York Harbor.

Table 10 – Central Atlantic (PADD 1B) ULSD Stocks

Thousand Barrels (Annual Averages using Weekly Data)	PADD 1³³	PADD 1B³⁴ (Central Atlantic)
May 2019 – April 2020	35,801	18,454
May 2020 – April 2021	54,142	30,206
May 2021 – April 2022	34,229	16,549
Average	41,391	21,736

Based on estimates from industry experts, we determined that the operational minimum levels for storage tanks in the New York Harbor area are approximately 5% to 10%. Using the more conservative estimate of 10%, we therefore estimate that approximately 1.09 million of the 10.87 million barrels of stored ULSD are used for operational purposes, leaving approximately 9.78 million barrels available for spot month delivery.

³³ http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WD0ST_R10_1&f=W

³⁴ http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WD0ST_R1Y_1&f=W

While the majority of ULSD in storage is available in the spot market, the Exchange applied a 20% haircut on storage figures to account for long-term agreements to arrive at a final 7.83 million barrels per month figure.

D. Imports and Exports

The New York Harbor area is the largest oil import hub in the US. According to the EIA's import data by port of entry,³⁵ ULSD imports into the New York Harbor area (which encompasses New Jersey and New York ports) averaged 70,000 barrels per day for the three-year period of March 2019 through February 2022. Further, ULSD exports from PADD 1 averaged 16,400 barrels per day for the same three-year period.³⁶ Based on conversations with industry experts, the Exchange believes that approximately 30% of the exports figure represents the NYH delivery area. Therefore, applying a 70% haircut to exports resulted in 4,900 b/d in NYH. As a result, the net imports figure for March 2019 - February 2022 was 65,100 barrels per day, or 1.95 million barrels per month.

ANALYSIS OF DELIVERABLE SUPPLY

In estimating deliverable supply for the futures contract, the Exchange relied on long-standing precedent, which provides that the key component in estimating deliverable supply is the portion of typical production and supply stocks that could reasonably be considered to be readily available for delivery. In its guidance on estimating deliverable supply, the Commodity Futures Trading Commission ("CFTC" or "Commission") states:

In general, the term "deliverable supply" means 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. Typically, deliverable supply reflects the quantity of the commodity that potentially could be made available for sale on a spot basis at current prices at the contract's delivery points. For a non-financial physical-delivery commodity contract, this estimate might represent product which is in storage at the delivery point(s) specified in the futures contract or can be moved economically into or through such points consistent with the delivery procedures set forth in the contract and which is available for sale on a spot basis within the marketing channels that normally are tributary to the delivery point(s).³⁷

NYMEX ULSD

Based on the above analysis, the Exchange determined at this time to base its estimates of deliverable supply on the sum of:

- A. *Bayway Refinery Production: 2.02 million barrels per month*
- B. *ULSD Deliveries on Colonial Pipeline: 4.39 million barrels per month*
- C. *ULSD Storage: 7.83 million barrels per month*
- D. *Net Imports: 1.95 million barrels per month*

The Exchange estimates the monthly deliverable supply of ULSD to the New York Harbor (NYH) to be approximately 16.19 million barrels, which is equivalent to **16,187** contracts per month (contract size 42,000 gallons or 1,000 barrels). Twenty-five percent of deliverable supply would result in a spot month position limit of 4,047 futures equivalent contracts. The Exchange and Federal spot month position limit

³⁵ <http://www.eia.gov/petroleum/imports/companylevel/archive/>

³⁶ https://www.eia.gov/dnav/pet/pet_move_exp_dc_R10-Z00_mbbjpd_m.htm

³⁷ http://www.ecfr.gov/cgi-bin/text-idx?SID=74959c3dbae469e2efe0a42b45b8dfae&mc=true&node=ap17.1.38_11201.c&rgn=div9

for the NY Harbor ULSD Futures Contract is 2,000 contracts or **12.4%** of the estimated monthly deliverable supply.

Brent Crude Oil

The basis of the analysis in the Brent market is BFOET loadings in the North Sea. The Exchange determined that the volume of loaded barrels of BFOE crude oil from Brent, Forties, Oseberg and Ekofisk and Troll best meets the definition of supply readily available for delivery. In addition, the Exchange has reduced the deliverable supply of Forties to account for the long-term commitment for crude oil purchases by the Grangemouth refinery. The Grangemouth oil refinery is located close to the delivery point of the Forties pipeline and volumes from the outer fields are connected directly via a series of pipelines to the refinery.³⁸ Based on the 3-year average of the Bloomberg data on BFOE loadings (June 2019 to May 2022), total loadings of Brent (BFOET) crude oil were approximately 819,924 barrels per day, which is equivalent to approximately 24.597 million barrels per month, or 24,597 contract equivalents (contract size: 1,000 barrels). Further, to account for the crude oil purchases by the Grangemouth refinery, the deliverable supply (using the three-year average BFOET figures) would be reduced by 3 million barrels³⁹ per month⁴⁰. Therefore, the total deliverable supply of BFOET is approximately **21.597 million barrels per month** which is equivalent to 21,597 contracts.

The spot month limit of the Brent Futures market (commodity code BZ) is 5,000 lots and therefore based on the deliverable supply of 21,597 contract month equivalents, this represents around 23.15% of deliverable supply.

A breakdown of the data is shown in **Appendix 2**.

Positions in the **NY Harbor ULSD Brent Crack Spread Average Price Option** will aggregate into two legs, the NY Harbor ULSD Financial Futures (commodity code MP) which is traded in units of 42,000 gallons (the equivalent of 1,000 barrels) and the Brent Crude Oil Penultimate Financial Futures (commodity code BB) which is traded in units of 1,000 barrels. The spot month position limit for the **NY Harbor ULSD Financial Futures** is 2,000 lots which represents around 12.4% of the estimated monthly deliverable supply. The spot month position limit for the **Brent Crude Oil Penultimate Financial Futures** is 5,000 lots which represents 23.15% of deliverable supply.

The Exchange estimates the monthly deliverable supply of ULSD to the New York Harbor (NYH) to be approximately 16.19 million barrels, which is equivalent to **16,187** contracts per month (contract size 42,000 gallons or 1,000 barrels). Twenty-five percent of deliverable supply would result in a spot month position limit of 4,047 futures equivalent contracts. The Exchange and Federal spot month position limit for the NY Harbor ULSD Futures Contract is 2,000 contracts or **12.4%** of the estimated monthly deliverable supply.

³⁸ http://www.bp.com/en/global/forties-pipeline/about_fps/Technical/technical_information.html - BP Forties Pipeline system

³⁹ UKPia – Petroineos Grangemouth Refinery capacity http://www.ukpia.com/industry_information/refining-and-uk-refineries/Petroineos-grangemouth-refinery.aspx

⁴⁰ Market suggests 50% of the processing capacity for Grangemouth is Forties therefore we have reduced the deliverable supply of Forties by 3-million barrels per month (the full capacity of the refinery is 6 million barrels per month).

APPENDIX 1

PADD 1 and PADD 1B ULSD Stocks (in Thousand Barrels)

Year	Month	PADD 1 ¹	PADD 1B ²
2018	Jan	38,253	23,704
	Feb	37,566	22,758
	Mar	36,990	22,842
	Apr	30,144	17,089
	May	26,720	13,696
	Jun	27,950	13,594
	Jul	30,828	16,643
	Aug	35,555	19,965
	Sep	38,467	22,164
	Oct	36,932	19,780
	Nov	34,613	18,462
	Dec	32,920	17,852
2019	Jan	38,486	20,435
	Feb	37,066	19,943
	Mar	34,416	18,208
	Apr	30,972	16,038
	May	32,394	17,193
	Jun	37,299	20,769
	Jul	39,662	22,473
	Aug	41,071	22,945
	Sep	37,595	20,648
	Oct	31,476	15,755
	Nov	32,152	14,758
	Dec	35,901	18,218
2020	Jan	39,003	20,356
	Feb	35,972	18,111
	Mar	31,271	14,438
	Apr	35,815	15,783
	May	50,533	26,401
	Jun	60,766	34,847
	Jul	61,632	35,812
	Aug	60,864	35,535
	Sep	59,622	34,637
	Oct	57,564	32,729
	Nov	54,605	31,239
	Dec	56,236	31,551

¹ EIA, Monthly averages using weekly data: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WD0ST_R10_1&f=W

² EIA, Monthly averages using weekly data: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WD0ST_R1Y_1&f=W

APPENDIX 2

North Sea crude oil loadings – Brent, Forties, Oseberg, Ekofisk and Troll

Source: Bloomberg data - LOSDFOET Index

This data shows the total volume of BFOET crudes loaded by delivery month. The data set is based on data gathered by Bloomberg. Each field operator for Brent, Forties, Oseberg, Ekofisk and Troll releases the amount of crude oil that is scheduled for loading per month. The data has been split by field to show the underlying volume for each constitute grade going into the total BFOET volume by month.

	Brent	Forties	Oseberg	Ekofisk	Troll	Total BFOET
Jun-19	80,000	340,000	100,000	40000	160,000	720,000
Jul-19	116,129	309,677	116,129	290323	154,839	987,097
Aug-19	96,774	290,323	96,774	251613	154,839	890,323
Sep-19	80,000	240,000	100,000	260000	180,000	860,000
Oct-19	116,129	309,677	77,419	251613	209,677	964,515
Nov-19	80,000	260,000	100,000	280000	171,000	891,000
Dec-19	77,419	367,742	135,484	232258	145,161	958,064
Jan-20	58,065	367,742	96,774	270968	185,484	979,033
Feb-20	62,069	372,414	103,448	268966	144,828	951,725
Mar-20	96,774	348,387	96,774	232258	193,548	967,741
Apr-20	20,000	320,000	100,000	260000	100,000	800,000
May-20	58,065	309,677	96,774	270968	174,194	909,678
Jun-20	60,000	300,000	120,000	280000	120,000	880,000
Jul-20	96,774	329,032	96,774	212903	135,484	870,967
Aug-20	58,065	251,613	116,129	270968	135,484	832,259
Sep-20	60,000	220,000	100,000	260000	80,000	720,000
Oct-20	77,419	290,323	96,774	232258	135,484	832,258
Nov-20	60,000	280,000	80,000	220000	140,000	780,000
Dec-20	77,419	270,968	116,129	290323	135,484	890,323
Jan-21	77,419	270,968	96,774	270968	135,484	851,613
Feb-21	64,286	278,571	85,714	257143	150,000	835,714
Mar-21	58,065	251,613	96,774	251613	154,839	812,904
Apr-21	60,000	220,000	80,000	260000	80,000	700,000
May-21	38,710	174,194	96,774	270967	96,774	677,419
Jun-21	80,000	20,000	100,000	200000	160,000	560,000
Jul-21	38,710	251,613	96,774	251613	135,484	774,194
Aug-21	58,065	212,903	77,419	251613	135,484	735,484
Sep-21	60,000	200,000	80,000	240000	160,000	740,000
Oct-21	38,710	290,323	96,774	251613	154,839	832,259
Nov-21	40,000	260,000	80,000	260000	160,000	800,000
Dec-21	38,710	251,613	96,774	270968	96,774	754,839
Jan-22	58,065	270,968	96,774	232258	154,839	812,904
Feb-22	42,857	235,714	64,286	214286	150,000	707,143

Mar-22	58,065	251,613	96,744	232258	135,484	774,164
Apr-22	40,000	260,000	80,000	200000	100,000	680,000
May-22	58,065	232,258	96,774	212903	154,839	754,839
3-year average	65,023	269,720	96,215	244,545	143,621	819,124