

**S&P Dow Jones
Indices**

A Division of **S&P Global**

IHS Markit Global Carbon UCITS Index *Index Manual*

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1) IHS Markit Global Carbon UCITS Index Guide

The IHS Markit Global Carbon UCITS Index is designed to measure the performance of the global carbon credit market compliant with established UCITS guidelines. Carbon credit futures are utilized to access carbon credit markets due to their liquidity and accessibility to investors. The eligible carbon credit futures for the index are selected based on the most liquid segments of the relevant markets.

The IHS Markit Global Carbon UCITS Index is rebalanced once a year on the last Index Calculation Day of November (the "rebalancing date") over a period of 5 Index Calculation Days starting on the first Index Calculation Day of December. Each contract is rolled into the next expiry contract at a share of 20% each day. The constituents weights and holdings are also reset on the last Index Calculation Day of each month throughout the year (the "reset dates") as per the end of November rebalancing weights.

The IHS Markit Global Carbon UCITS Index currently consists of European Union Allowance (EUA), UK Allowance (UKA), California Carbon Allowance (CCA), and Regional Greenhouse Gas Initiative (RGGI) carbon credit futures plus a cash component to satisfy the UCITS 35/20 rule.

The carbon credit futures in the IHS Markit Global Carbon UCITS Index must meet all the criteria described in [Section 2\) — Carbon Credit Selection Rules](#) of the close of business three business days prior to the rebalancing date provided that the relevant carbon credit futures data can be verified, at Markit Indices Limited's sole discretion, as of such date ("constituent selection cut-off date").

On the last Index Calculation Day of each month (other than the annual rebalancing date), the holding of each contract and cash component is reset and the new holdings become effective the following month on the first Index Calculation Day.

The IHS Markit Global Carbon UCITS Index uses ICE Futures Pricing for all constituents. Prior to 22 December 2022, the IHS Markit Global Carbon UCITS Index used Oil Price Information Service (OPIS) pricing for CCA and RGGI contracts.

This document covers the index selection rules and calculation methodology.

1.1) Publication of the Index

The index is calculated daily following the index calculation calendar below. The index is rebalanced on the last Index Calculation Day of November each year. The constituent weights and holdings are also reset monthly on the last Index Calculation Day as per the end of November rebalancing weights. The index is calculated on the basis of end-of-day futures exchange prices for the respective carbon credit futures on each trading day defined in the index calculation calendar. Index data and carbon credit futures price information is also available from the main information vendors.

The index calculation calendar conforms to the New York Stock Exchange (NYSE) trading calendar:

- Index Calculation Day: The Index calculates on each NYSE Trading Day

2) Carbon Credit Selection Rules

The following selection criteria are used to determine the index constituents:

- Accessibility of Futures Markets
- Contract Selection
- Maturity of the Program

2.1) Accessibility of Futures Markets

The IHS Markit Global Carbon UCITS Index includes only carbon credit futures that can be easily accessed by institutional investors for trading purposes. Markets restricting trading within carbon credit futures are not eligible. Specifically, the following markets have been deemed eligible:

- European Union Allowance (EUA)
- UK Allowance (UKA)
- California Carbon Allowance (CCA)
- Regional Greenhouse Gas Initiative (RGGI)

IHS Markit may consult with the IHS Markit Global Carbon Index Advisory Committee to review potential carbon credit futures for inclusion or existing carbon credit futures for exclusion dependent on the developments in the respective markets. Any decision as to the eligibility or ineligibility of a carbon credit futures contract will be published and the index rules will be updated accordingly.

2.2) Contract Selection

The IHS Markit Global Carbon UCITS Index includes only carbon credit futures that are liquid to ensure that the index can be replicated. Programs whose carbon credit futures have limited trading volume are not eligible in the index. Specifically, the following rules are applied regarding liquidity and selection for the carbon credit futures. Expiry refers to the year that a given futures contract matures, while Vintage, where applicable, refers to the year that the allowance may be used for compliance. Note that “Current” and “Next” expiries are from the perspective of the index basket at a given date. Hence, immediately after rebalancing in November, “Current” references the next calendar year and the “Next” references the year after that so for example, in December 2022, “Current” references 2023 while “Next” refers to 2024:

- Current or Next Year December Expiry
- Current or Next Year Vintage Matching the Current or Next Future’s Year of Expiry respectively
- Minimum of \$10 Million for Average Monthly Program Trade Volume (Prior Six Month Period)

Please refer to [Section 7\) — Appendix C: Contracts included in the IHS Markit Global Carbon UCITS Index](#) for further information historically.

IHS Markit may consult with the IHS Markit Global Carbon Index Advisory Committee to review potential carbon credit futures for inclusion or existing carbon credit futures for exclusion dependent on changes in overall liquidity within carbon credit markets. Any decision as to the eligibility or ineligibility of a carbon credit futures contract will be published and the index rules will be updated accordingly.

2.3) Maturity of the Program

The IHS Markit Global Carbon UCITS Index includes only carbon credit futures that belong to cap-and-trade programs with recognizable stability regarding the sustainability and future existence of the program.

Carbon credit futures that are part of unstable or extremely uncertain cap-and-trade programs are not eligible for the index.

IHS Markit may consult with the IHS Markit Global Carbon Index Advisory Committee to review potential carbon credit futures for inclusion or existing carbon credit futures for exclusion dependent on the viewed stability of respective carbon credit markets by the industry. Any decision as to the eligibility or ineligibility of a carbon credit futures contract will be published and the index rules will be updated accordingly.

3) Index Calculation

3.1) Pricing Data

Carbon credit futures pricing is sourced from ICE Futures Pricing for European Union Allowance (EUA) and UK Allowance (UKA) futures as well as California Carbon Allowance (CCA) and Regional Greenhouse Gas Initiative (RGGI) physically-settled futures contracts from 22 December 2022.

More details on the ICE Futures Pricing information used for EUA futures contracts can be found at <https://www.theice.com/products/197/EUA-Futures/specs>.

More details on the ICE Futures Pricing information used for UKA futures contracts can be found at <https://www.theice.com/products/80216150/UKA-Futures>.

More details on the ICE Futures Pricing information used for CCA and RGGI physically settled futures contracts can be found at <https://www.theice.com/products/Futures-Options/US-Environmental/Physical-Environmental>.

More details on the Oil Price Information Service (OPIS) pricing used for CCA and RGGI physically-settled futures contracts prior to 22 December 2022 can be found at <https://www.opisnet.com/about/methodology/#carbon-market-pricing>.

3.2) Rebalancing Process

The IHS Markit Global Carbon UCITS Index is rebalanced annually on the last Index Calculation Day of November after the close of business. Three business days before the last Index Calculation Day of November (“constituent selection cut-off date”), the constituents of the index are determined as per [Section 2\) — Carbon Credit Selection Rules](#) and an updated membership list with constituent weights is published.

Rebalancing weights are defined as per [Section 3.5\) — Index Weights](#).

On the last Index Calculation Day of each November, IHS Markit publishes the final membership with closing prices for the carbon credit futures and various analytics based on the securities.

3.3) Monthly Reset Process

In addition to the November rebalancing, the constituent weights of the IHS Markit Global Carbon UCITS Index are reset monthly to the November rebalancing weights. This occurs on the last Index Calculation Day of each month after the close of business. New number of units are then determined for each futures contract based on latest contract prices and are effective on the first Index Calculation Day of the following month.

3.4) Index Data

An index level is calculated if there is at least one security available that matches all inclusion criteria. If no more securities qualify for the index, then its level will remain constant. If at least one security becomes available again, the index calculation will be resumed from the last calculated level.

Calculation occurs on a daily basis as soon as the consolidated quotes are available. Price quotes are provided and the indices are calculated on every Index Calculation Day in the NYSE calendar. Index calculation is based on market prices. In the event that no new quotes for a particular security are received, the index will continue to be calculated based on the last available prices. This might be the case in periods of market stress or disruption, as well as in illiquid or fragmented markets.

Note that the index converts all constituent pricing into United States dollars daily using the respective mid-rates for given currencies.

3.5) Index Weights

Once the composition of the IHS Markit Global Carbon UCITS Index has been determined, the rebalancing weight for each security is determined. The weights are set for the futures positions and the cash component at each yearly rebalancing date, allowing sufficient buffer to account for UCITS maximum concentration rules.

The weights in the index as of the index base date 28 May 2021 are as per below:

Table 1: Index constituents and rebalancing weights

	CCA 1Y	CCA 2Y	RGGI 1Y	EUA 1Y	EUA 2Y	UKA 1Y	UKA 2Y	Cash
Weights	12.9%	4.3%	17.1%	25.7%	4.3%	12.9%	4.3%	18.5%

3.6) Index Calculus

3.6.1) Number of Units

On the rebalancing day in November, the number of units for each contract is determined by taking the product of the total return level prior to rebalancing and the calculated roll-adjusted rebalancing weight for each given constituent of the index, and then dividing this figure by the respective constituent's price converted to USD using the respective mid-rate exchange rate as of the 4:00PM London time snap.

Note that the number of units remains static in the index basket until the subsequent monthly weight reset event, which is when said contract allocations change to match the annual rebalancing composition and weights. The number of units is derived as per below formula where Total Return Level, Weight and Contract Price are taken as of the last Index Calculation Day of November.

$$NumberOfUnits_{i,t} = \frac{TotalReturnLevel_{rebalancing} \times RollFactor_{i,t} \times Weight_{i,rebalancing}}{ContractPrice_{i,rebalancing}}$$

The Roll Factor applies over the 5 Index Calculation Days roll period to each future constituent as per below as they are rolling from each current contract to the next. For the avoidance of doubt, on any other Index Calculation Day and after each future contract has rolled, the Roll Factor is set to 1.

Table 2: Roll Factors

Roll Period	Current Contract Roll Factor	Next Contract Roll Factor
Day 1	80%	20%
Day 2	60%	40%
Day 3	40%	60%
Day 4	20%	80%
Day 5	0%	100%

In between annual rebalancing events which is when said contract allocations change to match the annual rebalancing composition, on the last Index Calculation Day of each month (the "reset date"), the number of units is also reset following the below formula:

$$NumberOfUnits_{i,t} = \frac{TotalReturnLevel_{reset} \times Weight_{i,reset}}{ContractPrice_{i,reset}}$$

For the avoidance of doubt $Weight_{i,reset} = Weight_{i,rebalancing}$ determined during previous annual rebalancing event.

3.6.2) Total Return Calculation

There are two considerations in the total return index level calculation: the changes in the market prices of the underlying contract and the yield earned on the cash collateral held for the futures. In addition, for this index, there is an allocation to a cash component that is earning a yield. These are captured and discussed below. Note that the total return level for a given day is simply the previous calculation day's total return level times one plus the current day's total return:

$$TotalReturn_t = (FuturesWeight_{t-1}) \times PriceReturn_t + CashYield_t + CollateralYield_t$$

where:

$$FuturesWeight_t = \frac{PriceLevel_t}{TotalReturnLevel_t}$$

$$TotalReturnLevel_t = TotalReturnLevel_{t-1} \times (1 + TotalReturn_t)$$

For the avoidance of doubt, please note that if date t falls on the first 5 index business days of December or the first index business day of any other month, $FuturesWeight_{t-1}$ is based on the new number of units calculated as per [Section 3.6.1\) — Number of Units](#).

3.6.3) Price Return Calculation

The price return is determined as the daily change in the underlying futures prices. Each Calculation Day, the price level is calculated by multiplying the daily futures contract pricing for each constituent by the number of units assumed to be held in the index basket. Furthermore, this price level is rescaled by using new number of units in the price return calculation after the underlying index basket has changed immediately after the rebalancing event or at any other month-end. Note that the price return level for a

given day is simply the previous calculation day's price return level times one plus the current day's price return:

$$PriceLevel_t = \sum_{i=1}^n ContractPrice_{i,t} \times NumberOfUnits_{i,t}$$

$$PriceReturn_t = \frac{PriceLevel_t}{PriceLevel_{t-1}} - 1$$

$$PriceReturnLevel_t = PriceReturnLevel_{t-1} \times (1 + PriceReturn_t)$$

For the avoidance of doubt, if date t falls on the first 5 Index Calculation Days of December or the first Index Calculation Day of any other month, $PriceLevel_{t-1}$ used in the calculation of the $PriceReturn_t$ is based on the new number of units calculated as per [Section 3.6.1\) — Number of Units](#).

3.6.4) Cash Yield Calculation

The cash yield is determined as the weighted product of the prior trading day's Federal Funds Overnight Rate and the ACT-360 day-count difference between the calculation days.

$$CashYield_t = (1 - FuturesWeight_{t-1}) \times \frac{DayCount_{t-1,t}}{360} \times FedFundRate_{t-1}$$

3.6.5) Collateral Yield Calculation

The yield earned on the cash collateral is determined daily as the product of the prior trading day's weighted composite of overnight rates based on the currency exposure in the index and the ACT-360 day-count difference between the calculation days. Note that the Federal Funds Overnight Rate is used for USD currency exposure, the Euro Short Term Rate (ESTR) is used for EUR currency exposure and the Sterling Overnight Index Average (SONIA) is used for GBP exposure. Furthermore, note that the weighted composite of overnight rates is determined by summing up the products of a currency's selected overnight rate times the total market weight of all constituents sharing that given currency across all index currencies held:

$$CollateralYield_t = \frac{DayCount_{t-1,t}}{360} \times CompositeRate_{t-1}$$

$$CompositeRate_t = \sum_{i=1}^n OvernightRate_{i,t} \times \frac{ContractPrice_{i,t} \times NumberOfUnits_{i,t}}{TotalReturnLevel_t}$$

For the avoidance of doubt, please note that if date t falls on the first 5 Index Calculation Days of December or the first index business day of any other month, $CompositeRate_{t-1}$ is based on the new number of units calculated as per [Section 3.6.1\) — Number of Units](#).

In the specific case where the Federal Funds Overnight Rate is not a valid business day (according to the US rate calendar) and the last available rate is used from a prior date instead, the Euro Short Term Rate and Sterling Overnight Index Average will also be retrieved from that same Federal Funds Overnight Rate prior retrieval date.

3.6.6) Rolling Futures

On the last Index Calculation Day of November after the daily returns are calculated against the existing index basket's component and weight, the index rebalancing occurs and is reflected gradually over the 5 next Index Calculation Days (the "roll period", each a "roll day"). During the November index rebalancing, the existing index basket's futures are rolled such that the existing maturity and vintage is extended by a year with the number of units for the new index basket calculated as per [Section 3.6.1\) — Number of Units](#). Daily returns computed on the first Index Calculation Day of December are calculated against the component and weight featured in the new index basket after rebalancing adjusted according to the 5 Index Calculation Days roll schedule described in [Table 2: Roll Factors](#). On each annual rebalancing event, futures rolling would occur over 5 consecutive Index Calculation Days starting from the 1st December and ending on the 5th Index Calculation Day. On each roll day, a 20% additional share will be rolled from each invested contract to the following year expiry contract as per the roll schedule. In December after the close of the 5th Index Calculation Day, the rolling will be complete, with 0% weight assigned to the contracts expiring in December of the year the annual rebalancing has taken place.

3.7) Index History

The index history starts on 28 May 2021. The index has a base value of 100 on that date.

3.8) Settlement Conventions

The IHS Markit Global Carbon UCITS Index is calculated using the assumption of T+0 settlement days.

3.9) Foreign Exchange Rates

Foreign exchange spot rates are sourced from WM and Reuters. The index calculation uses the foreign exchange mid rates at 4:00 PM London time. If the rebalancing day is a non-trading day, the 4:00PM London time foreign exchange rates from the previous trading day are used.

3.10) Calendar

The IHS Markit Global Carbon UCITS Index is calculated on all NYSE trading days.

3.11) Data Publication and Access

The table below summarizes the publication of the IHS Markit Global Carbon UCITS Index in the Indices section of the IHS Markit website <http://www.markit.com/indices> for registered users and on the FTP server. Each Index Level published by the Index Administrator shall be rounded as defined as per below.

Frequency	File Type	Access
Daily	Underlying File – Security Level	FTP Server
	Indices File – Index Level	FTP Server / IHS Markit Website / Bloomberg (Index Levels Only)
Annually	End of Period Components	FTP Server / IHS Markit Website

Below are the access codes for the different vendors and IDs of the Index as well as Index Currency and Rounding convention:

Index	Bloomberg Ticker	RIC	Index Currency	Rounding (d.p.)
Total Return Index	GLCUCITS	.GLCUCITS	USD	4

4) Governance and Regulatory Compliance

IHS Markit Benchmark Administration Limited (IMBA UK) is the Index Administrator of the IHS Markit Global Carbon UCITS Index. Information on IMBA UK's governance and compliance approach can be found [here](#). This document covers:

- Governance arrangements, including external committees
- Input data integrity
- Conflicts of interest management
- Market disruption and Force Majeure
- Methodology changes and cessations
- Complaints
- Errors and restatements
- Reporting of infringements and misconduct
- Methodology reviews
- Business continuity

More details about IMBA UK can be found on the [Administrator's website](#)

5) Appendix A: Changes to the IHS Markit Global Carbon UCITS Index

Date	Change
22 December 2022	Carbon credit futures pricing is sourced from ICE Futures Pricing for all physically-settled futures contracts.
1 December 2022	Publication Schedule: Every month, the last publication day for the Index will be the last index Calculation Day of that month.
22 Dec 2021	Launch of the IHS Markit Global Carbon UCITS Index

6) Appendix B: ICE Futures Pricing Change for CCA and RGGI contracts

Effective 22 December 2022, the CCA and RGGI contracts are being sourced from ICE. The number of units for the new ICE contract effective 22 December 2022 (date t) is calculated as per below using end of days prices as of 21 December 2022 (date $t-1$):

$$NumberOfUnits_{i,t} = \frac{NumberOfUnits_{i,t-1} \times ContractPrice_{i,t-1,OPIS}}{ContractPrice_{i,t-1,ICE}}$$

Where $ContractPrice_{i,t-1,OPIS}$ and $ContractPrice_{i,t-1,ICE}$ refer to the price of impacted futures contract sourced from OPIS and ICE respectively on 21 December 2022.

7) Appendix C: Contracts included in the IHS Markit Global Carbon UCITS Index

Constituent	Effective Date	Contract	Source
CCA 1 Year	22 December 2022	Vintage 23 December 23 expiry	ICE
	1 December 2022	Vintage 23 December 23 expiry	OPIS
CCA 2 Year	22 December 2022	Vintage 24 December 24 expiry	ICE
	1 December 2022	Vintage 24 December 23 expiry	OPIS
RGGI 1 Year	22 December 2022	Vintage 23 December 23 expiry	ICE
	1 December 2022	December 23 expiry	OPIS
EUA 1 Year	1 December 2022	December 23 expiry	ICE
EUA 2 Year	1 December 2022	December 24 expiry	ICE
UKA 1 Year	1 December 2022	December 23 expiry	ICE
UKA 2 Year	1 December 2022	December 24 expiry	ICE
CCA 1 Year	1 December 2021	Vintage 22 December 22 expiry	OPIS
CCA 2 Year	1 December 2021	Vintage 23 December 22 expiry	OPIS
RGGI 1 Year	1 December 2021	December 22 expiry	OPIS
EUA 1 Year	1 December 2021	December 22 expiry	ICE
EUA 2 Year	1 December 2021	December 23 expiry	ICE
UKA 1 Year	1 December 2021	December 22 expiry	ICE
UKA 2 Year	1 December 2021	December 23 expiry	ICE

8) Further Information

8.1) Contractual and Content Issues

For contractual or content issues please contact:

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	Europe	General: UK:	+800 6275 4800 +44 20 7260 2111
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For any general index inquiries, please contact IHS Markit indices support group at indices@ihsmarkit.com.

8.3) Licenses and Data

Markit Indices GmbH owns all IHS Markit Carbon CCA and RGGI Index data, database rights, indices and all intellectual property rights therein. A license is required from Markit Indices GmbH to create and/or distribute any product that uses, is based upon, or refers to the IHS Markit Global Carbon UCITS Index or the IHS Markit Global Carbon UCITS Index's data.

8.4) Ownership

Markit Indices GmbH is a wholly-owned subsidiary of IHS Markit Limited.

8.5) Other Index Products

Markit Indices GmbH owns, manages, compiles and publishes the iTraxx credit derivative indices and the iBoxx indices.