

# **MSCI World ESG Climate Paris Aligned Select Indexes Methodology**

March 2023

<b>Contents</b>	<b>1</b>	<b>Introduction</b>	<b>4</b>
	<b>2</b>	<b>MSCI ESG Research</b>	<b>6</b>
	2.1	MSCI Climate Change Metrics	6
	2.2	MSCI Climate Value-At-Risk	6
	2.3	MSCI Impact Solutions: Sustainable Impact metrics	6
	2.4	MSCI ESG Controversies	7
	2.5	MSCI ESG Business Involvement Screening Research	8
	<b>3</b>	<b>Index Construction Methodology</b>	<b>9</b>
	3.1	Eligible Universe	9
	3.2	Optimization Constraints	9
	3.3	Determining the Optimized Index	12
	<b>4</b>	<b>Constructing the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index</b>	<b>13</b>
	4.1	Constructing the cost-deducted index	13
	4.2	Applying the MSCI Excess Return Indexes Methodology	13
	4.3	Constructing the Volatility Target Index	14
	<b>5</b>	<b>Constructing the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index</b>	<b>16</b>
	5.1	Constructing the cost-deducted index	16
	5.2	Applying the MSCI Excess Return Indexes Methodology	16
	5.3	Constructing the Volatility Target Index	17
	<b>6</b>	<b>Maintaining the Indexes</b>	<b>19</b>
	6.1	Index Reviews	19
	6.2	Ongoing Event Related Changes	19
		<b>Appendix I: MSCI Low Carbon Transition Risk Assessment</b>	<b>21</b>
		<b>Appendix II: MSCI Climate Value-At-Risk</b>	<b>23</b>
		<b>Appendix III: Calculation of Target Metrics</b>	<b>24</b>

Appendix IV: Constructing the MSCI World ESG Climate Paris Aligned Select 5% Decrement Indexes	29
Appendix V: Barra Equity Model Used in The Optimization	30
Appendix VI: New release of Barra® Equity Model or Barra® Optimizer	31
Appendix VII: Volatility Calculation	32

# 1 Introduction

This methodology book covers the following Indexes:

- MSCI World ESG Climate Paris Aligned Select Index
- MSCI World ESG Climate Paris Aligned Select 5% Decrement (EUR) Index
- MSCI World ESG Climate Paris Aligned Select 5% Decrement (CHF) Index
- MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index
- MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index

The MSCI World ESG Climate Paris Aligned Select Index (“the Index”) is designed to support investors seeking to reduce their exposure to transition and physical climate risks and who wish to pursue opportunities arising from the transition to a lower-carbon economy, while aligning with the Paris Agreement requirements. The Index incorporate the TCFD<sup>1,2</sup> recommendations and is designed to exceed the minimum standards of the EU Paris-Aligned Benchmark. The Index constructed from the MSCI World Index (the “Parent Index”) through an optimization process that aims to:

- Exceed the minimum technical requirements laid out in the EU Delegated Act.
- Align with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
- Align with a 1.5°C climate scenario using the MSCI Climate Value-at-Risk and a “self-decarbonization” rate of 10% year on year
- Reduce the index’s exposure to physical risk arising from extreme weather events by at least 50%
- Shift index weight from companies facing climate transition risks to companies having climate transition opportunities, using the MSCI Low Carbon Transition Score, and by excluding categories of fossil-fuel linked companies
- Increase the weight of companies which are exposed to climate transition opportunities and reduce the weight of companies which are exposed to climate transition risks
- Reduce the weight of companies assessed as high carbon emitters using scope 1, 2 and 3 emissions
- Increase the weight of companies with credible carbon reduction targets through the weighting scheme

---

<sup>1</sup> <https://www.fsb-tcfd.org/publications/final-recommendations-report/>

<sup>2</sup> On December 3, 2020, the European Commission has published the delegated acts in the Official Journal ( <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R1818&from=EN>) which contain the minimum technical requirements for the EU Paris-aligned Benchmarks.

- Achieve a modest tracking error compared to the Parent Index and low turnover.

The MSCI World ESG Climate Paris Aligned Select 5% Decrement (EUR) Index and the MSCI World ESG Climate Paris Aligned Select 5% Decrement (CHF) Index aim to represent the performance of the MSCI World ESG Climate Paris Aligned Select Index, while applying a constant markdown ('synthetic dividend') of 5% on an annual basis, expressed as a percentage of performance<sup>3</sup>.

The MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index and the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index aim to represent the performance of MSCI World ESG Climate Paris Aligned Select Index while targeting an annualized volatility of 10%.

---

<sup>3</sup> For more information on the MSCI Decrement Indexes Methodology, please refer to <https://www.msci.com/index-methodology> and Appendix IV

## 2 MSCI ESG Research

The Index use company ratings and research provided by MSCI ESG Research. In particular, these Index use the following MSCI ESG Research products: MSCI Climate Change Metrics, MSCI Climate Value-at-Risk, MSCI ESG Sustainable Impact Metrics, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research.

For details on MSCI ESG Research’s full suite of ESG products, please refer to: <https://www.msci.com/esg-investing>.

### 2.1 MSCI Climate Change Metrics

MSCI Climate Change Metrics provide climate data & tools to support institutional investors seeking to integrate climate risk & opportunities into their investment strategy and processes. This includes investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, alignment with temperature pathways and factoring climate change research into their risk management processes, in particular through climate scenario analysis for both transition and physical risks.

The dataset spans across the four dimensions of a climate strategy: transition risks, green opportunities, physical risks and 1.5° alignment.

For more details on MSCI Climate Change Metrics, please refer to <https://www.msci.com/climate-change-solutions>.

### 2.2 MSCI Climate Value-At-Risk

Climate Value-at-Risk (Climate VaR) is designed to provide a forward-looking and return-based valuation assessment to measure climate related risks and opportunities in an investment portfolio. The fully quantitative model offers deep insights into how climate change could affect company valuations.

For more details on MSCI Climate Value-At-Risk, please refer to <https://www.msci.com/climate-data-and-metrics>.

### 2.3 MSCI Impact Solutions: Sustainable Impact metrics

MSCI Impact Solutions’ Sustainable Impact Metrics is designed to identify companies that derive revenue from products or services with positive impact on society and the environment. The Sustainable Impact Metrics are comprised of six Environmental Impact categories and seven Social Impact categories arranged by theme.

### MSCI Sustainable Impact Taxonomy

Pillar	Themes	Categories
Environmental Impact	Climate Change	1. Alternative energy 2. Energy efficiency 3. Green building
	Natural capital	4. Sustainable water 5. Pollution prevention 6. Sustainable agriculture
Social Impact	Basic needs	7. Nutrition 8. Major Disease Treatment 9. Sanitation 10. Affordable Real Estate
	Empowerment	11. SME Finance 12. Education 13. Connectivity – Digital divide

Under each of the actionable environmental and social impact themes, MSCI ESG Research has identified specific categories of products and services that it has determined companies can offer as potential solutions to environmental and social challenges.

More detailed taxonomy for each category can be found in Section 2.4 of the MSCI ACWI Sustainable Impact Index Methodology available at <https://www.msci.com/index-methodology>.

## 2.4 MSCI ESG Controversies

MSCI ESG Controversies provide assessments of controversies concerning the potential negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with “0” being the most severe controversy.

The MSCI ESG Controversies methodology can be found in: <https://www.msci.com/esg-and-climate-methodologies>.

## 2.5 MSCI ESG Business Involvement Screening Research

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to [http://www.msci.com/resources/factsheets/MSCI\\_ESG\\_BISR.pdf](http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf).



### 3 Index Construction Methodology

#### 3.1 Eligible Universe

The Eligible Universe is constructed from the constituents of the Parent Index by applying the following steps:

- Selecting all the constituents of the MSCI World ESG Leaders Index<sup>4</sup>
- Applying a liquidity threshold to screen out securities which have a 3-Month Annualized Traded Value (ATV) less than USD 3.78 Billion
- Applying the exclusion criteria as defined in the MSCI Climate Paris Aligned Index Methodology<sup>5</sup>

#### 3.2 Optimization Constraints

The optimization process is applied on the Eligible Universe at each Semi-Annual Index Review, and the aim is to achieve replicability and investability as well as minimize ex-ante tracking error relative to the Parent Index subject to the following constraints:

1. Transition and physical risk objectives – constraints detailed in Table 1
2. Transition opportunities objectives – constraints detailed in Table 2
3. Diversification objectives – constraints detailed in Table 3

The definitions of the target metrics for the optimization are detailed in Appendix III.

*Table 1: Company level reward for Climate Related Risk Mitigation Actions*

No.	Transition and Physical Risk Objective	MSCI World ESG Climate Paris Aligned Select Index
1.	Minimum reduction in Greenhouse Gas (GHG) Intensity (Scope 1+2+3 <sup>6</sup> ) relative to Parent Index	50%

<sup>4</sup> For more information on the MSCI World ESG Leaders Index, please refer to <https://www.msci.com/index-methodology>

<sup>5</sup> For more information on the MSCI Climate Paris Aligned Indexes Methodology, please refer to <https://www.msci.com/index-methodology>

<sup>6</sup> Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Index, the Weighted Average Carbon Emissions Intensity has been calculated based on Scope 1+2 Emissions.

2.	Minimum average reduction (per annum) in GHG Intensity relative to GHG Intensity at the Base Date <sup>7</sup>	10%
3.	Minimum active weight in High Climate Impact Sector relative to Parent Index as defined in Appendix III	0%
4.	Minimum Increase in aggregate weight in companies setting targets relative to the aggregate weight of such companies in the Parent Index. Companies Setting Targets are defined in Appendix III	20%
5.	Minimum reduction in Weighted Average Potential Emissions Intensity relative to Parent Index	50%
6.	Aggregate Climate Value-At-Risk under 1.5 degree scenario <sup>8</sup> Please see more detail on Aggregate Climate Value-At-Risk in Appendix II and Appendix III.	$\geq \text{Max}(0, \text{Aggregate Climate VaR of Parent Index})$
7.	Minimum increase in weighted average Low Carbon Transition (LCT) Score relative to Parent Index Please see more detail on LCT Score in Appendix I	10%
8.	Minimum reduction in Weighted Average Extreme Weather Climate Value-At-Risk (Aggressive Scenario) relative to Parent Index	50% <sup>9</sup>

Table 2: Constraints imposed in order to meet transition opportunity objectives

No.	Transition Opportunity Objective	MSCI World ESG Climate Paris Aligned Select Index
9.	Minimum increase in weighted average LCT Score relative to Parent Index <sup>10</sup>	10%

<sup>7</sup> Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Index, the average reduction in WACI has been calculated using Scope 1+2 Emissions since Inception.

<sup>8</sup> For more details on Climate value-At-Risk, please refer to Appendix II. Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Index, the Policy Risk Climate VaR using Scope 1 Emissions since Inception.

<sup>9</sup> In case the Parent Index has a positive Weighted Average Extreme Weather Climate VaR, the floor will be applied at the level of the Weighted Average Extreme Weather Climate VaR of the Parent Index

<sup>10</sup> The constraint on increase in LCT Score is designed to underweight companies with a low LCT Score (assessed as companies facing risks from a low carbon transition) and overweight companies with a high LCT Score (assessed as companies which may have opportunities from a low carbon transition). Thus, the constraint has been repeated in Table 2 to illustrate how the constraint meets both the objectives.

10.	Minimum ratio of Weighted Average Green Revenue/ Weighted Average Fossil fuels-based Revenue relative to Parent Index	4 times
11.	Minimum increase in Weighted Average Green Revenue relative to the Parent Index	100%

*Table 3: Constraints imposed to meet diversification objectives*

No.	Diversification Objective	MSCI World ESG Climate Paris Aligned Select Index
12.	Constituent Active Weight	+/- 2%
13.	Minimum constituent weight	0.01%
14.	Security Weight as a multiple of its weight in the Parent Index	20x
15.	Active Sector Weights (the Energy GICS Sector is not constrained)	+/-5%
16.	Active Country Weights <sup>11</sup>	+/-5%
17.	One Way Turnover	5%
18.	Common Factor Risk Aversion	0.0075
19.	Specific Risk Aversion	0.075

During the Semi-Annual Index Review, in the event that there is no optimal solution that satisfies all the optimization constraints, the following constraints will be relaxed, until an optimal solution is found:

- Relax the one-way index turnover constraint in steps of 1% up to 20%
- Relax the active sector weight constraint in steps of 1% up to +/-20%
- The one-way index turnover constraint and the active sector weight constraint are alternately relaxed until a feasible solution is achieved.

If no optimal solution is found after the above constraint relaxations are exhausted, the relevant Index will not be rebalanced for that Semi-Annual Index Review.

<sup>11</sup> In case there are countries in the Parent Index which weigh less than 2.5% in the Parent Index then for such countries the active country upper bound of +5% is not applicable. When a country weighs less than 2.5% in Parent Index then the upper bound of country weight in the Index is set at three times of the country's weight in Parent Index.

### 3.3 Determining the Optimized Index

The Index is constructed using the Barra Open Optimizer<sup>12</sup> in combination with the relevant Barra Equity Model. The optimization uses the universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of the Index.

---

<sup>12</sup> Please refer to Appendix V and VI for more details.

## 4 Constructing the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index

The MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index is constructed by applying the following steps to the MSCI World ESG Climate Paris Aligned Select Index:

- Constructing the cost-deducted index
- Applying the MSCI Excess Return Indexes methodology<sup>13</sup>
- Constructing the Volatility Target Index

### 4.1 Constructing the cost-deducted index

The cost-deducted index is constructed by applying the following formula to the MSCI World ESG Climate Paris Aligned Select Index:

$$CIL_t = CIL_{t-1} \times \left\{ \left( \frac{BIL_t}{BIL_{t-1}} \right) - IndexFee \times \frac{ACT(t-1,t)}{360} \right\}$$

Where:

$CIL_t$  = Index Level of the cost-deducted index on calculation day<sup>14</sup> t

$BIL_t$  = Standard Daily Net Return Index Level of the MSCI World ESG Climate Paris Aligned Select Index in EUR, as of calculation day t

$IndexFee$  = 0.30%

$ACT(t - 1, t)$  = number of actual calendar days between calculation day t-1 and t

### 4.2 Applying the MSCI Excess Return Indexes Methodology

The MSCI Excess Return Indexes Methodology<sup>15</sup> is applied sequentially on the cost-deducted Index from 4.1 to construct the Excess Return Variant Index. The short-term rate used for the application of the excess return methodology is 1-month EURIBOR (Euro Interbank Offered Rate).

<sup>13</sup> Please refer to the MSCI Excess Return Indexes methodology at [www.msci.com/index-methodology](http://www.msci.com/index-methodology)

<sup>14</sup> All trading days except full holidays in London Stock Exchange, New York Stock Exchange, Euronext Paris, SIX Swiss Exchange, NASDAQ Copenhagen, Deutsche Börse Xetra or Tokyo Stock Exchange

<sup>15</sup> Please refer to the MSCI Excess Return Indexes methodology at [www.msci.com/index-methodology](http://www.msci.com/index-methodology)

### 4.3 Constructing the Volatility Target Index

The objective of the Volatility Target Index is to replicate the performance of a strategy that targets 10% of volatility by adjusting the weight of the Excess Return Variant Index calculated in 4.2.

The Volatility Target Index is calculated in accordance with the below formula:

$$IL_t = IL_{t-1} \times (1 + IR_t)$$

Where:

$IL_t$  is the Volatility Target Index levels on calculation day t

$IR_t$  is the Volatility Target Index return on calculation day t, calculated in accordance with the following formula:

$$IR_t = (W_t \times E_t) - TC_t$$

Where:

$$W_t = \begin{cases} W_{t-1}, ABS\left(\frac{W_{t*} - W_{t-1}}{W_{t-1}}\right) \leq 5\% \\ W_{t*}, ABS\left(\frac{W_{t*} - W_{t-1}}{W_{t-1}}\right) > 5\% \end{cases}$$

Where:

$$W_{t*} = \text{Minimum} \left( 1, \frac{\text{TargetRiskLevel}}{\sigma_t} \right)$$

Where:

$$\text{TargetRiskLevel} = 10\%$$

$\sigma_t$  = volatility<sup>16</sup> of the Excess Return Variant Index

$$E_t = \frac{\text{Excess Return Variant Index}_t}{\text{Excess Return Variant Index}_{t-1}} - 1$$

$TC_t$  is used to represent rebalancing costs that may arise at the Index rebalance and determined in accordance with the following formula:

$$TC_t = C \times ABS(W_t - W_{t-1})$$

where:

$$C = 0.05\%$$

---

<sup>16</sup> Please refer to the Appendix VII for details

$W_t, W_{t-1}$  : Excess Return Variant Index weight as of calculation day  $t$  and calculation day  $t - 1$  respectively

## 5 Constructing the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index

The MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index is constructed by applying the following steps to the MSCI World ESG Climate Paris Aligned Select Index:

- Constructing the cost-deducted index
- Applying the MSCI Excess Return Indexes methodology<sup>17</sup>
- Constructing the Volatility Target Index

### 5.1 Constructing the cost-deducted index

The cost-deducted index is constructed by applying the following formula to the MSCI World ESG Climate Paris Aligned Select Index:

$$CIL_t = CIL_{t-1} \times \left\{ \left( \frac{BIL_t}{BIL_{t-1}} \right) - IndexFee \times \frac{ACT(t-1,t)}{360} \right\}$$

Where:

$CIL_t$  = Index Level of the cost-deducted index on calculation day<sup>18</sup> t

$BIL_t$  = Standard Daily Net Return Index Level of the MSCI World ESG Climate Paris Aligned Select Index in CHF, as of calculation day t

$IndexFee$  = 0.30%

$ACT(t - 1, t)$  = number of actual calendar days between calculation day t-1 and t

### 5.2 Applying the MSCI Excess Return Indexes Methodology

The MSCI Excess Return Indexes Methodology<sup>19</sup> is applied sequentially on the cost-deducted Index from 5.1 to construct the Excess Return Variant Index. The short-term rate used for the application of the excess return methodology is overnight SARON (Swiss Average Rate Overnight).

<sup>17</sup> Please refer to the MSCI Excess Return Indexes methodology at [www.msci.com/index-methodology](http://www.msci.com/index-methodology)

<sup>18</sup> All trading days except full holidays in London Stock Exchange, New York Stock Exchange, Euronext Paris, SIX Swiss Exchange, NASDAQ Copenhagen, Deutsche Börse Xetra or Tokyo Stock Exchange

<sup>19</sup> Please refer to the MSCI Excess Return Indexes methodology at [www.msci.com/index-methodology](http://www.msci.com/index-methodology)



### 5.3 Constructing the Volatility Target Index

The objective of the Volatility Target Index is to replicate the performance of a strategy that targets 10% of volatility by adjusting the weight of the Excess Return Variant Index calculated in 5.2.

The Volatility Target Index is calculated in accordance with the below formula:

$$IL_t = IL_{t-1} \times (1 + IR_t)$$

Where:

$IL_t$  is the Volatility Target Index levels on calculation day t

$IR_t$  is the Volatility Target Index return on calculation day t, calculated in accordance with the following formula:

$$IR_t = (W_t \times E_t) - TC_t$$

Where:

$$W_t = \begin{cases} W_{t-1}, ABS\left(\frac{W_{t*} - W_{t-1}}{W_{t-1}}\right) \leq 5\% \\ W_{t*}, ABS\left(\frac{W_{t*} - W_{t-1}}{W_{t-1}}\right) > 5\% \end{cases}$$

Where:

$$W_{t*} = \text{Minimum} \left( 1, \frac{\text{TargetRiskLevel}}{\sigma_t} \right)$$

Where:

$$\text{TargetRiskLevel} = 10\%$$

$\sigma_t$  = volatility<sup>20</sup> of the Excess Return Variant Index

$$E_t = \frac{\text{Excess Return Variant Index}_t}{\text{Excess Return Variant Index}_{t-1}} - 1$$

$TC_t$  is used to represent rebalancing costs that may arise at the Index rebalance and determined in accordance with the following formula:

$$TC_t = C \times ABS(W_t - W_{t-1})$$

where:

$$C = 0.05\%$$

<sup>20</sup> Please refer to the Appendix VII for details

$W_t, W_{t-1}$  : Excess Return Variant Index weight as of calculation day  $t$  and calculation day  $t - 1$  respectively

## 6 Maintaining the Indexes

### 6.1 Index Reviews

The Index is reviewed on a semi-annual basis in May and November to coincide with the May and November Index Reviews of the MSCI Global Investable Market Index, and the changes are implemented as of the close of the last business day of May and November. In general, the pro forma Index are announced nine business days before the effective date.

In general, MSCI uses MSCI ESG Research data (including MSCI Climate Change Metrics, MSCI Climate Value-at-Risk, MSCI ESG Sustainable Impact Metrics, MSCI ESG Controversies and MSCI Business Involvement Screening Research) as of the end of the month preceding the Index Reviews for the rebalancing of the Index.

The MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index and the MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index are reviewed on a daily basis as per steps described in sections 4 and 5.

### 6.2 Ongoing Event Related Changes

The general treatment of corporate events in the Index aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor’s participation in an event based on relevant deal terms and pre-event weighting of the index constituents that are involved. Further, changes in index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the Index.

The following section briefly describes the treatment of common corporate events within the Index.

No new securities will be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

#### EVENT TYPE

#### EVENT DETAILS

##### **New additions to the Parent Index**

A new security added to the Parent Index (such as IPO and other early inclusions) will not be added to the Index.

**Spin-Offs**

All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

**Merger/Acquisition**

For Mergers and Acquisitions, the acquirer’s post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.

If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

**Changes in Security Characteristics**

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted indexes.

The MSCI Corporate Events methodology book is available at:  
<https://www.msci.com/index-methodology>.



opportunities presented by the low carbon transition. The 3-step process followed by MSCI ESG Research is explained below.

**Step 1: Measure Low Carbon Transition Risk Exposure**

The first step towards measuring the Low Carbon Transition Risk Exposure for a company is the computation of its Carbon Intensity profile – which is informed by its Product Carbon Intensity, Operational Carbon Intensity and Total Carbon Intensity. In the next step, we compute Low Carbon Transition Risk Exposure Category and Score based on Total Carbon Intensity.

**Step 2: Assess Low Carbon Transition Risk Management**

In the second step, we assess a company’s management of risks and opportunities presented by the low carbon transition. This assessment is based on policies and commitments to mitigate transition risk, governance structures, risk management programs and initiatives, targets and performance, and involvement in any controversies.

**Step 3: Calculate Low Carbon Transition Category and Score**

In the final step, the Low Carbon Transition Risk Exposure Category and Score that was calculated in Step 1 are adjusted for the strength of management efforts. Following this adjustment, Low Carbon Transition Risk Exposure Score of companies with top or second quartile risk management improves and some top and second quartile companies may move up one category.

## Appendix II: MSCI Climate Value-At-Risk

The MSCI Climate Value-At-Risk measurement helps investors to assess future costs related to climate change and understand what those future costs could mean in the current valuation of securities. The premise of Climate Value-At-Risk is to aggregate costs related to specific climate risks over the next 15 years and calculate what these costs might signify about financial performance into the foreseeable future.

### **1.5°C Aggregated Policy Risk Equity Climate VaR (AIM CGE) [%]**

An equity's aggregated downside policy risk exposure according to all emission sources (Scope 1, 2, 3), expressed as a percentage of the equity's market value, assuming a global 1.5°C target and using carbon prices from the AIM CGE model. Please refer to the Climate VaR methodology document for further details on scenario options.

### **1.5°C Technology Opportunity Equity Climate VaR (AIM CGE) [%]**

An equity's upside technology opportunity exposure, expressed as a percentage of the equity's market value, assuming a global 1.5°C target and calculated using carbon prices from the AIM CGE model. Please refer to the Climate VaR methodology document for further details on scenario options.

### **Aggregated Extreme Weather Equity Climate VaR (Aggressive Scenario) [%]**

An equity's "worst-case" (95th percentile) downside or upside potential, expressed as a percentage of the equity's market value, assuming trends in extreme cold, extreme heat, extreme precipitation, heavy snowfall, extreme wind, coastal flooding, fluvial flooding and tropical cyclones continue along a Business-As-Usual pathway.

## Appendix III: Calculation of Target Metrics

### Calculation of GHG Intensity

For Parent Index constituents where the Scope 1+2+3 Emissions Intensity is not available, the average Scope 1+2+3 Emissions Intensity of all the constituents of the MSCI ACWI in the same GICS Industry Group in which the constituent belongs is used.

Security Level GHG Intensity =

$$\frac{\text{Scope 1 + 2 + 3 Carbon Emissions} * (1 + EVIAF)}{\text{Enterprise Value} + \text{Cash(in M\%)}}$$

Enterprise Value Inflation Adjustment Factor (EVIAF) =

$$EVIAF = \left( \frac{\text{Average(Enterprise Value} + \text{Cash)}}{\text{Previous (Average(Enterprise Value} + \text{Cash))}} \right) - 1$$

Weighted Average GHG Intensity of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level GHG Intensity})$$

Weighted Average GHG Intensity of Derived Index =

$$\sum (\text{Index Weight} * \text{Security Level GHG Intensity})$$

### Calculation of Potential Carbon Emissions Intensity

For newly added companies to the index where data is not available yet, MSCI uses zero fossil fuel reserves.

Security Level Potential Carbon Emissions (PCE) Intensity =

$$\frac{\text{Absolute Potential Emissions} * (1 + EVIAF)}{\text{Enterprise Value} + \text{Cash(in M\%)}}$$

Weighted Average Potential Emissions Intensity of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level PCE Intensity})$$

Weighted Average Potential Emissions Intensity of Derived Index =



$$\sum (Index\ Weight * Security\ Level\ PCE\ Intensity)$$

**Calculation of Average Decarbonization**

On average, the Index follow a 10% decarbonization trajectory since the Base Date. The Weighted Average GHG Intensity at the Base Date ( $W_1$ ) is used to compute the target Weighted Average GHG Intensity at any given Semi-Annual Index Review ( $W_t$ ) as per the below formula.

$$W_t = W_1 * 0.90^{\frac{(t-1)}{2}}$$

Where ‘t’ is the number of Semi-Annual Index Reviews since the Base Date.

Thus, for the 3<sup>rd</sup> Semi-Annual Index Review since the Base Date (t=3), the target Weighted Average GHG Intensity will be  $W_1 * 0.90$ .

**Companies Setting Targets**

Relative to their corresponding Parent Index, the Index require a minimum 20% increase in the aggregate weight of companies setting emissions reduction targets

- companies publishing emissions reduction targets
- companies publishing their annual emissions and
- Companies reducing their GHG intensity by 7% over each of the last 3 years

**Calculation of Green Revenue to Fossil fuels-based Revenue Multiple**

**Green Revenue**

For each constituent in the Parent Index, the Green Revenue% is calculated as the cumulative revenue (%) from the six Clean Tech themes which are as follows:

- Alternative Energy – products and services that support the transmission, distribution and generation of renewable energy and alternative fuels to reduce carbon and pollutant emissions in supporting affordable and clean energy to combat climate change.
- Energy Efficiency – products, and services that support the maximization of productivity in labor, transportation, power and domestic applications with minimal energy consumption to ensure universal access to affordable, reliable and modern energy services.
- Sustainable Water – products, services, infrastructure projects and technologies that resolve water scarcity and water quality issues, through minimizing and monitoring current water demand, improving the quality and

availability of water supply to improve resource management in both domestic and industrial use.

- Green Building – design, construction, redevelopment, retrofitting, or acquisition of green-certified properties to promote mechanisms for raising capacity for effective climate change mitigation and adaptation.
- Pollution Prevention – products, services, infrastructure projects and technologies that reduces volume of waste materials through recycling, minimizes introduction of toxic substances, and offers remediation of existing contaminants such as heavy metals and organic pollutants in various environmental media to significantly address pollution in all levels and its negative effects
- Sustainable Agriculture - revenues from forest and agricultural products that meet environmental and organic certification requirements to address significantly biodiversity loss, pollution, land disturbance, and water overuse

The Weighted Average Green Revenue% is calculated as:

$$= \sum (Weight\ in\ Index * Green\ Revenue\%)$$

### Fossil fuels-based Revenue

For each constituent in the Parent Index, the Fossil fuels-based Revenue% is calculated as the cumulative revenue (%) from the following sources:

- Revenue% (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It excludes revenue from metallurgical coal, coal mined for internal power generation (e.g. in the case of vertically integrated power producers), intra-company sales of mined thermal coal and revenue from coal trading (either reported or estimated)
- Revenue% from the extraction, production and refining of Conventional and Unconventional Oil & Gas. Conventional Oil and Gas includes Arctic onshore/offshore, deep water, shallow water and other onshore/offshore. Unconventional Oil and Gas includes oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane.
- Revenue% from thermal coal-based power generation, liquid fuel based power generation and natural gas based power generation.

The Weighted Average Fossil fuels-based Revenue% is calculated as:

$$= \sum (Weight\ in\ Index * Brown\ Revenue\%)$$

The Green Revenues to Fossil fuels-based Revenues multiple for either the Parent Index or the Index is calculated as a ratio of the Weighted Average Green Revenue to the Weighted Average Fossil fuels-based Revenue as per the formula below:

$$= \frac{\text{Weighted Average Green Revenue}\%}{\text{Weighted Average Brown Revenue}\%}$$

### Aggregate Climate Value-at-Risk (VaR)

The Index-level Aggregate Climate Value-at-Risk for any Index is calculated as the sum of the below 3 components:

1. **Policy Risk Climate VaR<sup>22</sup> (1.5 Degrees):** Weighted average of security level 1.5°C Aggregated Policy Risk Equity Climate VaR (AIM CGE) [%]
2. **Technology Opportunities Climate VaR (1.5 Degrees):** Weighted average of security level 1.5°C Technology Opportunity Equity Climate VaR (AIM CGE) [%]
3. **Extreme Weather Climate VaR (Aggressive Scenario):** Weighted average of security level Aggregated Extreme Weather Equity Climate VaR (Aggressive Scenario) [%]

### Climate Impact Sectors

NACE<sup>23</sup> is the European Union’s classification of economic activities. As per the draft DA, stocks in the NACE Section codes A, B, C, D, E, F, G, H, L are classified as “High Climate Impact” sector and other stocks are classified ‘Low Climate Impact’ sector. The GICS<sup>24</sup> Sub-Industry code for each security is mapped to the corresponding “Climate Impact Sector” using a mapping. This mapping is constructed in the following steps:

1. MSCI has published a mapping<sup>25</sup> between the NACE classes and GICS Sub-Industry.
2. For each GICS Sub-Industry, the number of NACE classes which fall under the High Climate Impact Sector (say the number of classes is N<sub>H</sub>) and Low Climate Impact Sector (say the number of classes is N<sub>L</sub>) is identified
3. If all the NACE classes for a given GICS Sub-Industry are identified in the High Climate Impact Sector (N<sub>L</sub> = 0), then the GICS Sub-Industry is mapped to the

<sup>22</sup> Starting from the May 2020 Semi-Annual Index Review, the Policy Risk Climate VaR used in the Index incorporate Scope 2 and Scope 3 emissions as well. The Policy Risk Climate VaR used in the May 2020 Semi-Annual Index Review of the Indexe is as of September 30, 2020.

<sup>23</sup> For further details regarding NACE, please refer to [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE\\_background](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background)

<sup>24</sup> For further information regarding GICS, please refer to <https://www.msci.com/gics>

<sup>25</sup> This mapping is available in the [Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks’ ESG Disclosures](#)

High Climate Impact Sector. Conversely, if all the NACE classes for a given GICS Sub-Industry are identified in the Low Climate Impact Sector ( $N_H = 0$ ) then the GICS Sub-Industry is mapped to the Low Climate Impact Sector

4. In case a GICS Sub-Industry is mapped to some NACE classes in the High Climate Impact Sector and the others in the Low Climate Impact Sector, the GICS Industry is mapped to the Climate Impact Sector in the following manner:
  - a.  **$N_H \geq N_L$** : If the number of NACE classes in the High Climate Impact Sector is at least equivalent to the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the High Climate Impact Sector
  - b.  **$N_H < N_L$** : If the number of NACE classes in the High Climate Impact Sector is less than the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the Low Climate Impact Sector
5. Using the GICS Sub-Industry to Climate Impact Sector mapping created in Step 4, and the security-level GICS Sub-Industry, each security in the Parent Index is classified in either High Climate Impact Sector or Low Climate Impact Sector

## Appendix IV: Constructing the MSCI World ESG Climate Paris Aligned Select 5% Decrement Indexes

The MSCI Decrement Indexes methodology<sup>26</sup> is applied to the Index using the following parameters:

Methodology Parameter	MSCI World ESG Climate Paris Aligned Select 5% Decrement (EUR) Index	MSCI World ESG Climate Paris Aligned Select 5% Decrement (CHF) Index
Currency of Calculation	EUR	CHF
Return Variant of the Parent Index	Net Total Return	Net Total Return
Decrement Type	Fixed Percentage	Fixed Percentage
Decrement Application	Geometric	Geometric
Decrement Value	5%	5%
Day-count Convention	ACT/360	ACT/360
Index Floor	0	0
Decrement Frequency	Daily	Daily

<sup>26</sup> For more information, please refer to the MSCI Decrement Indexes methodology at [www.msci.com/index-methodology](http://www.msci.com/index-methodology)

## **Appendix V: Barra Equity Model Used in The Optimization**

The Index currently uses an optimization setup using the MSCI Barra Global Equity Model for Long-Term Investors (GEMTLT).

## **Appendix VI: New release of Barra® Equity Model or Barra® Optimizer**

A major new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

## Appendix VII: Volatility Calculation

The returns of the Excess Return Variant Index in EUR and CHF are used for volatility estimation for MSCI World ESG Climate Paris Aligned Select 10% Risk Control (EUR) Index and MSCI World ESG Climate Paris Aligned Select 10% Risk Control (CHF) Index respectively. The volatility estimation approach takes into account both the short-term and the long-term volatility trends of the Excess Return Variant Index and is calculated as the maximum of two volatility estimates: the short-term realized volatility estimate, calculated over a short horizon of 20 days, and the long-term realized volatility estimate, calculated over a long horizon of 80 days.

The volatility estimation approach uses equally weighted daily excess returns of Excess Return Variant Index for both horizons.

The volatility calculation formulae are described below:

$$Volatility_t =$$

$$Max(Short-term Realized Volatility_t, Long-term Realized Volatility_t)$$

$$Realized Volatility_t = \sqrt{252 \times Variance(t)}$$

$$Variance(t) = (1/N) \times \sum_{t^*-N+1}^{t^*} \ln \left( \frac{Index_t}{Index_{t-1}} \right)^2$$

Where:

$N$  = Total number of calculation days used for variance calculation and varies for short-term volatility estimate ( $N = 20$ ) and long-term volatility estimate ( $N = 80$ )

$$t^* = t - i$$

Where:

$t$  is calculation day  $t$

$i$  is the number of “days lag” in the return calculation used for computing volatility (i.e., the lag between the return date and the volatility calculation date), 3 days



## Contact us

[msci.com/contact-us](https://www.msci.com/contact-us)

### AMERICAS

Americas	1 888 588 4567 *
Atlanta	+ 1 404 551 3212
Boston	+ 1 617 532 0920
Chicago	+ 1 312 675 0545
Monterrey	+ 52 81 1253 4020
New York	+ 1 212 804 3901
San Francisco	+ 1 415 836 8800
São Paulo	+ 55 11 3706 1360
Toronto	+ 1 416 628 1007

### EUROPE, MIDDLE EAST & AFRICA

Cape Town	+ 27 21 673 0100
Frankfurt	+ 49 69 133 859 00
Geneva	+ 41 22 817 9777
London	+ 44 20 7618 2222
Milan	+ 39 02 5849 0415
Paris	0800 91 59 17 *

### ASIA PACIFIC

China North	10800 852 1032 *
China South	10800 152 1032 *
Hong Kong	+ 852 2844 9333
Mumbai	+ 91 22 6784 9160
Seoul	00798 8521 3392 *
Singapore	800 852 3749 *
Sydney	+ 61 2 9033 9333
Taipei	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Tokyo	+ 81 3 5290 1555

\* = toll free

## ABOUT MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 50 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

To learn more, please visit [www.msci.com](https://www.msci.com).

*The process for submitting a formal index complaint can be found on the index regulation page of MSCI's website at: <https://www.msci.com/index-regulation>.*

## Notice and disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or redisseminated in whole or in part without prior written permission from MSCI. All rights in the Information are reserved by MSCI and/or its Information Providers.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, "Index Linked Investments"). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investible assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on [www.msci.com](http://www.msci.com).

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.'s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of [www.msci.com](http://www.msci.com).

MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

MIFID2/MIFIR notice: MSCI ESG Research LLC does not distribute or act as an intermediary for financial instruments or structured deposits, nor does it deal on its own account, provide execution services for others or manage client accounts. No MSCI ESG Research product or service supports, promotes or is intended to support or promote any such activity. MSCI ESG Research is an independent provider of ESG data, reports and ratings based on published methodologies and available to clients on a subscription basis. We do not provide custom or one-off ratings or recommendations of securities or other financial instruments upon request.

For information about how MSCI collects and uses personal data, please refer to our Privacy Notice at <https://www.msci.com/privacy-pledge>.