MSCI ESG Enhanced Focus CTB Indexes Methodology

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Contents

1 Introduction

The MSCI ESG Enhanced Focus CTB Indexes (the 'Indexes') are designed to maximize exposure to positive environmental, social and governance (ESG) factors while maintaining risk and return characteristics similar to those of their respective underlying market capitalization weighted indexes (the 'Parent Indexes').

The Indexes are constructed by selecting constituents of a market capitalization weighted index (the 'Parent Index') through an optimization process that aims to maximize exposure to ESG factors for a target tracking error budget and exceed the minimum standards of the EU Climate Transition Benchmark (CTB).

The MSCI ESG Enhanced Focus CTB Indexes are constructed from their corresponding Parent Indexes following an optimization-based approach and aim to:

- Exceed the minimum technical requirements laid out for EU Climate Transition Benchmarks in the EU Delegated Acts[1]
- Reduce the weighted average greenhouse gas intensity by 30% compared to the Parent Index.
- Reduce the weighted average greenhouse gas (GHG) intensity by 7% on an annualized basis
- Reduce the weighted average potential emissions intensity by 30% compared to the Parent Index.
- Have at least equivalent ratio of weighted average "Green Revenues" to weighted average "Fossil Fuels-based Revenues" as that of the Parent Index.
- Increase the weight of companies with credible carbon reduction targets through the weighting scheme
- Be sector-diversified and target companies with high ESG ratings in each sector.
- Ensure that the index-level sustainable exposure (which reflects a particular interpretation of the company-level sustainable investment assessment as per Article 2(17) of the Sustainable Finance Disclosure Regulation (SFDR)[2] along with an associated aggregation method) meets the relevant index-level sustainable exposure percentage ("Index SE%") thresholds. The minimum thresholds vary depending on the respective MSCI Parent Index and are listed in Appendix II.[3]

[1] 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 and Climate Transition Benchmarks

[2] Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R2088&from=EN

[3] The Indexes are governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document. Please refer to Appendix VII for more details.

2 Constructing the Indexes

The Indexes use company ratings and research provided by MSCI ESG Research[4] for the Index construction.

Constructing the MSCI ESG Enhanced Focus CTB Indexes involve the following steps:

- Defining the Parent Index
- Defining the exclusion criteria
- Defining the optimization constraints
- Determining the optimized portfolio

The steps mentioned above are defined in detail in the subsequent sections.

2.1 Defining the Parent Index

MSCI ESG Enhanced Focus CTB Index	Parent Index
MSCI World ESG Enhanced Focus CTB Index	MSCI World Index
MSCI EM ESG Enhanced Focus CTB Index	MSCI EM (Emerging Markets) Index
MSCI Europe ESG Enhanced Focus CTB Index	MSCI Europe Index
MSCI EMU ESG Enhanced Focus CTB Index	MSCI EMU Index
MSCI USA ESG Enhanced Focus CTB Index	MSCI USA Index
MSCI Pacific ex Japan ESG Enhanced Focus CTB Index	MSCI Pacific Ex Japan
MSCI Japan ESG Enhanced Focus CTB Index	MSCI Japan Index
MSCI World Small Cap ESG Enhanced Focus CTB Index	MSCI World Small Cap Index
MSCI USA Small Cap ESG Enhanced Focus CTB Index	MSCI USA Small Cap Index

[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.

2.2 Defining The Exclusion Criteria

Companies assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversy Score of 0) are not eligible for inclusion in the Indexes. A Red Flag indicates an ongoing Very Severe ESG controversy implicating a company directly through its actions, products, or operations. In addition, starting from the November 2022 Index Review, companies assessed as having involvement in environmental controversies that are classified as Red (MSCI Environmental Controversy Score of 0) or Orange Flags (score of 1) are also excluded from the Indexes.

- 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.

2.2.1 Business Exclusion criteria

Companies that are involved in specific businesses which have high potential for negative social and/or environmental impact are ineligible for inclusion in the Indexes.

- Controversial Weapons
- Nuclear Weapons
- Civilian Firearms
- Tobacco
- Thermal Coal
- Conventional Weapons
- Unconventional Oil and Gas

In addition to the above, companies that fail to comply with the United Nations Global Compact Principles (UN Global Compact Alignment Value of "Fail") are also excluded from the Indexes.

Please refer to Appendix I for more details on these criteria.

2.2.2 Other Exclusion Criteria

- Missing Controversy Score – Companies not assessed by MSCI ESG Research's MSCI ESG Controversy Scores are excluded from the Indexes.
- Missing ESG Rating or ESG Score – Companies which are not rated by MSCI ESG Research for an MSCI ESG Rating are excluded from the Indexes.

2.3 Optimization Constraints

The Optimization process aims to maximize the Index's exposure to ESG scores for a given tracking error budget. ESG scores are normalized and used in the optimization process. The following ex-ante tracking error targets are used for the construction of MSCI ESG Enhanced Focus CTB Indexes –

No.	MSCI ESG Enhanced Focus CTB Index	Ex-Ante Tracking Error
1	MSCI World ESG Enhanced Focus CTB Index	0.75%
2	MSCI EM ESG Enhanced Focus CTB Index	1.0%
3	MSCI Europe ESG Enhanced Focus CTB Index	0.75%
4	MSCI EMU ESG Enhanced Focus CTB Index	0.75%
5	MSCI USA ESG Enhanced Focus CTB Index	0.75%
6	MSCI Pacific ex Japan ESG Enhanced Focus CTB Index	1.25%
6	MSCI Japan ESG Enhanced Focus CTB Index	0.75%
7	MSCI World Small Cap ESG Enhanced Focus CTB Index	0.75%
8	MSCI USA Small Cap ESG Enhanced Focus CTB Index	0.75%

Normalization of the ESG scores is designed to allow the optimization process to assess each score in the context of the overall distribution of the ESG scores.

Please refer to Appendix II for the Optimization constraints. The definitions of the target metrics for the optimization are detailed in Appendix III.

2.4 Determining the Optimized Index

The Indexes are constructed using the Barra Open Optimizer[5] 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.

[5] Please refer to Appendix V and VI for more details

3 Maintaining the Indexes

3.1 Quarterly Index Reviews

The Indexes are rebalanced on a quarterly basis to coincide with the Index Reviews of the MSCI Global Investable Market Indexes. Changes are implemented at the end of February, May, August and November. The pro forma Indexes are in general announced nine business days before the effective date.

ESG scores used for the Quarterly Index Reviews will be taken as of the end of the month preceding the Index Review, i.e., January, April, July, and October.

At each Index Review, the optimization process outlined in Section 2 is implemented.

In general, MSCI uses MSCI ESG Research[6] data (including MSCI ESG Ratings, MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research, MSCI Climate Change Metrics and MSCI Impact Solutions) as of the end of the month preceding the Index Reviews. For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the Index Review. For such securities, MSCI will use ESG data published after the end of month, when available.

3.2 Monthly Review of Controversies

Index constituents are reviewed on a monthly basis for the involvement in ESG controversies and for compliance with the United Nations Global Compact Principles. Existing constituents will be deleted if they face controversies as defined by MSCI ESG Controversies Score of 0 ('Red Flag' companies), or if they fail to comply with the UN Global Compact Principles (UN Global Compact Alignment value of "Fail").

MSCI uses MSCI ESG Controversies data as of the end of the month preceding the review (e.g., end of June data for the end of 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 Indexes.

The pro forma Indexes are generally announced nine business days before the first business day of the month.

3.3 Ongoing Event-Related Maintenance

The general treatment of corporate events in the MSCI ESG Enhanced Focus CTB Indexes aim 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.

The following section briefly describes the treatment of common corporate events within the MSCI ESG Enhanced Focus CTB Indexes.

[6] See Section 4 for details of data sourced from MSCI ESG Research used in the Indexes.

No new securities will be added (except where noted below) to the Indexes 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.

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 ESG Ratings, MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research, MSCI Climate Change Metrics, MSCI Impact Solutions. MSCI Indexes are administered by MSCI Limited and MSCI Deutschland GmbH.

4.1 MSCI ESG Ratings

MSCI ESG Ratings aim to measure entities' management of environmental, social and governance risks and opportunities. MSCI ESG Ratings use a weighted average key issue calculation that is normalized by industry to arrive at an industry-adjusted ESG score (0-10), which is then translated to a seven-point scale from 'AAA' to 'CCC', indicating how an entity manages relevant key issues relative to industry peers.

The MSCI ESG Ratings methodology can be found at: https://www.msci.com/legal/disclosures/esg-disclosures.

4.2 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/legal/disclosures/esg-disclosures.

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

4.4 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.

4.5 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

Appendix I: Business Exclusion Criteria

MSCI ESG Research has developed a framework designed to define significant involvement in controversial activities. According to this framework, there are three tolerance levels: Zero Tolerance, Minimal Tolerance and Low Tolerance.

Each controversial activity screened by the MSCI ESG Enhanced Focus CTB Indexes (except Thermal Coal, Oil Sands and Global Norms) is assigned to one of these tolerance levels:

Activities classified under "Zero Tolerance"

- **Controversial Weapons**
    - All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), as defined by the methodology of the MSCI Ex-Controversial Weapons Indexes available at https://www.msci.com/index/methodology/latest/XCW.

Activities classified under "Minimal Tolerance"

- **Nuclear Weapons**
    - All companies that manufacture nuclear warheads and/or whole nuclear missiles.
    - All companies that manufacture components that were developed or are significantly modified for exclusive use in nuclear weapons (warheads and missiles).
    - All companies that manufacture or assemble delivery platforms that were developed or significantly modified for the exclusive delivery of nuclear weapons.
    - All companies that provide auxiliary services related to nuclear weapons.
    - All companies that manufacture components that were not developed or not significantly modified for exclusive use in nuclear weapons (warheads and missiles).
    - All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons.
    - All companies that manufacture components for nuclear-exclusive delivery platforms.
- **Civilian Firearms**
    - All companies classified as "Producer" of firearms and small arms ammunitions for civilian markets. It does not include companies that cater to the military, government, and law enforcement markets.
    - All companies deriving 5% or more revenue from the distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
- **Tobacco**
    - All companies classified as a "Producer"
    - All companies deriving 5% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products.

Activities not classified under any specific tolerance level

- **Thermal Coal**
    - All companies deriving 5% or more 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.
    - All companies deriving 5% or more revenue (either reported or estimated) from the thermal coal based power generation.
- **Conventional Weapons**
    - All companies deriving 5% or more revenue from the production of conventional weapons
    - All companies deriving 10% or more aggregate revenue from weapons systems, components and support systems and services
- **Unconventional Oil and Gas**
    - All companies deriving 5% or more revenues from oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal-seam gas, coal-bed methane as well as Arctic onshore/offshore reserves.
- **Global Norms – United Nations Global Compact Compliance**
    - All companies that fail to comply with the United Nations Global Compact principles (UN Global Compact Alignment value of "Fail").

Appendix II: Optimization Constraints

At each Quarterly Index Review, the following optimization constraints along with the ex-ante tracking error targets defined in Section 2.3 are used to ensure replicability and investability.

Screened Parent

The Screened Parent is constructed by excluding securities from the Parent Index based on the exclusion criteria as defined in Section 2.2. The security weights are then normalized to 100%.

Constraints imposed to meet transition and physical risk objectives

No.	Transition and Physical Risk Objective	MSCI ESG Enhanced Focus CTB Indexes
1^	Minimum reduction in Greenhouse Gas (GHG) Intensity (Scope 1+2+3)	30%
2	Minimum average reduction (per annum) in GHG Intensity relative to GHG Intensity at the Base Date	7%
3^	Minimum active weight in High Climate Impact Sector as defined in Appendix III	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 III	10%
5^	Minimum reduction in Weighted Average Potential Emissions Intensity	30%
6^	Minimum ratio of Weighted Average Green Revenue/ Weighted Average Fossil fuels-based Revenue	At least equal

Diversification Constraints

No.	Parameter	Values
1	Minimum Constituent Weight	Minimum constituent weight in the Screened Parent
2^	Asset Lower Bound	Maximum (Minimum constituent weight in the Screened Parent, 0.25 * Security Weight in the Screened Parent, Security Weight in the Screened Parent – 2%)
3^	Asset Upper Bound	Minimum (5 * Security Weight in the Screened Parent, Security Weight in the Screened Parent +2%)
4^	Active Sector Weights[7]	+/-5%
5^	Active Country Weights*	+/-5%
6^	One Way Turnover during Index Reviews	7.5%
7	Specific Risk Aversion	0.075
8	Common Factor Risk Aversion	0.0075

* Active Country Weights – 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 the Parent Index then the upper bound of country weight in the MSCI ESG Enhanced Focus CTB Index is set at three times of the country's weight in the Parent Index.

^ The Optimization Constraints are applied relative to the Parent Index.

Minimum Index SE% Constraints

The following optimization constraints on minimum Index SE% are used for each index:

No.	Index	Index SE% Threshold
1	MSCI Europe ESG Enhanced Focus CTB Index	30%
2	MSCI EMU ESG Enhanced Focus CTB Index	30%
3	MSCI Japan ESG Enhanced Focus CTB Index	30%
4	MSCI World ESG Enhanced Focus CTB Index	25%
5	MSCI USA ESG Enhanced Focus CTB Index	20%

[7] For the MSCI Pacific ex Japan Enhanced Focus CTB Index, the lower active sector weight constraint relative to the Parent Index was applied at "7%", instead of "5%" during the August 2023 Index Review.

No.	Index	Index SE% Threshold
6	MSCI Pacific ex Japan ESG Enhanced Focus CTB Index	15%
7	MSCI World Small Cap ESG Enhanced Focus CTB Index	15%
8	MSCI USA Small Cap ESG Enhanced Focus CTB Index	10%
9	MSCI EM ESG Enhanced Focus CTB Index	5%

Please refer to Appendix III for the criteria used to determine the company-level sustainable exposure qualification and the calculation of index-level sustainable exposure.

Infeasible Solution

During the Quarterly Index Reviews, in the event that there is no optimal solution that satisfies all the optimization constraints, the following process is followed until an optimal solution is found:

- The one-way index turnover constraint will be relaxed in steps of 5% up to a maximum of 5 times the original one-way index turnover budget.
- The ex-ante tracking error constraint will be relaxed in steps of 0.1% up to a maximum of 5 times of the original ex-ante tracking error budget defined in Section 2.2.
- The active sector weight constraint will be relaxed in steps of +/- 1% up to a maximum of +/-10%.

The one-way index turnover constraint, the ex-ante tracking error constraint and the active sector weight constraints are alternately relaxed until a feasible solution is achieved.

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

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[8] =

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

Enterprise Value Inflation Adjustment Factor (EVIAF)[9] =

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

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

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 =

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

Weighted Average Potential Emissions Intensity of Parent Index =

[8] For the MSCI Pacific ex Japan ESG Enhanced Focus CTB index, the emissions and EVIC data used for the security level GHG intensity calculation are aligned as of the same year. This figure represents the most recent aggregate GHG emissions of the company (Scopes 1 and 2, and estimated Scope 3 emissions) relative to the Enterprise Value including cash (EVIC). The EVIC corresponds to the same reporting year of the company's emissions. For all other indexes for this range, the latest available emissions and the latest available EVIC data are used for security level GHG intensity calculation. Moreover, the base date and the corresponding target GHG Intensity and EVIAF for the MSCI Pacific ex Japan ESG Enhanced Focus CTB Index were reset in November 2024 Index Review. Please refer to Appendix IV for further details.

[9] For the MSCI Pacific ex Japan ESG Enhanced Focus CTB index, the EVIC data used for the EVIAF calculation is as of the same reporting year as the company's emission.

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

Weighted Average Potential Emissions Intensity of Derived Index =

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

Calculation of Average Decarbonization

On average, the Indexes follow a 7% 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 Quarterly Index Review (W_t) as per the below formula.

$$W_t = W_1 * \ 0.93^{\frac{(t-1)}{4}}$$

Where '*t*' is the number of Quarterly Index Reviews since the Base Date.

Thus, for the 5th Quarterly Index Review since the Base Date (t=5), the target Weighted Average GHG Intensity will be W_1*0.93.

Companies Setting Targets

The Index requires a minimum 10% 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 that meet the eligibility criteria are defined in Section 2.2 and companies setting targets are defined as companies that:

- 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

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:

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

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:

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

Climate Impact Sectors

NACE[10] 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[11] 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[12] 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_H) and Low Climate Impact Sector (say the number of classes is N_L) is identified
3. If all the NACE classes for a given GICS Sub-Industry are identified in the High Climate Impact Sector ($N_L = 0$), then the GICS Sub-Industry is mapped to the 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. **$N_H >= N_L$**: 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

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

Company-Level Sustainable Exposure and Calculation of Index SE%:

A company qualifies as having company-level sustainable exposure if it meets all the following conditions:

1. MSCI ESG Rating of "BB" or above[13]

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[10] For further details regarding NACE, please refer to https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background

[11] For further information regarding GICS, please refer to https://www.msci.com/gics

[12] This mapping is available in the Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosures

[13] The condition is not met if the MSCI ESG Rating is missing for the company.

2. MSCI ESG Controversies Score of 2 or above[14]
3. At least one of the following conditions is met:
    a. Derives 20% or more aggregate revenue from any of the thirteen social and environmental impact categories of Sustainable Impact Metrics (including nutrition, sanitation, major diseases treatment, SME finance, education, connectivity, affordable real estate, alternative energy, energy efficiency, green building, pollution prevention, sustainable agriculture and sustainable water)
    b. Has one or more active carbon emissions reduction target(s) approved by the Science Based Targets initiative (SBTi)
4. Not flagged by the following business involvement criteria:
    a. Has any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), in line with the methodology of the MSCI Ex-Controversial Weapons Indexes available at https://www.msci.com/index/methodology/latest/XCW.
    b. Derives 1% or more revenue (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties
    c. Manufactures tobacco products, such as cigars, blunts, cigarettes, e-cigarettes, inhalers, beedis, kreteks, smokeless tobacco, snuff, snus, dissolvable and chewing tobacco
    d. Derives 5% or more aggregate revenue from the production, distribution, retail, supply and licensing of tobacco-related products

The index-level sustainable exposure is calculated as the sum of the weight of companies in the Index that qualify as having company-level sustainable exposure.

[14] The condition is not met if the MSCI ESG Controversies Score is missing for the company.

Appendix IV: Base Reset Methodology

For any of the Indexes undergoing a base reset, the following parameters will be reset at the updated base date:

- Weighted Average GHG intensity (W_1) used to calculate the decarbonization trajectory for the Index will be updated.
- Enterprise Value Inflation Adjustment Factor (EVIAF).

The Weighted Average GHG Intensity on the Base Date (W_1) is used to compute the target Weighted Average GHG Intensity at any given Quarterly Index Review (W_t) as per the below formula.

$$W_t = W_1 * \ 0.93^{\frac{(t-1)}{4}}$$

Where 't' is the number of Quarterly Index Reviews since the Base Date. The table below shows the Weighted Average GHG Intensity on the updated Base Date(W_1):

Index	Parent Index	Base Date	W_1 (tCO2/M$ Enterprise Value + Cash)
MSCI Pacific ex Japan ESG Enhanced Focus CTB Index	MSCI Pacific ex Japan	November 26, 2024	234.94

For MSCI Pacific ex Japan ESG Enhanced Focus CTB Index, the target Weighted Average GHG intensity for November 2024 Index Review was calculated as follows:

a) The GHG intensity of the Parent Index as per section 2.1 (in this case, MSCI Pacific Ex Japan), , as of the previous base date (November 2021 Index Review), was calculated utilizing the latest scope 3 emissions model and combining the emissions with the EVIC from the same year, based on the availability of data as of the date of calculation.

b) The decarbonization constraint for the Index was calculated for the new base date (November 2024 Index Review), from the previous base date (November 2021 Index Review) by:
   - Applying the initial decarbonization percentage (from the November 2021 Index Review) to the GHG intensity of the Parent Index at the November 2021 Index Review, recalculated with the latest emissions model as per item a) above
   - Applying a 7% year-on-year annual self-decarbonization rate

c) Since the EVIAF is reset to 0 at the November 2024 Index Review (i.e. the security-level GHG intensities are adjusted only for the EVIC inflation since November 2024), the decarbonization constraint as obtained in b) above is multiplied with the ratio of the average EVIC at the November 2021 Index Review, to the average EVIC at the November 2024 Index Review (in each case synchronized with the emissions data as per item a) above).

d) The GHG intensity for the new Base Date (W_1) is obtained as the Weighted Average GHG Intensity of the Index, as determined in the November 2024 Index Review, under the target decarbonization constraint determined in c) above, and with an EVIAF of 0.

Appendix V: 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 VI: New Release of Barra® Equity Model or Barra® Optimizer

The methodology presently uses MSCI Barra Global Equity Model for Long-Term Investors ("GEMLTL") for the optimization. A new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

Appendix VII: 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 Global ex Controversial Weapons Indexes Methodology – https://www.msci.com/index/methodology/latest/XCW
- 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 VIII: Changes to this document

The following sections have been modified as of August 2021:

- Update to include the index construction parameters for the MSCI World Small Cap ESG Enhanced Focus Index

The following sections have been modified as of November 2021:

- Section 3.2: Addition of screening criteria on Environmental Controversies.
- Appendix I: Addition of screening criteria on Conventional Weapons and Unconventional Oil & Gas. The screening on Oil Sands will no longer be applied in the methodology.
- Appendix II: Optimization constraints updated to align with the minimum requirements of the EU Climate Transition Benchmarks.
- Appendix IV: Additional details on calculation of metrics used in optimization.

The following sections have been modified as of February 2022:

- Update to include the index construction parameters for the MSCI USA Small Cap ESG Enhanced Focus Index
- Appendix II: Added clarification that the relaxation parameters are also applicable for Quarterly Index Reviews

The following sections have been modified as of October 2022:

- Appendix IV: Updated to clarify the Indexes require a minimum 10% increase in the aggregate weight of companies setting emissions reduction target relative to their corresponding Parent Indexes

The following sections have been modified as of November 2022:

- Introduction: Updated to reflect the new requirement on index-level sustainable exposure
- Section 4.2: New section
- Appendix 2: Updated to reflect the optimization constraints on index-level sustainable exposure.
- Appendix IV: Updated to reflect the criteria used to determine the company-level sustainable exposure qualification and the calculation of index-level sustainable exposure

The following sections have been modified as of July 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 GIMI were replaced with “Index Reviews”.
- Section 2.2: Clarified the exclusion criteria for companies involved in ESG Controversies.
- Section 4: MSCI ESG Research
    - Moved that section after the Section 3

- Updated the descriptions of MSCI ESG Research products.

The following sections have been modified effective September 2023:

- Appendix II: Added a footnote in to document the that the MSCI Pacific ex Japan Enhanced Focus CTB Index rebalanced during August 2023 Index Review a lower active sector weight constraint relative to the Parent Index of “7%” instead of “5%”.

The following sections have been modified as of May 2024:

- Appendix II: Optimization Constraints
    - The calculation of aggregate weight of ‘Companies Setting Target’ will only include companies which are eligible, as per the exclusion criteria described in Section 2.2.
    - The one-way turnover budget was updated to 7.5% for all Index Reviews.
    - The relaxation process applied when the optimization does not result in a feasible solution was updated.
- Appendix III: Calculation of Target Metrics
    - The calculation of aggregate weight of ‘Companies Setting Target’ was updated to only include companies that are eligible, as per the exclusion criteria described in section 2.2 of the methodology.
- Appendix IV: The Barra Equity Model used in the optimization process was added.
- Appendix V: A new release of the Barra Equity Model was added.
- Appendix VII: Methodology Set: Added details on the Methodology Set for the Indexes

The following sections have been modified as of July 2024

- Appendix II: Optimization Constraints
    - Clarified the description of the Asset Lower Bound constraint.

The following sections have been modified as of November 2024

- Appendix III: Calculation of Target Metrics
    - Updated to reflect the change in security GHG intensity calculation for Pacific ex Japan ESG Enhanced Focus CTB Index.
- Appendix IV: Base Reset for Pacific ex Japan ESG Enhanced Focus CTB Index was added.

Contact us

msci.com/contact-us

AMERICAS

United States	+ 1 888 588 4567 *
Canada	+ 1 416 687 6270
Brazil	+ 55 11 4040 7830
Mexico	+ 52 81 1253 4020

EUROPE, MIDDLE EAST & AFRICA

South Africa	+ 27 21 673 0103
Germany	+ 49 69 133 859 00
Switzerland	+ 41 22 817 9777
United Kingdom	+ 44 20 7618 2222
Italy	+ 39 02 5849 0415
France	+ 33 17 6769 810

ASIA PACIFIC

China	+ 86 21 61326611
Hong Kong	+ 852 2844 9333
India	+ 91 22 6784 9160
Malaysia	1800818185 *
South Korea	+ 82 70 4769 4231
Singapore	+ 65 67011177
Australia	+ 612 9033 9333
Taiwan	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Japan	+ 81 3 4579 0333

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