

# INDEX GUIDELINE

*Solactive Eurozone Climate Performance  
Government Bond Index*

*Version 1.0*

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# INTRODUCTION

This document (the "GUIDELINE") is to be used as a guideline regarding the composition, calculation and maintenance of the Solactive Eurozone Climate Performance Government Bond (the "INDEX"). Any amendments to the rules made to the GUIDELINE are approved by the OVERSIGHT COMMITTEE as specified in the Bond Index Methodology. 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 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 of financial instruments or investment funds referencing the INDEX under a valid license – 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.

## 1. INDEX SPECIFICATIONS

### 1.1. SCOPE OF THE INDEX

The rule-based INDEX is engineered to mirror the performance of investment grade rated and EUR denominated sovereign debt issued by countries of the Eurozone, with tilted market weights. The tilting function is ensuring that the weight of the respective country is aligned with the climate performance of countries reflected in the Climate Change Performance Index (CCPI), also called CCPI SCORE, i.e. countries with a higher CCPI score get a higher weight and vice versa compared to a market weighted index.

The INDEX is a Total Return Index, i.e. coupon payments will be reinvested in the Indices on each REBALANCE DAY.



## 1.2. IDENTIFIERS AND PUBLICATION

The INDEX is published under the following identifiers:

Name	ISIN	Currency	Type	Calculation Formula*	RIC	BBG ticker
Solactive Eurozone Climate Performance Government Bond Index	DE000SL0MZY6	EUR	TR	Periodic	SOLEUCPG	N/A

\*The calculation formula refers to the index calculation's dependency on cash reinvestment, based on whether the cash reinvestment occurs on a daily/direct basis or periodically.

\*TR means that the INDEX is calculated as Total Return index as described in the Bond Index Methodology, which is available on the SOLACTIVE website:

<https://www.solactive.com/documents/bond-index-methodology/>

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 at the 22/04/2025 is 1000. Levels of the INDEX published for a period prior to this date have been back-tested. Historical values from 23/04/2025 will be recorded in accordance with Article 8 of the BMR.

## 1.4. PRICES AND CALCULATION FREQUENCY

The Index is calculated and distributed once every BUSINESS DAY based on the EVALUATED BID PRICE of the INDEX COMPONENTS. Bonds added in a rebalancing (see Section 3) are included in the INDEX at the EVALUATED ASK PRICE on the relevant REBALANCE DAY. Bonds which are excluded from the INDEX in a rebalance are reflected in the calculation of the level of the INDEX for the REBALANCE DAY at the EVALUATED BID PRICE on the relevant REBALANCE DAY. INDEX analytical values are calculated each BUSINESS DAY using the LAST EVALUATED BID PRICE based on FIXING TIME.

## 2. INDEX SELECTION

On each SELECTION DAY, all bonds which meet the INDEX COMPONENT REQUIREMENTS are eligible for inclusion in the INDEX and will be added as INDEX COMPONENT on the REBALANCE DAY. Additionally, on each SELECTION DAY,



it will be evaluated whether all current INDEX COMPONENTS still meet the INDEX COMPONENT REQUIREMENTS. Each INDEX COMPONENT that does not meet the INDEX COMPONENT REQUIREMENTS will be removed from the INDEX on the next REBALANCE DAY.

## 2.1. SELECTION OF THE INDEX COMPONENTS

The initial composition of the INDEX, as well as any selection for a rebalance (as specified in Section 3) is determined using the following rules:

The "Selection Pool" for the INDEX comprises bonds that fulfill the following conditions:

- Only debt issued by Central Government members of the Eurozone is eligible.
- Securities must be denominated in EUR
- The issuer must be rated investment grade by at least one of the rating agencies- Standard & Poor's or Moody's. For the avoidance of doubt, in case of a split rating, the higher rating is decisive.
- Bonds must have a minimum amount outstanding of EUR 500 million
- Time to maturity: Must have at least 1 year to maturity on each REBALANCE DAY.
- Bond Type: Only fixed coupon bonds are eligible for the index. The following bond types are specifically excluded from the index: sinkable, perpetual, puttable(s), floating rate notes, callable(s), extendible(s), inflation linked bonds, principal only strips and interest only strips as well as private placements.
- On SELECTION DAY a price from the PRICE PROVIDER must be available for each INDEX COMPONENT.

(the "INDEX COMPONENT REQUIREMENTS")]

## 2.2. WEIGHTING OF THE INDEX COMPONENTS

On each SELECTION DAY each INDEX COMPONENT of the INDEX is initially weighted by the market value based on the LAST EVALUATED BID PRICE and accrued interest as on the SELECTION DAY.

The final weights of the INDEX COMPONENTS incorporating the countries' CCPI SCORES of the most recent three years are determined by finding the maximum tilt factor  $\max_t f_t$  at time  $t$  that makes them compliant with the *Tilting direction criterion* defined below.  $\max_t f_t$  is determined by a bisection method within  $[0.2, 1]$ . The *Tilting direction criterion* is satisfied if the final country-level sum  $f v_{c,t}$  of the weights of bonds of a country  $c$  at a selection time  $t$  are following the tilt direction suggested by their CCPI SCORES up to a certain tolerance level as described below.

We describe the modules of the rebalancing in the following sections.



## Tilting

Initially, each INDEX COMPONENT  $i$  that is classified as a Green Bond (i.e. a member of the Solactive Green Bond Index) at time  $t$  is subject to a green bond reward, that is realized by doubling its market weight  $m_{i,t}$  to a green-bond-rewarded unnormalized market weight  $\widetilde{mg}_{i,t} = m_{i,t} * 2$ , with any other bond  $j$  keeping  $\widetilde{mg}_{j,t} = m_{j,t}$ , and then renormalizing by  $mg_{k,t} = \frac{\widetilde{mg}_{k,t}}{\sum_{r=1}^N \widetilde{mg}_{r,t}}$ ,  $k = 1, \dots, N$ , where  $N$  is the number of INDEX COMPONENTS.

The final country weight  $fv_{c,t}(tf_t)$  with a certain tilt factor  $tf_t$  is obtained by determining the normalized tilted uncapped country weight  $tv_{c,t}$  for each country  $c$  and distributing the excess weight  $e_{c,t}$  over its cap iteratively among the remaining countries as described below, where

$\widetilde{tv}_{c,t} = mh_{c,t} * \exp(\widetilde{z}_{c,t} * tf_t)$  is the unnormalized tilted weight of country  $c$  at time  $t$ ,

$tv_{c,t}$  is the normalized version of the former,

with:

$mh_{c,t} = \sum_{k \in K_c} mg_{k,t}$ : the sum of the normalized green-bond rewarded market weights

$mg_{k,t}$  of all bonds  $k, t$  in the set  $K_c$  of bonds from country  $c$  at time  $t$ ,

$\widetilde{z}_{c,t}$  - the smoothened z scores  $\widetilde{z}_{c,t} = 50\% * z_{c,t} + 35\% * z_{c,t-1} + 15\% * z_{c,t-2}$ ,

with  $z_{c,t}$  being the z scores  $z_{c,t} = (s_{c,t} - \text{avg}(s_{c,t}))/\text{stdev}(s_{c,t})$ , with the average  $\text{avg}()$  and the standard deviation  $\text{stdev}()$  calculated across all countries having bonds eligible for the selection at time  $t$ ,

$s_{c,t}$  - CCPI SCORE of country  $c$  at time  $t$ , and

$tf_t$  - tilt factor at time  $t$ .

## Capping Algorithm

Capping is applied in an iterative fashion afterwards:

We define candidate country weights  $v_{m,t}(p)$  in iteration  $p$ ,  $m = 1, \dots, M$ , where  $M$  is the number of countries, and set them in iteration 0 to their tilted normalized weights,  $v(0)_{m,t} = tv_{m,t}$ .

We also define the country excess weights  $e_{c,t}(p) = \max(v_{c,t}(p) - \text{cap}_{c,t}, 0)$  in iteration  $p$  as the current country tilted adjusted weight minus its weight cap, floored at 0; here  $\text{cap}_{c,t}$  is the country specific cap defined as  $\text{cap}_{c,t} = \min(m_{c,t} + a; m_{c,t} * d)$ , where

$m_{c,t}$  is, as above, the sum of the market values of country  $c$  at time  $t$ ,

$a = b + y * \exp(\widetilde{z}_{c,t})$ ,



$$b = 10\% * \left(\frac{1}{1 + l * m_{c,t}}\right), \text{ where } l = 1,$$

$$y = 1\% \text{ and}$$

$$d = 3.$$

Countries are then sorted as  $c_{1,t}, \dots, c_{M,t}$  by initial country excess weight.

Iterating over  $m = 1, \dots, M$ , the final weight  $fv_{m,t}$  of country  $c_{m,t}$  is set to its cap:

$$fv_{m,t} = \min(v(m)_{m,t}, cap_{m,t}),$$

and its excess weight  $e_{m,t}$  is distributed to the remaining countries  $c_{n,t}, n = m + 1, \dots, M$ , such that their new candidate weights are their old candidate weights added to their proportions of the updated excess weight of country  $m$ :

$$v(m+1)_{n,t} = v(m)_{n,t} + e_{m,t}(m) \frac{v(m)_{n,t}}{\sum_{r=m+1}^M v(m)_{r,t}}.$$

### Tilting direction criterion

The above-mentioned Tilting direction criterion is defined as satisfied if the degree of counter-tilting, measured as described in the following, may not exceed a tolerance level. Counter-tilting is defined as the situation where either a final country weight  $fv_{c,t}$  is higher than that country's original market weight although the country has a CCPI score lower than the average across countries in the selection, or if a final country weight  $fv_{c,t}$  is lower than that country's original market weight although the country has a CCPI score higher than the average across countries in the selection.

Formally, the criterion is satisfied for country  $c$  if

$$\text{for } |\tilde{z}_{c,t}| < 0.5,$$

$$fv_{c,t} \geq m_{c,t} * \left[ (1 - tb) * \left( 1 + \frac{2tb}{1-tb} * \tilde{z}_{c,t} \right) \right] \text{ for } 0 \leq \tilde{z}_{c,t} \leq 0.5,$$

$$fv_{c,t} \leq m_{c,t} * \left[ (1 + tb) * \left( 1 + \frac{2tb}{1+tb} * \tilde{z}_{c,t} \right) \right] \text{ for } -0.5 \leq \tilde{z}_{c,t} \leq 0,$$

where

$m_{c,t} = \sum_{k \in K_c} m_{k,t}$  is the sum of the market values  $m_{k,t}$  of all bonds  $k, t$  in the set

$K_c$  of bonds from country  $c$  at time  $t$ , and

$tb$  is the Base Tolerance set to 20%, for the minimum tilt factor of 0.2.

In addition, for  $|\tilde{z}_{c,t}| > 0.5$ , no counter-tilt is allowed.

### Determination of the maximum tilt factor



The maximum tilt factor  $\max_t f_t$  compliant with the Tilting direction criterion is determined by a bisection method within  $[0.2, 1]$ . If there is no compliant tilt factor above 0.2, up to tolerance of 0.00001, found, the maximum tilt factor is set to 0.2 and the final country weights are computed as above without the Tilting direction criterion check.

### Calculation of final bond weights

At time  $t$ , the final bond weight  $fw_{i,t}$  of a bond  $i$  from country  $c_{i,t}$  is then determined by distribution of the new final country weight to its bonds proportionally to their market weights. I.e., in effect it is obtained by scaling the market weights of the bonds in country  $c_i$  with the factor  $f(c_{i,t}) = \frac{fv_{c_{i,t}}}{mw_{c_{i,t}}}$ , where  $fv_a$  is the final weight of a country  $a$  and  $mw_{c_{i,t}} = \sum_{i \in I_{c_{i,t}}} m_{i,t}$  is the sum of the market values of these bonds in the set  $I_{c_{i,t}}$  of bonds in country  $c_{i,t}$ .

## 3. ORDINARY REBALANCE

In order to reflect the new selection of the INDEX COMPONENTS determined on the SELECTION DAY (in accordance with Section 2.1) the INDEX is adjusted on the REBALANCE DAY after CLOSE OF BUSINESS.

For more information on the rebalance procedure please refer to the Bond Index Methodology, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>.

SOLACTIVE will publish any changes made to the INDEX COMPONENTS with sufficient notice before the REBALANCE DAY on the SOLACTIVE webpage.

## 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. Adjustments to the INDEX to account for corporate actions will be made in compliance with the Bond Index Methodology.



## 5. DEFINITIONS

"BENCHMARK REGULATION" shall have the meaning as defined in Section "Introduction".

"BMR" shall have the meaning as defined in Section "Introduction".

"BUSINESS DAY" is with respect to the INDEX each day Monday to Friday except the following sets of days: SIFMA, NYSE and Common European banking holidays. Common European banking holidays are Good Friday, Easter Monday, Christmas Day, Boxing Day and New Year's Day.

"CCPI SCORE" is the Climate Change Performance Index, see <https://ccpi.org/>.

"CLOSE OF BUSINESS" is a time stamp when an INDEX is calculated.

"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 CALCULATOR" is SOLACTIVE or any other appropriately appointed successor in this function.

"INDEX COMPONENT" is each bond reflected in the INDEX.

"INDEX COMPONENT REQUIREMENTS" shall have the meaning as defined in Section 2.1.

"INDEX CURRENCY" is the currency specified in the column "Currency" in the table in Section 1.2.

"ISSUER" is the issuing entity of the respective bond.

"OVERSIGHT COMMITTEE" shall have the meaning as defined in the Bond Index Methodology.

"PRICING PROVIDER" is Intercontinental Exchange ("ICE").

"REBALANCE DAY" is the last Business Day of each the quarters ending in November, February, May and August.

"SELECTION DAY" is five Business Days before REBALANCE DAY.

"SOLACTIVE" shall have the meaning as defined in Section "Introduction".

## 6. HISTORY OF INDEX CHANGES

Version	Date	Description
1.0	23 April 2025	Index Guideline creation

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