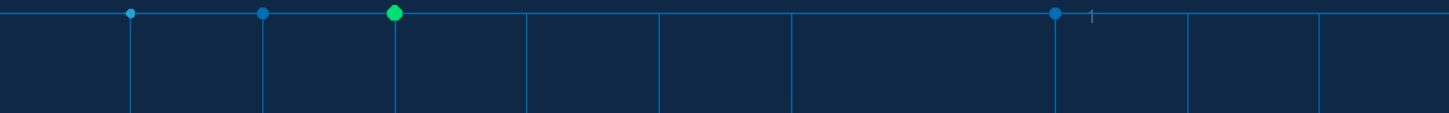


# **CME Group Petroleum Index Benchmark Methodology**

CME Group Benchmark Administration Limited

**Version 2.0**

**Publication Date: November 13<sup>th</sup>, 2025**



## Version Control

VERSION	KEY CHANGES	APPROVAL DATE
1.0	<ul style="list-style-type: none"> <li>Creation of the CME Group Petroleum Index</li> </ul>	3 <sup>rd</sup> August 2020
1.1	<ul style="list-style-type: none"> <li>Various changes improving language and formulae</li> </ul>	9 <sup>th</sup> December 2020
1.2	<ul style="list-style-type: none"> <li>Legal update</li> </ul>	9 <sup>th</sup> December 2020
1.3	<ul style="list-style-type: none"> <li>Minor reviews of language</li> </ul>	25 <sup>th</sup> March 2021
1.4	<ul style="list-style-type: none"> <li>Updates to Publication and Error Policy</li> </ul>	26 <sup>th</sup> July 2021
1.5	<ul style="list-style-type: none"> <li>Validation checks added</li> <li>Weightings annual review</li> </ul>	20 <sup>th</sup> January 2022
1.6	<ul style="list-style-type: none"> <li>Weighting's review</li> </ul>	22 <sup>nd</sup> March 2023
1.7	<ul style="list-style-type: none"> <li>Update to roll period</li> </ul>	5 <sup>th</sup> June 2023
1.8	<ul style="list-style-type: none"> <li>Weighting's review</li> <li>Addition of Holiday Calendar</li> </ul>	17 <sup>th</sup> January 2024
1.9	<ul style="list-style-type: none"> <li>Periodic Review</li> <li>Changes to the Restatement Policy, Use of Expert Judgement, Cessation Notice Period and Complaints Procedure</li> </ul>	29 <sup>th</sup> April, 2025
2.0	<ul style="list-style-type: none"> <li>Changes to the Oversight Function</li> </ul>	13 <sup>th</sup> November, 2025

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## 1. Introduction

CME Group Petroleum Index is a benchmark administered by CME Group Benchmark Administration Limited (“CBA” or “the Administrator”) and is intended to provide a single value for a basket of underlying energy futures.

### **CME Group and CME Group Benchmark Administration Limited**

As a leading and diverse derivatives market operator, CME Group is the parent of four U.S.-based designated contract markets (DCMs): Chicago Mercantile Exchange Inc. (CME), Board of Trade of the City of Chicago, Inc. (CBOT), New York Mercantile Exchange, Inc. (NYMEX), and the Commodity Exchange, Inc. (COMEX) (collectively, the CME Group Exchanges). These exchanges offer a wide range of products available across all major asset classes, including: futures and options based on interest rates, equity indexes, foreign exchange, energy, metals, and agricultural commodities. CME Group offers futures trading through the CME Globex® electronic trading platform (Globex), fixed income trading via BrokerTec, foreign exchange trading on the EBS platform, and central counterparty clearing services at CME Clearing, a division of CME. CBA capitalizes on CME Group’s wealth of electronic transaction-based data in the calculation of its indices and benchmarks.

CME Group Benchmark Administration Limited (CBA) is a regulated benchmarks administrator, authorized and supervised by the UK Financial Conduct Authority (FCA). CBA is the Administrator of the CME Group Petroleum Index, with Chicago Mercantile Exchange Group Inc. providing calculation agent and distribution services.

### **Regulatory and IOSCO Compliance**

CME Group Petroleum Index is a Benchmark designed on the basis of industry best practices and the IOSCO Principles for Financial Benchmarks.

## 2. CME Group Petroleum Index

CME Group Benchmark Administration Limited (CBA or the Administrator) has created the CME Group Petroleum Index, representing a single value for a basket of underlying energy futures listed for trading on NYMEX, a CME Group Designated Contract Market (DCM).

The CME Group Petroleum Index (the Index) starting value, as calculated on launch date, 3<sup>rd</sup> August 2020, is 100, based on a Weighted Average Price (WAP) of 43.968396.

The value of the Index changes daily, relative to the movement on the underlying components, according to the calculation methodology detailed herein.

The Index is administered by CBA, authorized and supervised by the UK Financial Conduct Authority (FCA (UK)).

CBA is the Benchmark Administrator of the CME Group Petroleum Index, with Chicago Mercantile Exchange Inc. (CME Inc.) providing calculation agent and distribution services.

### 3. Source of Input data

#### Input data

The Index reflects a weighted basket of three (3) exchange traded energy futures contracts. These components are:

- NYMEX WTI Crude Oil futures (CME Group Commodity code CL)<sup>1</sup>
- NYMEX RBOB Gasoline futures (CME Group Commodity code RB)<sup>2</sup>
- NYMEX NY Harbor ULSD futures (CME Group Commodity code HO)<sup>3</sup>.

#### Weighting of Input Data

The percentage weight of each futures contract within the Index is based on the respective average open interest volumes for the last quarter of the calendar year, from October 1st to December 31st inclusive.

The Administrator reviews the weights of each component at the end of the calendar year and makes a recommendation to the Oversight Committees. In the event that weightings have changed by more than 3% (three percent) versus the previous year, the weights must be adjusted accordingly. Changes to the weights will be advised to stakeholders and applied on the first day of the second quarter of the following year.

The latest review of open Interest weights for the fourth quarter of 2023, resulted in a change to the index weightings. The table below shows the weights which will apply from 1<sup>st</sup> April 2024.

	Old Weights	New Weights from 1 <sup>st</sup> April 2024
<b>WTI</b>	75%	72%
<b>RBOB</b>	11%	14%
<b>NYHO</b>	14%	14%

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<sup>1</sup> [https://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude\\_contractSpecs\\_futures.html](https://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude_contractSpecs_futures.html)

<sup>2</sup> <https://www.cmegroup.com/trading/energy/refined-products/rbob-gasoline.html>

<sup>3</sup> <https://www.cmegroup.com/trading/energy/refined-products/heating-oil.html>

## 4. Use of Expert Judgement

Expert judgement is not used in the ordinary day to day determination of the Index. The benchmark calculation methodology is rules-based and designed to consistently produce robust and reliable values which do not rely on expert judgement. However, CBA, in its capacity as Administrator of the Index, may exercise such expert judgement in unforeseen and extraordinary circumstances when deemed necessary to maintain the integrity, accuracy and reliability of the benchmark. These circumstances can include, but are not limited to: index restatements, periods of market stress or disruptions, or periods where data sources may be absent or become unreliable. Where such circumstances arise, a notice will be published on the [CBA Notice Page](#).

The elements of the calculation of the benchmark in relation to which expert judgement may be exercised, can include, but are not restricted to, the following: (i) excluding certain input data from the calculation; (ii) adjusting/varying any component of the benchmark calculation; or (iii) delaying/estimating the value of input data.

Any exercise of expert judgement by the Administrator can only be carried out by suitably experienced, qualified staff members who have the authority to exercise such judgement as part of their function. The exercise of expert judgement by the Administrator will be reported to the BMR Joint Oversight Committee and the CME Group Benchmark Administration (CBA) Product Advisory Committee (together the Oversight Committees) to ensure that it has been applied consistently and in accordance with the applicable benchmark administration standards and benchmark methodology. The Administrator will retain all internal records detailing the use of expert judgement and the rationale for its use to allow for any ex-post review.

## 5. Calculation Methodology

### CME Group Petroleum Index Calculation

The Index calculation is based on the official exchange futures settlement prices of the first nearby contract month, except during a roll period.

To ensure the consistency of calculation, the underlying components are represented in USD per barrel. Therefore, RB and HO contracts are converted from “cents/gallon” to “USD/barrel” using a standard conversion factor of 1 barrel = 42 US gallons.

### Data Sufficiency

The calculation of the Index is based on the daily availability of settlement prices for its three futures contract constituents. NYMEX, where the futures contracts used as inputs are traded, has in place a waterfall methodology that always ensures a timely publication of settlement prices. Details of the settlement prices waterfall calculation for each constituent can be found on the following CME Group web pages:

[NYMEX Crude Oil](#)

[NYMEX RBOB Gasoline](#)

[NYMEX NY Harbor ULSD](#)

## Roll Period

Trading liquidity of futures contracts tends to transfer from the front month to the second month around 6 days prior to the expiry of the front month contract. During those roll periods, the settlement price used for the Index calculation, is the weighted sum of the respective settlement prices of the front month contract and the second month contract, smoothed according to the following weights.

Roll Period weights	1 <sup>st</sup> month	2 <sup>nd</sup> month
Expiry Day -7	100%	0%
Expiry Day -6	80%	20%
Expiry Day -5	60%	40%
Expiry Day -4	40%	60%
Expiry Day -3	20%	80%
Expiry Day -2	0%	100%
Expiry Day -1	0%	100%
Expiry Day	0%	100%

Hence, two days before expiry of the front month contract, only the second month contract is used in the calculation and so thereafter, until the next roll period.

## CME Group Petroleum Index Settlement Price Calculation

The daily value of the Index is calculated as per the following formula:

$$CPI^t = \frac{WAP^t}{WAP^0} * 100$$

where

$CPI^t$  = CME Group Petroleum Index settlement at date t  
 $WAP^t$  = Weighted Average Price at date t  
 $WAP^0$  = Weighted Average Price at rebase date

### Weighted Average Price at date t calculation:

$$WAP^t = CL^w * CL^t + ULSD^w * 42 \frac{gal}{bbl} * ULSD^t + RBOB^w * 42 \frac{gal}{bbl} * RBOB^t$$

### Weightings:

$CL^w$  = NYMEX WTI Crude Oil weighting  
 $ULSD^w$  = NYMEX NY Harbor ULSD weighting  
 $RBOB^w$  = NYMEX RBOB Gasoline weighting

### Settlement Prices:

$CL^t$  = NYMEX WTI Crude Oil settlement price in USD/bbl at date t  
 $ULSD^t$  = NYMEX NY Harbor ULSD settlement price in USD/gal at date t  
 $RBOB^t$  = NYMEX RBOB Gasoline settlement price in USD/gal at date t

### Weighted Settlement Prices calculation during roll period:

$$CL^t \text{ or } ULSD^t \text{ or } RBOB^t = (mth^1 * D^r * 0.20) + mth^2 * (1 - D^r * 0.20)$$



where

$\text{mth}^1$  = month 1 settlement price  
 $\text{mth}^2$  = month 2 settlement price  
 $\text{exp}^1$  = expiry date of  $\text{mth}^1$   
 $D^r$  =  $(\text{exp}^1 - 2) - \text{today}$

The input:  $(\text{exp}^1 - 2)$ , accounts for the day-count adjustment needed to reflect front month contract roll two days before its expiry.

## Validation Checks

To ensure that the input data used in the calculation are correct, the Calculation Agent validates the inputs before the publication of the index Value. The validation checks aim to identify day-on-day changes of the input data above a set threshold calculated as 2.33 times the standard deviation ( $\sigma$ ) from the mean change in inputs  $\Delta$ . The standard deviation is calculated as follows:

$$\sigma = \sqrt{\frac{\sum(\Delta_t - \mu)^2}{N}}$$

where:

$\Delta_t$  = change on business day t

$$\mu = \frac{\sum \Delta_i}{N}$$

N = 30 calendar days

The validation is performed on the final input price used for the calculation, including any adjustment occurring over roll-over periods.

If the daily change ( $\Delta$ ) is greater than 2.33 times the standard deviation ( $\sigma$ ) from the mean, the Calculation Agent must promptly inform the Benchmark Administrator and validate the input data against the respective futures settlement prices. If the input data used in the calculation is found to be incorrect, the calculation will be re-run.

## 6. Publication and Restatement Policy

### Calculation Agent and Publication

CME Inc. is the calculation agent of the Index; a calculation agent agreement is in place between CBA and CME Inc.

The Index is calculated and published each CME Group settlement day as per the official schedule available on the [CME Group Settlement Notices calendar](#); the Index is published daily by 17:30 ET (05:30AM SGT +1). A table of holidays for 2024 can be found in [Appendix II](#).

The Index is published on the CME Group website and on licensed data vendor platforms.

If the Calculation Agent receives an empty or corrupted data set, it will check the integrity of the input data and re-run the calculation. If the error persists, the previous day index value will be re-published. If the previous day value is used for more than five consecutive business days, the Administrator must promptly convene the Oversight Committees to assess available remedial actions.

## Restatement Policy

The Administrator takes the utmost care to ensure that input data and calculations are accurate. During the calculation process and prior to publication, the Administrator performs additional validation checks (see [Validation Checks](#) section) to identify possible inaccuracy, and if required, will swiftly recalculate and revalidate the benchmark prior to publication.

All exceptions or warning alerts are reviewed and analysed by the Administrator. In the event that an alert is raised by a data or process error, and is identified before publication, benchmark analysts will correct the error before official publication.

In the instance an inaccuracy is not identified and resolved before benchmark calculation and publication, or if input data received is revised retrospectively, the Administrator will review the impact on any affected benchmark and determine if the inaccuracy is material and whether it warrants a re-publication of the benchmark value.

In the event that there is a material inaccuracy in the publication of the benchmark that requires a re-publication of the benchmark value, users will be informed via the CME Globex system utilising the [GCC System Alerts](#) and via the publication of a notice to the [CBA Notice Page](#).

The Administrator will take into consideration, without limitation, the below criteria when determining whether a restatement is warranted:

- The time elapsed between the initial publication and the identification of the inaccuracy;
- The number of benchmark levels affected;
- Whether the impacted benchmarks have tradable products referencing them;
- The magnitude of the inaccuracy;
- The impact of restatement on clients relative to the magnitude of the inaccuracy.

Any decisions to amend and/or republish a benchmark value by the Administrator can only be carried out by suitably experienced, qualified staff members who have the authority to make such decision as part of their function. Instances of restatements will be reported to the relevant Oversight Committees for review retrospectively and will also be reported to the Board of the Administrator. The Administrator will retain all internal records detailing instances of restatement and the rationale for its decision to allow for any ex-post review.

## Publication Alerts

In the event of disruptions to the standard Index publication process, CBA, where it deems necessary, will release publication alerts with respect to issues impacting the availability of the index. Publication alerts will be made available via the CME Globex system utilising the [GCC System Alerts](#).

## Consultations and Notices

CBA will inform the users and stakeholders of any announcements relating to republication, restatements or consultations via the [CBA Notice Page](#).

In addition, CBA may, at its discretion, release information notices with respect to issues impacting the availability of the Index, via the [CBA Notice Page](#).

## 7. Governance

The Administrator operates under a comprehensive Risk and Control Framework, providing clear policies on Governance, Oversight, Benchmark Design and Calculation, Outsourcing, Operations, Reporting of Infringements and Business Continuity.

CBA has in place a "Three Lines of Defence" model, enabling close cross-monitoring of the governance process - this being business, compliance and audit who all have a key role in ensuring that CBA meets its regulatory requirements.

### Oversight Committees

The Administrator has implemented a tiered oversight committee structure, which in combination, performs the overall duties of the Oversight Function, as defined under Article 5 UK and EU BMR (collectively, the "BMR"). The purpose of the Oversight Function is to review the accuracy, reliability, representativeness and integrity of benchmarks provided by CBA by providing independent oversight and challenge to the Administrator.

Please see a description of these Oversight Committees below:

- The BMR Joint Oversight Committee ("JOC") is responsible for the overall direction and coordination of the Oversight Function and for interaction with the management body of CBA. The JOC is supported by and is an escalation point for the CME Group Benchmark Administration (CBA) Product Advisory Committee. Please refer to the JOC Terms of Reference for full details of the responsibilities of the JOC. They are available on the [CBA Benchmark Governance website](#).
- The CME Group Benchmark Administration (CBA) Product Advisory Committee ("PAC") presides over major methodology developments and changes relating to specific index families as well as cessation and/or consultation decisions. The PAC provides technical oversight of the operation of the benchmarks as well as the underlying market and how changes could impact the continued representativeness and integrity of the benchmarks. The PAC provides its views and recommendations to both the JOC and the CBA Management. Please see the Terms of Reference for the Product Advisory Committees for further information. They are available on the [CBA Benchmark Governance website](#).

### Review of the Methodology

The Administrator regularly monitors the Benchmark Methodology and its consistency with the stated objectives. The Benchmark Methodology is reviewed and approved annually by the Administrator and is reviewed annually by the Oversight Committees.

The Oversight Committees review proposed material changes to the Benchmark Methodology including, but not limited to, the structure of the Benchmark, input data used and all aspects of the Calculation Methodology.

The Oversight Committees may request the Administrator to consult on any changes to the methodology with Stakeholders and the wider market.

## Consultation Process

Where material changes to the Benchmark become necessary, the Administrator will engage stakeholders and users by way of a public consultation

Changes to the Methodology are deemed material on the basis of an assessment conducted by the Administrator and submitted to the Oversight Committees for advice and feedback.

The Administrator will publish notice of the consultation on its website, inviting feedback from stakeholders and the wider market. Where practicable, notice of a consultation will be posted at least 1 (one) month prior to the deadline for responses. The notice will include the details of the proposed material change, the timeline and the rationale for the change.

Findings of the consultation process and proposed changes to the Benchmark Methodology, recommended as a result of the consultation, will be presented by the Administrator to the Oversight Committees for their consideration.

Feedback to a consultation is considered confidential. The Administrator will publish an anonymized summary with its conclusions, as soon as it is practical, and before implementation of any changes.

## Cessation

The Administrator constantly monitors the representativeness of the Benchmark. If the Benchmark is deemed to be unrepresentative of the underlying economic reality due to paucity of input data or systemic changes in the related markets, the Administrator will engage the Oversight Committees at the earliest opportunity. These cessation arrangements are designed to mitigate cessation and transition risks.

The Oversight Committees **are** responsible for reviewing and approving procedures for cessation of the benchmark, to the extent required under BMR, based on the type, complexity, use and vulnerability of the benchmark.

The Oversight Committees may request the Administrator to consult with Stakeholders as described in the [Consultation Process](#) section.

As a last resort, if no alternative arrangements are feasible, the Oversight Committees may advise the Administrator to discontinue the Benchmark, providing Stakeholders reasonable notice and assistance to explore alternative reference instruments.

The Administrator will endeavour to identify alternative benchmarks; however, this might not always be possible due to regulations, market conditions or a lack of suitable alternatives.

Users of the benchmark are recommended to ensure that they have adequate fallback policies and procedures in the event of the Benchmark becoming unrepresentative of its economic interest.

## Record Retention

The Administrator has in place policies for the retention of any relevant evidence and documentation related to the determination and dissemination of the Benchmark, either in paper or in electronic format, for at least the mandatory term of 5 (five) years.

## Auditing

An audit process is undertaken regularly, to ensure adherence to the stated Methodology, the IOSCO principles and regulatory requirements.

External audits can be requested at any time by the Administrator's Board, the JOC or the internal audit function.

## Data Licensing and Distribution

The Benchmark is made available subject to execution of an Information License Agreement (ILA) with CME Inc. together with the appropriate Schedules. Market participants that intend to subscribe to the benchmark should contact the Administrator at the following email address: [datasales@cmegroup.com](mailto:datasales@cmegroup.com)

## Complaints Procedures

The [CBA Complaints Procedures](#) set out details on the management of customer complaints to ensure that they are handled fairly and effectively, in a prompt and transparent manner and in accordance with applicable regulatory requirements. Complaints will be dealt with by a senior member of staff not directly involved with the benchmark calculation and dissemination.

Information related to complaints will be stored in a restricted access area and kept for a period of at least 5 (five) years following the date when the complaint was first lodged. Complaints can be submitted at [internationalcompliance@cmegroup.com](mailto:internationalcompliance@cmegroup.com)

## 8. Appendix I – Key Terms & Definitions

TERM	DESCRIPTION
<b>CBA</b>	CME Group Benchmark Administration Limited
<b>CL</b>	NYMEX WTI Crude Oil future
<b>CME Group</b>	Chicago Mercantile Exchange Group Inc.
<b>FCA (UK)</b>	Financial Conduct Authority (UK)
<b>HO</b>	NYMEX NY Harbor ULSD future
<b>IOSCO</b>	International Organisation of Securities Commissions
<b>RB</b>	NYMEX RBOB Gasoline future
<b>JOC</b>	BMR Joint Oversight Committee
<b>PAC</b>	Product Advisory Committee

## 9. Appendix II – Holiday Calendar 2025

HOLIDAY	DATE
New Year's Day	1 <sup>st</sup> January 2025
Martin Luther King Day	20 <sup>th</sup> January 2025
Presidents Day	17 <sup>th</sup> February 2025
Good Friday	18 <sup>th</sup> April 2025
Memorial Day	26 <sup>th</sup> May 2025
Juneteenth	19 <sup>th</sup> June 2025
Independence Day	4 <sup>th</sup> July 2025
Labor Day	1 September 2025
Columbus Day	13 <sup>th</sup> October 2025
Veterans Day	11 <sup>th</sup> November 2025
Thanksgiving Day	27 <sup>th</sup> November 2025
Christmas Day	25 <sup>th</sup> December 2025



## 10. Appendix III – Index Weighting History

<b>Dates</b>	<b>CL Weight</b>	<b>NYHO Weight</b>	<b>RBOB Weight</b>
3 <sup>rd</sup> Aug 2020 – 31 <sup>st</sup> Mar 2022	72%	15%	13%
1 <sup>st</sup> Apr 2022 – 31 <sup>st</sup> Mar 2024	75%	14%	11%
1 <sup>st</sup> Apr 2024 onwards	72%	14%	14%

