MSCI Climate Paris Aligned Filtered Indexes Methodology

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1. Introduction

The MSCI Climate Paris Aligned Filtered Indexes[1] (the "Indexes") are 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 Indexes incorporate the TCFD[2] recommendations and are designed to exceed the minimum standards of the EU Paris-Aligned Benchmark[3]. The Indexes are constructed from their corresponding market capitalization weighted indexes (the "Parent Indexes") through an optimization process that aims to:

- Exceed the minimum technical requirements laid out in the EU Delegated Act.
- Reduce the weight of companies assessed as high carbon emitters using scope 1, 2 and 3 emissions
- Apply a "self-decarbonization" rate of 10% year on year
- Align with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
- 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 opprotunities, 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
- Increase the weight of companies with credible carbon reduction targets through the weighting scheme
- Achieve a modest tracking error compared to the Parent Index and low turnover.

1 The Index is governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document. Please refer to Appendix VI for more details.

2 https://www.fsb-tcfd.org/publications/final-recommendations-report/

3 The corresponding minimum requirements are defined in Commission Delegated Regulation (EU) 2020/1818, available under https://eur-lex.europa.eu/eli/reg_del/2020/1818/oj. MSCI's approach to meeting these requirements is described in the MSCI EU CTB/PAB Index Framework, available under https://www.msci.com/index/methodology/latest/EUCTBPABIndexFramework. In case changes to the Index methodology are required to maintain compliance with the regulatory CTB/PAB labels, MSCI will issue an announcement prior to implementing the changes in the methodology. MSCI will not conduct a formal consultation for such an update.

2. Constructing the Indexes

The Indexes use company research provided by MSCI ESG Research[4] to determine eligibility for index inclusion.

2.1 Eligible Universe

The Eligible Universe is constructed from the constituents of the Parent Index by excluding securities based on the exclusion criteria from section 2.1 of the MSCI Climate Paris Aligned Indexes methodology[5], and the additional business involvement exclusion criteria, listed below:

- **Thermal Coal**:
  - All companies deriving 5% or more revenue (either reported or estimated) from thermal coal-based power generation.
  - All companies generating 50% or more power[6] from thermal coal.
  - All companies that own thermal coal reserves.
- **Unconventional Oil & Gas:** All companies deriving 5% or more revenue from oil sands, oil shale (kerogen-rich deposits), shale oil, coal seam gas, coal-bed methane and Arctic onshore/offshore reserves.
- **Oil Sands**: All companies deriving 5% or more revenue from oil sands extraction, which own oil sands reserves and disclose evidence of deriving revenue from oil sands extraction. Companies that derive revenue from non-extraction activities (e.g. exploration, surveying, processing, refining) or intra-company sales are not excluded. Additionally, companies that own oil sands reserves with no associated revenue are also not excluded.
- **Arctic Oil & Gas:** All companies with evidence of producing or deriving 5% or more revenue from Arctic Oil or Gas. Companies that derive revenue from non-extraction activities (e.g. exploration, surveying, processing, refining) or intra-company sales are not excluded. Additional, companies that own Arctic oil reserves with no associated extraction revenues are not excluded.

2.2 Optimization Constraints

At each Index Review, the Indexes are constructed using an optimization process that aims 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

[4] See Section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited and MSCI Deutschland GmbH source from MSCI ESG Research LLC, a separate subsidiary of MSCI Inc. MSCI ESG Research is solely responsible for the creation, determination and management of such data as a provider to MSCI Limited and MSCI Deutschland GmbH. MSCI Limited and MSCI Deutschland GmbH are the benchmark administrators for the MSCI indexes

[5] For more information, please refer to the MSCI Climate Paris Aligned Indexes methodology at www.msci.com/index- methodology.

[6] As per https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter7.pdf, thermal coal based power generation has median lifecycle emissions exceeding 100gCO_2/kWh.

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 II.

Table 1: Constraints imposed in order to meet transition and physical risk objectives

No.	Transition and Physical Risk Objective	Target Value
1.	Minimum reduction in Greenhouse Gas (GHG) Intensity (Scope 1+2+3)[7] relative to Parent Index	50%
2.	Minimum average reduction (per annum) in GHG Intensity relative to GHG Intensity at the Base Date[8]	10%
3.	Minimum active weight in High Climate Impact sector[9] relative to the Parent Index	0%
4.	Minimum increase in the aggregate weight of Companies Setting Targets relative to the aggregate Parent Index weight of such companies that meet the eligibility criteria. Companies Setting Targets are defined in Appendix II and eligibility criteria are defined in Section 2.1.	20%
5.	Minimum reduction in Weighted Average Potential Emissions Intensity relative to the Parent Index.	50%
6.	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%
7.	Minimum reduction in Weighted Average Extreme Weather Climate Value-At-Risk[10] (Aggressive Scenario) relative to the Parent Index	50%[11]

[7] Prior to the May 2020 Index Review, the Weighted Average Carbon Emissions Intensity has been calculated based on Scope 1+2 Emissions.

[8] Prior to the May 2020 Index Review of the Indexes, the average reduction in WACI has been calculated using Scope 1+2 Emissions since Inception.

[9] For further details on how MSCI assigns companies to either the high or low climate impact sectors, please refer to the MSCI EU CTB/PAB Index Framework available on https://www.msci.com/index/methodology/latest/EUCTBPABIndexFramework.

[10] 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

[11,12] 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.

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

No.	Transition Opportunity Objective	Target Value
8.	Minimum increase in weighted average LCT Score relative to the Parent Index[12]	10%
9.	Minimum ratio of Weighted Average Green Revenue/ Weighted Average Fossil fuels-based Revenue relative to the Parent Index	4 times
10.	Minimum increase in Weighted Average Green Revenue relative to the Parent Index	100%

Table 3: Constraints imposed in order to meet diversification objectives

No.	Diversification Objective	Target Value
11.	Constituent Active Weight	+/- 2%
12.	Minimum constituent weight	0.01%
13.	Security Weight as a multiple of its weight in the Parent Index	20x
14.	Active Sector Weights (the Energy Global Industry Classification Standard (GICS®)[13] Sector is not constrained)	+/-5%
15.	Active Country Weights[14]	+/-5%
16.	One Way Turnover	5%
17.	Common Factor Risk Aversion[15]	0.0075
18.	Specific Risk Aversion[16]	0.075

During the 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.

[12] 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.

[13] GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence.

[14] 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.

[15] The Common Risk Aversion penalizes systematic risk during the optimization process.

[16] The Systematic Risk Aversion penalizes idiosyncratic (asset-specific) risk during the optimization process.

In the event that no optimal solution is found after the above constraint relaxations are exhausted, the relevant Indexes will not be rebalanced for that Index Review.

2.3 Determining the Optimized Index

The Index is constructed using the Barra Open Optimizer[17] in combination with the relevant Barra Equity Model. The optimization uses universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of the Indexes.

2.4 Treatment of Unrated Companies

Companies not assessed by MSCI ESG Research on the following MSCI ESG Research products are not eligible for inclusion in the Indexes.

- MSCI ESG Controversies
- MSCI Business Involvement Screening Research (BISR)
- MSCI Climate Change Metrics

For the treatment of companies where the Scope 1+2+3 Emissions Intensity is not available, please refer to Appendix II.

[17] Please refer to Appendix IV and V for more details.

3. Maintaining the Indexes

3.1 Index Reviews

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

3.2 Monthly Review of Controversies

Index constituents are reviewed on a monthly basis for the involvement in ESG and Environmental Controversies[18].

Existing constituents will be deleted if they are assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversies Score of 0) or Environmental controversies that are classified as Red (MSCI Environmental Controversy score of 0) or Orange Flags (score of 1).

A Red Flag indicates an ongoing, Very Severe ESG controversy implicating a company directly through its actions, products, or operations. An Orange Flag indicates an ongoing Severe ESG controversy implicating a company directly, or a Very Severe ESG controversy that is either partially resolved or indirectly attributed to the company's actions, products, or operations. Existing Index constituents with missing MSCI ESG Controversy Scores are not deleted during Monthly Review of Controversies.

MSCI uses MSCI ESG Controversies data as of the end of the month preceding the review (e.g., end of June data for the July monthly review). For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the review. For such securities, MSCI will use ESG data published after the end of month, when available, for the monthly review of the Index.

The pro forma Indexes are generally announced nine business days before the effective date.

3.3 Ongoing Event-Related Changes

The general treatment of corporate events in the Indexes 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.

[18] The monthly review of ESG Controversies is applied within the Index, starting on July 2023, and is not applicable historically prior to that date.

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 between Index Reviews.
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/latest/CE.

4. MSCI ESG Research

The Indexes are products of MSCI Inc. that utilize information such as company ratings and research produced and provided by MSCI ESG Research LLC (MSCI ESG Research), a subsidiary of MSCI Inc. In particular, the Indexes use the following MSCI ESG Research products: MSCI Climate Change Metrics, MSCI Climate Value-at-Risk, MSCI Impact Solutions, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research. MSCI Indexes are administered by MSCI Limited and MSCI Deutschland GmbH.

4.1 MSCI Climate Change Metrics

MSCI Climate Change Metrics provides 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/legal/disclosures/climate-disclosures

4.1.1 Fossil Fuels and Power Generation Metrics

MSCI ESG Research identifies companies involved in fossil fuel-related assets and activities including fossil fuel reserves, resource extraction, power generation and generation capacity, revenue from such assets and activities and capital investments in such assets and activities. The metrics are based on disclosed activities, disclosed revenue and estimates of revenue that are extrapolated from company disclosures and eligible third-party sources (such as NGOs).

4.1.2 Greenhouse Gas (GHG) Emissions

MSCI ESG Research collects reported emissions and uses proprietary estimation methodologies that follow the GHG Protocol in including carbon dioxide (CO2) and the five other principal GHGs: hydrofluorocarbons (HFCs), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Emissions of these other gases are accounted for in terms of the quantity of CO2 that has an equivalent global warming potential.

4.1.3 Low-Carbon Transition (LCT) Risk Assessment

MSCI ESG Research's LCT data assesses companies' exposure to risks and opportunities related to the low-carbon transition (the transition) based on the carbon-intensive nature of their business lines. In particular, in the event that the transition takes place, demand for carbon-intensive products would decline in favor of low- and zero-carbon products, which would put carbon-intensive companies and industries (for example, coal-based power generation and coal mining) at risk of having stranded assets over the long term (5+ years). MSCI ESG Research considers a company exposed to low-carbon transition risks and opportunities through two main transmission channels:

(1) exposure through involvement in carbon-intensive operations, and (2) exposure through involvement in or solutions for carbon-intensive products.

4.1.4 Climate Value-at-Risk (VaR)

Climate VaR provides a forward-looking and return-based valuation assessment to measure climate-related risks and opportunities. Climate VaR is a quantitative assessment calculated at the company and security level. The aggregated company Climate VaR is calculated as a percentage of market value (from -100% to +100%) for multiple climate scenarios and includes the valuation impacts arising from technology opportunities, policy risks and physical risks. The Climate VaR model uses a data-driven approach, examining a company's positioning within its industry and the regions where it operates. It considers the potential costs and profits associated with different climate scenarios, including the impacts of carbon pricing, regulatory changes, and physical climate events. By simulating these scenarios, the model estimates how climate change could affect a company's financial performance and overall valuation.

4.2 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.

For more details on MSCI Sustainable Impact Metrics, please refer to https://www.msci.com/legal/disclosures/esg-disclosures.

4.3 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 at: https://www.msci.com/legal/disclosures/esg-disclosures.

4.4 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.

The MSCI Business Involvement Screening Research methodology can be found at: https://www.msci.com/legal/disclosures/esg-disclosures.

Appendix I: MSCI Low Carbon Transition Risk Assessment

MSCI ESG Research's Low Carbon Transition Risk assessment[19] is designed to identify potential leaders and laggards by holistically measuring companies' exposure to and management of risks and opportunities related to the low carbon transition. The assessment is derived from company disclosures and estimates.

The outputs of this assessment are two company-level factors:

(1) **Low Carbon Transition Category**: This factor groups companies in five categories that highlight the predominant risks and opportunities they are most likely to face in the transition (Exhibit 1).

(2) **Low Carbon Transition Score:** This score is based on a multi-dimensional risks and opportunities assessment and considers both primary and secondary risks a company faces. It is an industry agnostic assessment of a company's position vis-à-vis the transition.

Exhibit 1: Low Carbon Transition Categories and Scores

LOW CARBON TRANSITION SCORE	LOW CARBON TRANSITION CATEGORY		LOW CARBON TRANSITION RISK / OPPORTUNITY	INDUSTRY EXAMPLES
SCORE = 0	ASSET STRANDING		Potential to experience "stranding" of physical / natural assets due to regulatory, market, or technological forces arising from low carbon transition.	Coal mining & coal-based power generation; industries in the Oil & Gas value chain
	TRANSITION	PRODUCT	Reduced demand for carbon-intensive products and services. Leaders and laggards are defined by the ability to shift product portfolio to low-carbon products.	Petrol/diesel-based automobile manufacturers
		OPERATIONAL	Increased operational and/or capital cost due to carbon taxes and/or investment in carbon emission mitigation measures leading to lower profitability of the companies.	Cement, Steel
	NEUTRAL		Limited exposure to low carbon transition carbon risk. Though companies in this category could have exposure to physical risk and/or indirect exposure to low carbon transition risk via lending, investment etc.	Consumer Staples, Healthcare
SCORE = 10	SOLUTIONS		Potential to benefit through the growth of low-carbon products and services.	Renewable electricity, Electric vehicles, Solar cell manufacturers

Calculation methodology

The Low Carbon Transition Categories and Scores are determined by a combination of each company's current risk exposure and its efforts to manage the risks and opportunities presented by the low carbon transition. The 3-step process followed by MSCI ESG Research is explained below.

[19] For more details on MSCI Climate Change Metrics: https://www.msci.com/climate-change-solutions

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 estimated total net carbon intensity – which considers operational and product carbon emissions. In the next step, we compute Low Carbon Transition Risk Exposure Category and Score based on total net carbon intensity.

Step 2: Assess Low Carbon Transition Risk Management

In the second step, MSCI ESG Research assesses 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: Calculation of Target Metrics

Greenhouse Gas (GHG) Emissions Intensity

MSCI ESG Research collects company-specific direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions (GHG) data from company public documents and/or the Carbon Disclosure Project. If a company does not report GHG emissions, then MSCI ESG Research estimates Scope 1 and Scope 2 GHG emissions.

MSCI ESG Research estimates company-specific indirect (Scope 3) GHG emissions from the Scope 3 Carbon Emissions Estimation Model. The data is generally updated on an annual basis.

Calculation of GHG Intensity

Carbon emissions of a company are normalized for size by dividing annual carbon emissions by Enterprise Value including Cash (EVIC). The Carbon Emissions Intensity is calculated using the latest Scope 1+2 carbon emissions, Scope 3 carbon emissions and EVIC of a company.

Security Level GHG Intensity (Scope 1+2+3) =

*(Unadjusted Security Level GHG Intensity (Scope 1+2) + Unadjusted Security Level GHG Intensity (Scope 3)) * (1 + EVIAF)*

Unadjusted Security Level GHG Intensity (Scope 1+2) =

$$\frac{(Scope\ 1+2\ Carbon\ Emissions)}{EVIC\ (in\ M\$)}$$

If Scope 1+2 carbon emissions and/or EVIC are not available, the average Scope 1+2 intensity of all the constituents of the MSCI ACWI in the same GICS Industry Group in which the security belongs is used.

Unadjusted Security Level GHG Intensity (Scope 3) =

$$\frac{(Scope\ 3\ Carbon\ Emissions)}{EVIC\ (in\ M\$)}$$

If Scope 3 carbon emissions and/or EVIC are not available, the average Scope 3 intensity of all the constituents of the MSCI ACWI in the same GICS Industry Group in which the security belongs is used.

Enterprise Value Inflation Adjustment Factor (EVIAF) =

$$\left(\frac{Average(EVIC)}{Previous\ (Average(EVIC))}\right) - 1$$

Weighted Average GHG Intensity of Parent Index =

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

Weighted Average GHG Intensity of Derived Index =

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

Calculation of Potential Carbon Emissions Intensity

Security Level Potential Carbon Emissions (PCE) Intensity =

$$\frac{Absolute\ Potential\ Emissions}{EVIC\,(in\ M\$)}$$

If Absolute Potential Emissions data is not available, MSCI uses zero fossil fuel reserves.

Weighted Average Potential Emissions Intensity of Parent Index =

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

Weighted Average Potential Emissions Intensity of Derived Index =

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

Companies Setting Targets

The Index requires a minimum 20% increase in the aggregate weight of companies setting emissions reduction targets relative to the aggregate Parent Index weight of such companies that meet the eligibility criteria. Companies setting targets are defined as companies having one or more active carbon emissions reduction target(s) approved by the Science Based Targets initiative (SBTi), or companies meeting all the following requirements:

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

Calculation of Green Revenue to Fossil fuels-based Revenue Multiple

<u>Green Revenue</u>

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:

$$= \sum (Weight\ in\ Index * \ Fossil\ fuels - based\ Revenue\%)$$

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:

$$= \frac{Weighted\ Average\ Green\ Revenue\%}{Weighted\ Average\ Fossil\ fuels - based\ Revenue\%}$$

MSCI Climate Value-at-Risk

<u>4°C Aggregated Physical Risk Equity Climate VaR (IPCC SSP3-7.0, Aggressive Outcome) [%]</u>

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, river low flow, tropical cyclones and wildfires continue along the 4°C IPCC SSP3-7.0 scenario.

Appendix III: Decarbonization Trajectory of Indexes

The Weighted Average GHG Intensity on the Base Date (W_1) is used to compute the target Weighted Average GHG Intensity at any given 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 Index Reviews since the Base Date. The table below shows the Weighted Average GHG Intensity on the Base Date(W_1) for each of the regions where the Indexes are constructed:

Index	Parent Index	Base Date	W_1 (tCO2/M$ Enterprise Value + Cash)
MSCI World Climate Paris Aligned Filtered Index	MSCI World Index	June 01, 2020	222.21
MSCI Europe Climate Paris Aligned Filtered Index	MSCI Europe Index	June 01, 2020	266.16
MSCI EMU Climate Paris Aligned Filtered Index	MSCI EMU Index	June 01, 2020	301.70
MSCI EM (Emerging Markets) Climate Paris Aligned Filtered Index	MSCI EM (Emerging Market) Index	June 01, 2020	316.20

The calculation of the targeted decarbonization trajectory is specified in section 4 of the MSCI EU CTB/PAB Index Framework[11].

[11] For further details on the MSCI EU CTB/PAB Index Framework, please refer to: https://www.msci.com/index/methodology/latest/EUCTBPABIndexFramework

Appendix IV: Barra Equity Model Used in the Optimization

The Indexes currently use an optimization setup using the MSCI Barra Global Equity Model for Long-Term Investors (GEMLTL).

Appendix V: 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 VI: Methodology Set

The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document as mentioned below:

- Description of methodology set – https://www.msci.com/index/methodology/latest/ReadMe
- MSCI Corporate Events Methodology – https://www.msci.com/index/methodology/latest/CE
- MSCI Fundamental Data Methodology – https://www.msci.com/index/methodology/latest/FundData
- MSCI Index Calculation Methodology – https://www.msci.com/index/methodology/latest/IndexCalc
- MSCI Index Glossary of Terms – https://www.msci.com/index/methodology/latest/IndexGlossary
- MSCI Index Policies – https://www.msci.com/index/methodology/latest/IndexPolicy
- MSCI Global Industry Classification Standard (GICS) Methodology – https://www.msci.com/index/methodology/latest/GICS
- MSCI Global Investable Market Indexes Methodology – https://www.msci.com/index/methodology/latest/GIMI
- MSCI Climate Paris Aligned Index Methodology– https://www.msci.com/index/methodology/latest/ClimatePAB
- MSCI EU CTB/PAB Index Framework – https://www.msci.com/index/methodology/latest/EUCTBPABIndexFramework
- ESG Factors In Methodology*

The Methodology Set for the Indexes can also be accessed from MSCI’s webpage https://www.msci.com/index-methodology in the section ‘Search Methodology by Index Name or Index Code’.

* ‘ESG Factors in Methodology’ contains the list of environmental, social, and governance factors considered, and how they are applied in the methodology (e.g., selection, weighting or exclusion). It can be accessed in the Methodology Set as described above."

Appendix VII: Changes to this Document

The following sections have been modified as of February 2023:

- Methodology book was updated to reflect the transition of the MSCI Global Investable Market Indexes (GIMI) to Quarterly Comprehensive Index Reviews.
- All references to "Semi-Annual Index Reviews" and "Quarterly Index Reviews" of the MSCI Global Investable Market Indexes were replaced with "Index Reviews."

The following sections have been modified as of May 2023:

- Methodology book was updated to reflect the change in the target for Aggregate Climate Value -At-Risk from greater than or equal to 0% to greater than or equal to -5%.
- The definition of Companies Setting Targets was expanded to include any company which has received Science Based Targets from the Science Based Targets Initiative (SBTi)
- The calculation of aggregate weight of 'Companies Setting Target' will only include companies which are not excluded from the index, as per the exclusion criteria described in Section 2.2 of the methodology document.
- The ESG Research Product descriptions were updated and moved from Section 2 to Section 4
- The Weighted Average GHG Intensity on the Base Date was added indexes in Appendix 4

The following sections have been modified as of July 3, 2023:

The monthly review of ESG Controversies is applied within the Index effective July 3, 2023, and is not applicable historically prior to that date.

The following sections have been modified as of November 2023:

- The ESG Screening criteria was updated to remove the reference to nuclear weapons in Section 2.1 as this screen is now applied in the standard Climate Paris Aligned Indexes methodology.
- The special treatment for the Aggregate Climate Value-at-Risk constraint for the MSCI EM Climate Paris Aligned Filtered Index at the November 2023 Index Review was noted in Section 2.2
- The treatment of companies with ratings and research not available from MSCI ESG Research was added to Section 2.4
- The Companies Setting Target description was updated in Table 1 and Appendix III.
- The Climate Value-at-Risk models and scenarios used were updated in Appendix II and III.

The following sections have been modified as of May 2024

- Updated the exclusion criteria for the Thermal Coal Power Generation screen in Section 2.1
- Missing data treatment for Monthly Review of Controversies clarified in Section 3.2
- Added detail on the Methodology Set for the Indexes in Appendix VII

The following sections have been modified as of November 2024

Section 2.4: Treatment of Unrated Companies

- Added the treatment of companies when business involvement screening research or climate change metrics research not available from MSCI ESG Research

Section 4.5 Optimization Constraints

- Removed Aggregate Climate Value-At-Risk from the optimization constraints.

Appendix I: MSCI Low Cabron Transition Risk Assessment

- Updated language and the Low Carbon Transition Categories and Scores table

Appendix II: MSCI Climate Value-At-Risk

- Removed Appendix, effective November 2024 the Indexes will no longer apply Aggregated Policy Risk Equity Climate VaR or Technology Opportunities Equity Climate VaR.

Appendix II: Calculation of Target Metrics

- Added new subsection for the Aggregated Physical Risk Equity Climate VaR

The following sections have been modified as of May 2025

Section 1: Introduction

- Updated footnote with reference to MSCI EU CTB/PAB Index Framework.

Section 2.1: Eligible Universe

- Removed the conventional weapons screen and description. Effective May 2025 Index Review, conventional weapons will no longer be excluded from the Indexes.

Section 2.2: Optimization Parameters, Appendix II: Calculation of Target Metrics

- Added references to the MSCI EU CTB/PAB Index Framework for the definition of climate impact sectors and calculation of decarbonization trajectory.

Section 4: MSCI ESG Research

- Added a sub-section under Climate Change Metrics to provide additional details on Fossil Fuel and Power Generation Metrics, Greenhouse Gas Emissions, Low Carbon Transition Risk Assessment and Climate Value at Risk (VaR)

Appendix III: Decarbonization Trajectory of Indexes

- Added reference to the MSCI EU CTB/PAB Index Framework for the calculation of decarbonization trajectory.

Appendix VI: Methodology Set

- Added reference to the MSCI EU CTB/PAB Index Framework.

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