

MARKET CONSULTATION  
SOLACTIVE PARIS AWARE  
GLOBAL GOVERNMENT INDEX –  
GUIDELINE CHANGE

02 June 2021



## Content of the Market Consultation

Solactive AG has decided to conduct a Market Consultation with regard to changing the Index Methodology of the following Index (the 'Index'):

NAME	RIC	ISIN
Solactive Paris Aware Global Government Bond Index	.SOLGOVPAB	DE000SLOAY38

## Rationale for Market Consultation

To achieve the required level of carbon emissions for the Index an optimization mechanism is used to set the country weights. As the Index is aimed at representing countries reducing carbon emissions the required level of emissions is constantly decreasing on a semi-annual basis.

The current optimization minimizes on a country level the absolute difference between the market cap weighted index (utilized as a reference portfolio) and the optimized portfolio in the Index. This leads to the following situation:

1. The weight of the worst polluting country is reduced to the minimum weight in accordance with the constraints in the Index methodology.
2. The weight of the second worst polluting country is reduced to the minimum weight in accordance with the constraints in the Index methodology.
3. This process is repeated until the carbon reduction target is achieved.

This approach is expected to lead to unintuitive country weights going forward. For example, the Index may (based on current carbon emission data) assign a very low weight to Spain but a high weight to Italy even though Italy is only marginally better in terms of carbon emissions than Spain. In order to achieve a more representative and intuitive results in terms of the country allocation the following changes to the weighting mechanism of the Index is proposed.

## Proposed Change[s] to the Index Guideline

The description of the weighting mechanism in Section 2.2 in the Guideline of the Index is replaced by the following:

“On each SELECTION DAY each INDEX COMPONENT is weighted using the following mechanism:

The overall aim of the INDEX is to create a global government portfolio which is aligned with a self-decarbonization trajectory as well as a minimum reduction in Carbon Intensity versus the market cap weighted BENCHMARK INDEX. The following optimization routine sets the final country weights:



$$\min_{w_c, tpw_c} \sum_{c=1}^C (w_c - tpw_c)^2$$

subject to the following constraints:

$$CO2_{Target} - \sum_{c=1}^C (w_c * CO2_c) = 0$$

$$1 - \sum_{c=1}^C w_c = 0$$

$$(mvw_c * relative\ deviation_{pos}) - w_c \geq 0$$

$$w_c - (mvw_c * relative\ deviation_{neg}) \geq 0$$

where:

$w_c$  = weight of country  $c$

$mvw_c$  = market cap weight of country  $c$

$tpw_c$  = weight of country  $c$  in target portfolio

$CO2_{Target}$  = CO2 target set by decarbonization trajectory or minimum reduction vs. benchmark index

*relative deviation<sub>pos</sub>*

= maximum relative deviation by which a optimized country weight can exceed the market cap weight of country  $c$ . Initially this set to 5

*relative deviation<sub>neg</sub>*

= maximum relative deviation by which a optimized country weight can trail the market cap weight of country  $c$ . Initially this set to 0.2

In case no feasible solution can be found using the above-mentioned algorithm, the index committee will decide on the most suitable solution for the further maintenance of the index.

The target portfolio is an unconstrained proportionally weighted portfolio which is aligned with the CO2 INTENSITY target. The country weights of the target portfolio are computed as follows:

$$Country\ Weight\ Target\ Portfolio_c = Market\ Cap\ Weight_c * Tilting\ Factor_c$$

$$Tilting\ Factor_c = (0.5 + Percentile\ CO2\ Intensity\ Rank_c)^x$$



Where the exponent  $x$  is determined in a numerical procedure which ensures the weighted CO2 INTENSITY is equal to the CO2 TARGET.

Once optimal country weights have been determined, it is ensured that the duration of the INDEX is equal to the duration of a market-cap weighted benchmark index rounded to two decimals. This is achieved in a two-step process. In a first step it is determined for which countries the duration contribution has to be increased or lowered. In a second step bond weights within each country are adjusted.

For the duration adjustment the index is split into two parts: Countries whose duration contribution will stay stable, and countries whose duration contribution will be adjusted.

If the duration of the optimized index is higher than the market-cap weighted duration, duration contributions of polluting countries (whose CO2 INTENSITY is larger than the CO2 TARGET) is reduced ( $Duration_{Adjusted\ Countries}$ ). The duration contribution of all other countries stays the same ( $Duration_{Stable\ Countries}$ ).

If the duration of the optimized index is lower than the market-cap weighted duration, duration contribution of less polluting countries (whose CO2 INTENSITY is smaller than the CO2 TARGET) is increased ( $Duration_{Adjusted\ Countries}$ ). The duration contribution of all other countries stays the same ( $Duration_{Stable\ Countries}$ ).

The adjustment of country durations is done via an adjustment factor.

$$Adjustment\ Factor = \frac{(Target\ Duration - Duration_{Stable\ Countries})}{Duration_{Adjusted\ Countries}}$$

For each country where a duration adjustment is made, the new target country duration is computed as follows:

$$Country\ Duration_{Target} = Country\ Duration_{Optimized} * Adjustment\ Factor$$

To achieve the desired duration contribution per country the following mechanism is implemented on a bond level: In case  $Country\ Duration_{Target} < Country\ Duration_{Optimized}$  weights from the longest bond is shifted into the shortest maturing bond. With the restriction bonds cannot have negative weights. This process is iterated until  $Country\ Duration_{Target} = Country\ Duration_{Optimized}$ . In the case of  $Country\ Duration_{Target} > Country\ Duration_{Optimized}$  the opposite iteration takes place."

Details on the weight impact of the proposed new weighting mechanism on the Index Components are available upon request via email to: [fixedincome.pd@solactive.com](mailto:fixedincome.pd@solactive.com)

Pending feedback on the proposed changes the effective date for implementation is scheduled for 23.06.2021.



Feedback on the proposed changes

If you would like to share your thoughts with Solactive, please use this consultation form and provide us with your personal details and those of your organization.

Name	
Function	
Organization	
Email	
Phone	
Confidentiality (Y/N)	

Solactive is inviting all stakeholders and interested third parties to evaluate the proposed changes to the Methodology for the Solactive Paris Aligned Global Government Index and welcomes any feedback on how this may affect and/or improve their use of Solactive indices.

Consultation Procedure

Stakeholders and third parties who are interested in participating in this Market Consultation, are invited to respond until *18.06.2021*

Please send your feedback via email to [compliance@solactive.com](mailto:compliance@solactive.com), specifying "Market Consultation Solactive Paris Aware Global Government Index – Guideline Change" as the subject of the email, or



via postal mail to: Solactive AG  
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Should you have any additional questions regarding the consultative question in particular, please do not hesitate to contact us via above email address.

# CONTACT

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