

# INDEX GUIDELINE

SOLACTIVE BBVA SHORT EUA CARBON FUTURES RC  
10% INDEX

Version 1.0

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## INTRODUCTION

This document (the "**GUIDELINE**") is to be used as a guideline with regard to the composition, calculation and maintenance Solactive BBVA Short EUA Carbon Futures RC 10% Index (the "Index"). Any amendments to the rules made to the GUIDELINE are approved by the OVERSIGHT COMMITTEE specified in Section 5.5. The INDEX is owned, calculated, administered and published by Solactive AG ("**SOLACTIVE**") assuming the role as administrator (the "**INDEX ADMINISTRATOR**") under the Regulation (EU) 2016/1011 (the "**BENCHMARK REGULATION**" or "**BMR**"). The name "Solactive" is trademarked.

*The text uses defined terms which are formatted with "SMALL CAPS". Such Terms shall have the meaning assigned to them as specified in Section 6 (Definitions).*

**The GUIDELINE and the policies and methodology documents referenced herein contain the underlying principles and rules regarding the structure and operation of the INDEX. SOLACTIVE does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the INDEX nor the level of the INDEX at any certain point in time nor in any other respect. SOLACTIVE strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for SOLACTIVE – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the INDEX. The publication of the INDEX by SOLACTIVE does not constitute a recommendation for capital investment and does not contain any assurance or opinion of SOLACTIVE regarding a possible investment in a financial instrument based on this INDEX.**

*The Index is not calculated, sponsored, administered or published by Banco Bilbao Vizcaya Argentaria, S.A. ("BBVA") nor does BBVA act as an administrator or a contributor of the Index nor does BBVA offer any express or implicit guarantee or assurance with regard to the calculation, publication or results of using the Index and/or Index trade mark or the Index Price at any time or in any other respect. The Index is solely calculated, administered and published by Solactive AG. For the avoidance of doubt, there is no corporate ownership relationship between Solactive AG and BBVA, being independent companies, and BBVA will not be responsible for the Index in any case.*



# 1. INDEX SPECIFICATIONS

## 1.1. SCOPE OF THE INDEX

Category	Description
Asset Class	Commodities/Emissions
Strategy	The index tracks the inverse of a rolling exposure to EUA Carbon Futures, applying a volatility control layer on top.
Regional Allocation	EU
Volatility Target	10%
Index Fee	0.5%

## 1.2. IDENTIFIERS AND PUBLICATION

The INDEX is published under the following identifiers:

Name	ISIN	Currency	Type	RIC	BBG ticker
Solactive BBVA Short EUA Carbon Futures RC 10% Index	DE000SLOJXW1	EUR	ER*/ER*	.SBVEUASX	SBVEUASX Index

ER\* means the volatility control index and the underlying index is calculated as excess return. Please see section 4.1

The INDEX is published on the website of the INDEX ADMINISTRATOR ([www.solactive.com](http://www.solactive.com)) and is, in addition, available via the price marketing services of Boerse Stuttgart GmbH and may be distributed to all of its affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute or display the INDEX via its information systems.

Any publication in relation to the INDEX (e.g. notices, amendments to the GUIDELINE) will be available at the website of the INDEX ADMINISTRATOR: <https://www.solactive.com/news/announcements/>.

## 1.3. INITIAL LEVEL OF THE INDEX

The initial level of the INDEX on the 30/05/2013, the START DATE, is 100. Historical values from the 01/08/2023, the LIVE DATE, will be recorded in accordance with Article 8 of the BMR. Levels of the INDEX published for a period prior to the LIVE DATE have been back-tested.



## 1.4. PRICES AND CALCULATION FREQUENCY

The level of the INDEX is calculated on each CALCULATION DAY once at 7:52pm, CET based on the CLOSING PRICE of the UNDERLYING INDEX as calculated by Solactive.

## 1.5. LICENSING

Licenses to use the INDEX as the underlying value for financial instruments, investment funds and financial contracts may be issued to stock exchanges, banks, financial services providers and investment houses by SOLACTIVE



## 2. INDEX SELECTION

### 2.1. INDEX CONSTITUENTS

The INDEX is composed of the following component (the UNDERLYING INDEX):

Component	Name	Currency	RIC	BBG Ticker
1	Solactive BBVA EUA Carbon Futures Index	EUR	.SBVEUACF	SBVEUACF Index

## 3. CALCULATION OF THE INDEX

### 3.1. INDEX FORMULA

The INDEX for any CALCULATION DAY  $t$ , denoted  $Index_t$ , is determined in accordance with the following formula, where  $Index_0 = 100$ :

$$Index_t = Index_{t-1} + Index_{t-1} * \left( \begin{array}{c} scalRet_t - \\ - PositionChangeCost_{t-1} - Index Fee * \frac{DC_{t-1,t}}{360} \end{array} \right)$$

With:

$DC_{t,t-1}$  = Number of Calendar Days from (and excluding) CALCULATION DAY t-1 to (and including) CALCULATION DAY t

$scalRet_t$  = The scaled return as of CALCULATION DAY t

$Index_{t-1}$  = the level of the INDEX as of CALCULATION DAY t-1

$PositionChangeCost_{t-1}$  = the cost of a change in positions in the UNDERLYING INDEX as of CALCULATION DAY t-1

With:

$$scalRet_t = ExcessRet_t * FinalScale_{t-1}$$

$$ExcessRet_t = - \left( \frac{UC1_t - UC1_{t-1}}{UC1_{R-1}} \right)$$



$UC1_t$ : The level UNDERLYING COMPONENT 1 of as of CALCULATION DAY t

$UC1_{t-1}$ : The level UNDERLYING COMPONENT 1 of as of CALCULATION DAY t – 1

$UC1_{R-1}$ : The level UNDERLYING COMPONENT 1 as of the CALCULATION DAY immediately preceding REBALANCING DAY R by one CALCULATION DAY

The final scale is determined according to:

$$FinalScale_t = \min(\maxLev, UncappedScale_t)$$

With:

$$UncappedScale_t = \frac{target\_vol}{realVol_{t-2}}$$

$\maxLev = 30\%$

With:

$target\_vol = 10\%$

The change in positions in the UNDERLYING INDEX,  $PositionChangeCost$ , is calculated according to:

If CALCULATION DAY t falls prior or to or on the START DATE:

$$PositionChangeCost_t = 0$$

Else:

$$PositionChangeCost_t = \begin{cases} abs(ContractBack_t - ContractFront_{t-1}) \times TC & \text{if } CCF_t = 1 \\ abs(ContractBack_t - ContractBack_{t-1}) \times TC + abs(ContractFront_t - ContractFront_{t-1}) \times TC & \text{else} \end{cases}$$

Where:

$TC$ : The transaction cost of EUR 0.2

$CCF_t$ : The contract-change filter as of CALCULATION DAY t

$ContractFront_t$ : the scaled number of front contracts in the UNDERLYING INDEX as of CALCULATION DAY t



$ContractFront_{t-1}$ : the scaled number of front contracts in the UNDERLYING INDEX as of CALCULATION DAY t -1

$ContractBack_t$ : the scaled number of back contracts in the UNDERLYING INDEX as of CALCULATION DAY t

$ContractBack_{t-1}$ : the scaled number of back contracts in the UNDERLYING INDEX as of CALCULATION DAY t -1

$CCF_t$  is equal to 1 if, on CALCULATION DAY t, the back contract becomes the new front contract.

$ContractFront_t$  and  $ContractBack_t$  are calculated according to:

$$ContractFront_t = CarbonMT\_ContractFront_t * FinalScale_t / UC1_{R-1}$$

$$ContractBack_t = CarbonMT\_ContractBack_t * FinalScale_t / UC1_{R-1}$$

Where both  $CarbonMT\_ContractFront_t$  and  $CarbonMT\_ContractBack_t$  are defined in the guideline of the UNDERLYING INDEX..

They represent the number of contracts the UNDERLYING INDEX is invested in as of CALCULATION DAY t.

The realized volatility on the VOLATILITY START DATE is calculated according to the following formula:

$$realVol_{VST} = \sqrt{252 * realized\_var_{VST}}$$

Where:

$VarLong_{VST}$ : The realized long variance on the VOLATILITY START DATE

$VarShort_{VST}$ : The realized short variance on the VOLATILITY START DATE

The realized volatility on each Calculation Day t following the VOLATILITY START DATE is calculated according to the following formula:

$$realVol_t = \sqrt{252 * realized\_var_t}$$





The realized short variance and realized long variance on the VOLATILITY START DATE are calculated according to the following formula:

$$VarShort_{VST} = \sum_{i=m+1}^{VST} \frac{\alpha_{Short,m,i}}{WeightingFactor_{Short}} \times [ExcessRet_t]^2$$

$$VarLong_{VST} = \sum_{i=m+1}^{VST} \frac{\alpha_{Long,m,i}}{WeightingFactor_{Long}} \times [ExcessRet_t]^2$$

Where:

$$\alpha_{Short,m,i} = (1 - \lambda_{Short}) \times \lambda_{Short}^{N+m-i}$$

$$\alpha_{Long,m,i} = (1 - \lambda_{Long}) \times \lambda_{Long}^{N+m-i}$$

with N = 100

and

$$WeightingFactor_{Short} = \sum_{i=m+1}^{VST} \alpha_{Short,i,m}$$

$$WeightingFactor_{Long} = \sum_{i=m+1}^{VST} \alpha_{Long,i,m}$$

The realized variance on each Calculation Day t following the VOLATILITY START DATE is calculated according to the following formula:

$$realVar_t = \max(VarLong_t, VarShort_t)$$

Where  $VarLong_t$  (the long-term variance) and  $VarShort_t$  (the short-term variance) are calculated on each Calculation Day t following the VOLATILITY START DATE:

$$VarLong_t = \lambda_{long} * VarLong_{t-1} + (1 - \lambda_{long}) * (ExcessRet_t)^2$$



$$VarShort_t = \lambda_{short} * VarShort_{t-1} + (1 - \lambda_{short}) * (ExcessRet_t)^2$$

Where:

$$\lambda_{long} = 0.97$$

$$\lambda_{short} = 0.94$$

## 3.2. ACCURACY

The level of the INDEX will be rounded to 4 decimal places. TRADING PRICES and foreign exchange rates will be rounded to six decimal places.

## 3.3. ADJUSTMENTS

Under certain circumstances, an adjustment of the INDEX may be necessary between two regular REBALANCE DAYS. Such adjustment has to be made if a corporate action (as specified in Section 4.4 below) in relation of an INDEX COMPONENT occurs. Such adjustment may have to be done in relation to an INDEX COMPONENT and/or may also affect the number of INDEX COMPONENTS and/or the weighting of certain INDEX COMPONENTS and will be made in compliance with the SOLACTIVE Equity Index Methodology, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/equity-index-methodology/>.

SOLACTIVE will announce the INDEX adjustment giving a notice period of at least two TRADING DAYS (with respect to the affected INDEX COMPONENT) on the SOLACTIVE website under the Section “Announcements”, which is available at <https://www.solactive.com/news/announcements/>. The INDEX adjustments will be implemented on the effective day specified in the respective notice.

## 3.4. CORPORATE ACTIONS

As part of the INDEX maintenance SOLACTIVE will consider various events – also referred to as corporate actions – which result in an adjustment to the INDEX between two regular REBALANCE DAYS. Such events have a material impact on the price, weighting or overall integrity of INDEX COMPONENTS. Therefore, they need to be accounted for in the calculation of the INDEX. Corporate actions will be implemented from the cum-day to the ex-day of the corporate action, so that the adjustment to the INDEX coincides with the occurrence of the price effect of the respective corporate action.

Adjustments to the INDEX to account for corporate actions will be made in compliance with the Equity Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/equity-index-methodology/>. This document contains for each corporate action a brief definition and specifies the relevant adjustment to the INDEX variables.



While SOLACTIVE aims at creating and maintaining its methodology for the treatment of corporate actions as generic and transparent as possible and in line with regulatory requirements, it retains the right in accordance with the Equity Index Methodology to deviate from these standard procedures in case of any unusual or complex corporate action or if such a deviation is made to preserve the comparability and representativeness of the INDEX over time.

SOLACTIVE considers the following, but not conclusive, list of corporate actions as relevant for the BASKET maintenance:

- > Cash Distributions (e.g. payment of a dividend)
- > Stock distributions (e.g. payment of a dividend in form of additional shares)
- > Stock distributions of another company (e.g. payment of a dividend in form of additional shares of another company (e.g. of a subsidiary))
- > Share splits (company's present shares are divided and therefore multiplied by a given factor)
- > Reverse splits (company's present shares are effectively merged)
- > Capital increases (such as issuing additional shares)
- > Share repurchases (a company offer its shareholders the option to sell their shares to a fixed price)
- > Spin-offs (the company splits its business activities into two or more entities and distributes new equity shares in the created entities to the shareholders of the former entity)
- > Mergers & Acquisitions (transaction in which the ownership of a company (or other business organizations) are transferred or consolidated with other entities, e.g. fusion of two or more separate companies into one entity)
- > Delistings (company's shares are no longer publicly traded at a stock exchange)
- > Nationalization of a company (effective control of a legal entity is taken over by a state)
- > Insolvency

### 3.5. RECALCULATION

SOLACTIVE makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the determination process may occur from time to time for variety reasons (internal or external) and therefore, cannot be completely ruled out. SOLACTIVE endeavors to correct all errors that have been identified within a reasonable period of time. The understanding of "a reasonable period of time" as well as the general measures to be taken are generally depending on the underlying and is specified in the SOLACTIVE Correction Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/correction-policy/>.



### 3.6. MARKET DISRUPTION

In periods of market stress SOLACTIVE calculates its indices following predefined and exhaustive arrangements as described in the SOLACTIVE Disruption Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/disruption-policy/>. Such market stress can arise due to a variety of reasons, but generally results in inaccurate or delayed prices for one or more INDEX COMPONENTS. The determination of the INDEX may be limited or impaired at times of illiquid or fragmented markets and market stress.



## 4. MISCELLANEOUS

### 4.1. DISCRETION

Any discretion which may need to be exercised in relation to the determination of the INDEX (for example the determination of the INDEX UNIVERSE (if applicable), the selection of the INDEX COMPONENTS (if applicable) or any other relevant decisions in relation to the INDEX) shall be made in accordance with strict rules regarding the exercise of discretion or expert judgement.

### 4.2. METHODOLOGY REVIEW

The methodology of the INDEX is subject to regular review, at least annually. In case a need of a change of the methodology has been identified within such review (e.g. if the underlying market or economic reality has changed since the launch of the INDEX, i.e. if the present methodology is based on obsolete assumptions and factors and no longer reflects the reality as accurately, reliably and appropriately as before), such change will be made in accordance with the SOLACTIVE Methodology Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.

Such change in the methodology will be announced on the SOLACTIVE website under the Section Announcements, which is available at <https://www.solactive.com/news/announcements/>. The date of the last amendment of this INDEX is contained in this GUIDELINE.

### 4.3. CHANGES IN CALCULATION METHOD

The application by the INDEX ADMINISTRATOR of the method described in this document is final and binding. The INDEX ADMINISTRATOR shall apply the method described above for the composition and calculation of the INDEX. However, it cannot be excluded that the market environment, supervisory, legal and financial or tax reasons may require changes to be made to this method. The INDEX ADMINISTRATOR may also make changes to the terms and conditions of the INDEX and the method applied to calculate the INDEX that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The INDEX ADMINISTRATOR is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the INDEX ADMINISTRATOR will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.



## 4.4. TERMINATION

SOLACTIVE makes the greatest possible efforts to ensure the resilience and continued integrity of its indices over time. Where necessary, SOLACTIVE follows a clearly defined and transparent procedure to adapt Index methodologies to changing underlying markets (see Section 5.2 "Methodology Review") in order to maintain continued reliability and comparability of the indices. Nevertheless, if no other options are available the orderly cessation of the INDEX may be indicated. This is usually the case when the underlying market or economic reality, which an index is set to measure or to reflect, changes substantially and in a way not foreseeable at the time of inception of the index, the index rules, and particularly the selection criteria, can no longer be applied coherently or the index is no longer used as the underlying value for financial instruments, investment funds and financial contracts.

SOLACTIVE has established and maintains clear guidelines on how to identify situations in which the cessation of an index is unavoidable, how stakeholders are to be informed and consulted and the procedures to be followed for a termination or the transition to an alternative index. Details are specified in the SOLACTIVE Termination Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/termination-policy/>.

## 4.5. OVERSIGHT

An oversight committee composed of staff from SOLACTIVE and its subsidiaries (the "**OVERSIGHT COMMITTEE**") is responsible for decisions regarding any amendments to the rules of the INDEX. Any such amendment, which may result in an amendment of the GUIDELINE, must be submitted to the OVERSIGHT COMMITTEE for prior approval and will be made in compliance with the Methodology Policy, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.



## 5. DEFINITIONS

“**BENCHMARK REGULATION**” shall have the meaning as defined in Section “Introduction”.

“**BMR**” shall have the meaning as defined in Section “Introduction”.

“**CALCULATION DAY**” is a day on which the ICE Endex is open for trading in Carbon emission futures (MIC: NDEX).

“**CLOSE OF BUSINESS**” is the calculation time of the closing level of the INDEX as outlined in Section 1.4.

The “**CLOSING PRICE**” in respect of an INDEX COMPONENT and a CALCULATION DAY is an INDEX COMPONENTS final regular-hours closing level as calculated by Solactive

“**EXCHANGE**” is with respect to the INDEX and every INDEX COMPONENT, the respective exchange where the INDEX COMPONENT has its listing, namely the ICE Endex (MIC: NDEX).

“**GUIDELINE**” shall have the meaning as defined in Section “Introduction”.

“**INDEX**” shall have the meaning as defined in Section “Introduction”.

“**INDEX ADMINISTRATOR**” shall have the meaning as defined in Section “Introduction”.

“**INDEX COMPONENT**” is each security reflected in the UNDERLYING INDEX.

“**INDEX CURRENCY**” is the currency specified in the column “Currency” in the table in Section 1.2.

“**INDEX UNIVERSE**” is the sum of all financial instruments which fulfill the INDEX UNIVERSE REQUIREMENTS.

“**LIVE DATE**” shall have the meaning as defined in Section 1.3.

“**OVERSIGHT COMMITTEE**” shall have the meaning as defined in Section 5.5.

“**REBALANCE DAY**” is one CALCULATION DAY prior to the ROLL START DAY

“**ROLL START DAY**” is the 10<sup>th</sup> CALCULATION DAY in November

“**SOLACTIVE**” shall have the meaning as defined in Section “Introduction”.

“**START DATE**” shall have the meaning as defined in Section 1.3.

“VOLATILITY START DATE” is 28/05/2013

“UNDERLYING INDEX” is INDEX COMPONENT 1 from Section 2.1.

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