MSCI ESG Broad CTB Select Indexes Methodology

August 2022

Contents

1 Introduction

The MSCI ESG Broad CTB Select Indexes (the 'Index') aim to maximize exposure to positive environmental, social and governance (ESG) factors while maintaining risk and return characteristics similar to those of the respective underlying market capitalization weighted indexes (the 'Parent Index'). The Index also excludes companies meeting the below exclusion criteria –

- Companies involved in manufacturing of Controversial Weapons
- Companies involved in very severe ESG Controversies and severe Environmental Controversies
- Companies involved in the Tobacco-related businesses
- Companies involved in Thermal Coal mining and Power Generation
- Companies involved in Oil Sands Extraction
- Companies involved in Nuclear Weapons
- Companies involved in Arctic Oil and Gas related businesses

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.
- Align with the minimum requirements for EU Climate Transition Benchmarks (EU CTBs)
- Reduce the weighted average greenhouse gas intensity relative to Enterprise Value including Cash by 30% with respect 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 relative to Enterprise Value including Cash from fossil fuel reserves by 30% with respect 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 underlying investment universe.
- Increase the weight of companies with credible carbon reduction targets through the weighting scheme.

The Indexes aim to be sector-diversified and target companies with high ESG ratings in each sector.

2 MSCI ESG Research

MSCI ESG Research provides in-depth research, ratings and analysis of the environmental, social and governance-related business practices of thousands of companies worldwide. It consists of an integrated suite of tools and products to efficiently manage research, analysis and compliance tasks across the spectrum of ESG factors.

The Index uses company ratings and research provided by MSCI ESG Research. In particular, this index uses the following MSCI ESG Research products: MSCI Climate Change 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 provides climate data & tools to support investors integrating climate risk & opportunities into their investment strategy and processes. It supports investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, align 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-solutions.

2.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies provides assessments of controversies concerning the 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.

For more details on MSCI ESG Controversies, please refer to https://www.msci.com/documents/10199/acbe7c8a-a4e4-49de-9cf8-5e957245b86b

2.3 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 http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf.

3 Constructing the Indexes

3.1 APPLICABLE UNIVERSE

The applicable universe includes all the existing constituents of the corresponding free float adjusted market capitalization weighted index as shown in the table below ("Parent Index"). This approach aims to provide an opportunity set with sufficient liquidity and investment capacity.

Index Name	Parent Index
MSCI World ESG Broad CTB Select Index	MSCI World Index
MSCI Europe ESG Broad CTB Select Index	MSCI Europe Index
MSCI North America ESG Broad CTB Select Index	MSCI North America Index
MSCI Emerging Markets ESG Broad CTB Select Index	MSCI Emerging Markets Index
MSCI EMU ESG Broad CTB Select Index	MSCI EMU Index
MSCI USA ESG Broad CTB Select Index	MSCI USA Index
MSCI Japan ESG Broad CTB Select Index	MSCI Japan Index
MSCI Pacific ESG Broad CTB Select Index	MSCI Pacific Index
MSCI China ESG Broad CTB Select Index	MSCI China Index
MSCI Europe Mid Cap ESG Broad CTB Select Custom Index	MSCI Europe Mid Cap Index
MSCI Europe Small Cap ESG Broad CTB Select Index	MSCI Europe Small Cap Index
MSCI EMU Small Cap ESG Broad CTB Select Custom Index	MSCI EMU Small Cap Index
MSCI Europe ex UK ESG Broad CTB Select Index	MSCI Europe ex UK Index
MSCI World ex Europe ESG Broad CTB Select Index	MSCI World ex Europe Index
MSCI Emerging Markets Asia ESG Broad CTB Select Index	MSCI Emerging Markets Asia Index
MSCI India ESG Broad CTB Select Index	MSCI India Index
MSCI AC Asia ex Japan ESG Broad CTB Select Index	MSCI AC Asia ex Japan Index

MSCI AC Asia Pacific ex Japan ESG Broad CTB Select Index	MSCI AC Asia Pacific ex Japan Index
MSCI Emerging Markets ex China ESG Broad CTB Select Index	MSCI Emerging Markets ex China Index

3.2 ELIGIBLE UNIVERSE

The Eligible Universe is constructed from the Applicable Universe by excluding companies that are involved in the following businesses and meet the business involvement exclusion criteria as detailed in Appendix 1:

- Controversial Weapons
- Tobacco
- Thermal Coal
- Oil Sands Extraction
- Nuclear Weapons

Additionally, companies are required to have an MSCI ESG Controversies Score of 1 and an MSCI Environmental Controversies Score of 2 to be eligible for inclusion.

3.3 SECURITY SELECTION AND WEIGHTING

Securities in the Eligible Universe are selected and weighted following an optimization-based approach.

3.4 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 Broad CTB Select Indexes –

No.	MSCI ESG Broad CTB Index	Ex-Ante Tracking Error
1	MSCI World ESG Broad CTB Select Index	0.75%
2	MSCI Europe ESG Broad CTB Select Index	0.75%
3	MSCI North America ESG Broad CTB Select Index	0.75%
4	MSCI Emerging Markets ESG Broad CTB Select Index	1.00%

5	MSCI EMU ESG Broad CTB Select Index	0.75%
6	MSCI USA ESG Broad CTB Select Index	0.75%
7	MSCI Japan ESG Broad CTB Select Index	0.75%
8	MSCI Pacific ESG Broad CTB Select Index	0.75%
9	MSCI China ESG Broad CTB Select Index	1.00%
10	MSCI Europe Mid Cap ESG Broad CTB Select Custom Index	0.75%
11	MSCI Europe Small Cap ESG Broad CTB Select Index	0.75%
12	MSCI EMU Small Cap ESG Broad CTB Select Custom Index	0.75%
13	MSCI Europe ex UK ESG Broad CTB Select Index	0.75%
14	MSCI World ex Europe ESG Broad CTB Select Index	0.75%
15	MSCI Emerging Markets Asia ESG Broad CTB Select Index	1.00%
16	MSCI India ESG Broad CTB Select Index	1.00%
17	MSCI AC Asia ex Japan ESG Broad CTB Select Index	0.75%
18	MSCI AC Asia Pacific ex Japan ESG Broad CTB Select Index	0.75%
19	MSCI Emerging Markets ex China ESG Broad CTB Select Index	1.00%

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.

The *Minimum reduction in Weighted Average Potential Emissions Intensity* constraint as per Appendix 2 is not applied to the MSCI Europe Mid Cap ESG Broad CTB Select Custom Index or the MSCI EMU Small Cap ESG Broad CTB Select Custom Index.

Please refer to Appendix 2 for the Optimization constraints.

3.5 DETERMINING THE OPTIMIZED INDEX

The Index is constructed using the Barra Open Optimizer[1] 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.

[1] Please refer to Appendix 2 and 3 for more details.

4 Maintaining the Indexes

4.1 QUARTERLY INDEX REVIEWS

The Index is rebalanced on a quarterly basis to coincide with the regular Index Reviews (Semi-Annual Index Reviews in May and November and Quarterly Index Reviews in February and August) 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 3 is implemented.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research, and MSCI ESG Climate Change Metrics) 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.

4.2 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.

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

Appendix 1: 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 Broad Select Indexes (except Weapons, Thermal Coal, and Oil & Gas) 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.

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.

- **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.

<u>Activities not classified under any specific tolerance level</u>

- **Weapons**
  - All companies that derive 10% or more revenue from weapons systems, components, and support systems and services

- **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
  - All companies generating 10% or more power from thermal coal
  - All companies that own thermal coal reserves

- **Unconventional Oil & 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

- **Arctic Oil & Gas**
  - All companies deriving 5% or more revenue from Arctic Oil
  - All companies deriving 5% or more revenue from Arctic Gas

- All companies with evidence of producing Arctic oil. This factor does not capture revenue from non-extraction activities (e.g. exploration, surveying, processing, refining); ownership of Arctic oil reserves with no associated extraction revenues; revenue from intra-company sales
- All companies with evidence of producing Arctic gas. This factor does not capture revenue from non-extraction activities (e.g. exploration, surveying, processing, refining); ownership of Arctic gas reserves with no associated extraction revenues; revenue from intra-company sales

Appendix 2: Optimization Constraints

At each Quarterly Index Review, the following optimization constraints along with the ex-ante tracking error targets defined in Section 3.4 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 3.3. 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 Broad Select 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 4	0%
4^,**	Minimum reduction in Weighted Average Potential Emissions Intensity	30%
5^	Minimum ratio of Weighted Average Green Revenue/ Weighted Average Fossil fuels-based Revenue	At least equal
6	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 4.	10%

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)

3^	Asset Upper Bound	Minimum (5 * Security Weight in the Screened Parent, Security Weight in the Screened Parent +2%)
4^	Active Sector Weights	+/-5%
5^	Active Country Weights*	+/-5%
6^	One Way Turnover during May and November Index Review	10%
7^	One Way Turnover during Feb and Aug Index Review	5%
8	Specific Risk Aversion	0.075
9	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 Broad CTB Select Index is set at three times of the country's weight in the Parent Index.

** Does not apply to the MSCI Europe Mid Cap ESG Broad CTB Select Custom Index or the MSCI EMU Small Cap ESG Broad CTB Select Custom Index.

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

Infeasible Solution –

During the Semi-Annual or Quarterly 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:

- The turnover constraint will be relaxed up to a maximum of 5 times of the original turnover budget in steps of 5%
- The ex-ante tracking error is relaxed up to a maximum of 5 times of the original ex-ante tracking error in steps on 0.1%.
- The one-way index turnover constraint and the ex-ante tracking error constraint are alternately relaxed until a feasible solution is achieved.

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

Appendix 3: 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 4: 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 =

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

Enterprise Value Inflation Adjustment Factor (EVIAF) =

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

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 =

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

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 Semi-Annual Index Review since the Base Date (t=5), the target Weighted Average GHG Intensity will be W_1*0.93.

Companies Setting Targets

Relative to their corresponding Parent Indexes, the Indexes require a minimum 10% 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:

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

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:

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

Climate Impact Sectors

NACE[2] 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[3] 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[4] 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

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

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

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

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

The following sections have been modified since March 2022:

- Sections 3.3, 3.4, 3.5: Updated to align with the minimum requirements of the EU CTB
- Appendix 1 – Updated to add exclusions based on thermal coal power, thermal coal reserves and Arctic Oil & Gas
- Appendix 2 - Updated to align with the minimum requirements of the EU CTB

The following sections have been modified effective April 2022:

- Sections 3.1, 3.4: Updated to add construction parameters for the MSCI Pacific ESG Broad CTB Select Index, the MSCI China ESG Broad CTB Select Index and the MSCI China A ESG Broad CTB Select Index.

The following sections have been modified effective June 1, 2022:

- Sections 3.1, 3.4: Updated to add construction parameters for the MSCI Europe Mid Cap ESG Broad CTB Select Custom Index, MSCI Europe Small Cap ESG Broad CTB Select Index, MSCI EMU Small Cap ESG Broad CTB Select Custom Index, MSCI Europe ex UK ESG Broad CTB Select Index, MSCI World ex Europe ESG Broad CTB Select Index and to remove the construction parameters for the MSCI China A ESG Broad CTB Select Index.
- Appendix 2: Updated to reflect optimization parameters for to the MSCI Europe Mid Cap ESG Broad CTB Select Custom Index and the MSCI EMU Small Cap ESG Broad CTB Select Custom Index.

The following sections have been modified effective June 27, 2022:

- Sections 3.1, 3.4: Updated to add construction parameters for the MSCI Emerging Markets Asia ESG Broad CTB Select Index, MSCI India ESG Broad CTB Select Index, MSCI AC Asia ex Japan ESG Broad CTB Select Index, MSCI AC Asia Pacific ex Japan ESG Broad CTB Select Index and the MSCI Emerging Markets ex China ESG Broad CTB Select Index.

The following sections have been modified effective September 1, 2022:

- Section 1: Introduction
- Appendix 1: Updated to add exclusions based on weapons.
- Appendix 2: Updated to add the optimization constraint for companies setting credible carbon reduction targets.
- Appendix 4: Added to provide clarification on the calculation of relevant Target Metrics and the definition of Companies Setting Targets.

Contact us

clientservice@msci.com

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 leader 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.

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.

To learn more, please visit www.msci.com.

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.
- 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.
- 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.

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