MSCI ESG Climate Paris Aligned Benchmark Select Indexes Methodology

May 2023

Contents

1 Introduction

The MSCI ESG Climate Paris Aligned Benchmark Select Indexes[1] (the 'Indexes') are designed to minimize its exposure to transition and physical climate risks while targeting alignment with the Paris Agreement requirements. The Indexes are designed to exceed the minimum standards of the EU Paris-Aligned Benchmark. Additionally, the Index applies certain values-based exclusion criteria. The Indexes are constructed from the corresponding market capitalization weighted indexes (the "Parent Indexes") through an optimization process approach and aim to:

- Exceed the minimum technical requirements laid out in the EU Delegated Act[2]
- Align with a 1.5°C climate scenario using the MSCI Climate Value-at-Risk and a "self-decarbonization" rate of 10% year on year
- Reduce the Index's exposure to physical risk arising from extreme weather events by at least 50%
- Shift index weight from "fossil-fuel based" to "green" 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
- Reduce the weight of companies assessed as high carbon emitters using scope 1, 2 and 3 emissions. Achieve a modest tracking error compared to the Parent Index and low turnover[3]

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[1]

- MSCI World ESG Climate Paris Aligned Benchmark Select Index
- MSCI Europe ESG Climate Paris Aligned Benchmark Select Index
- MSCI Emerging Markets ESG Climate Paris Aligned Benchmark Select Index
- MSCI USA ESG Climate Paris Aligned Benchmark Select Index
- MSCI Japan ESG Climate Paris Aligned Benchmark Select Index

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

[3] The Indexes are governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document. The Methodology Set for the Indexes can be accessed from MSCI's webpage https://www.msci.com/index-methodology in the section 'Search Methodology by Index Name or Index Code'.

The Methodology Set includes a document 'ESG Factors in Methodology' that contains the list of environmental, social, and governance factors considered, and how they are applied in the methodology (e.g., selection, weighting or exclusion).

2 Index Construction Methodology

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

2.1 ELIGIBLE UNIVERSE

The Eligible Universe is constructed from the constituents of the Parent Index by excluding securities based on the exclusion criteria below:

1. **Controversial Weapons**: All companies involved in Controversial Weapons as defined by the methodology of the MSCI Ex-Controversial Weapons Indexes.
2. **ESG Controversies**: All companies assessed as having involvement in ESG controversies that are classified as Red (MSCI ESG 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.
3. **ESG Ratings**: The Indexes use MSCI ESG Ratings to identify companies that have demonstrated an ability to manage their ESG risks and opportunities. For indexes with MSCI Emerging Markets Index as Parent Index, companies are required to have an MSCI ESG Rating of 'BB' or above to be eligible. For indexes with MSCI World, MSCI USA, MSCI Europe or MSCI Japan as Parent Indexes, companies are required to have an MSCI ESG Rating of 'BBB' or above to be eligible.
4. **Tobacco**: All companies with involvement in Tobacco as defined by the methodology of the MSCI Global ex Tobacco Involvement Indexes.
5. **Environmental Harm**: All 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) as described in section 3.2 of the MSCI Climate Paris Aligned Indexes methodology[5].
   - A Red Flag indicates an ongoing, Very Severe ESG controversy implicating a company directly through its actions, products, or operations.

[4] See section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited sources 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. MSCI Limited is the benchmark administrator for the MSCI indexes.

[5] Please refer to the methodology book for the MSCI ESG Climate Paris Aligned Benchmark Select Indexes, available at www.msci.com/index-methodology for more information.

- 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.

6. **Thermal Coal Mining**: All companies deriving more than 0% 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), intracompany sales of mined thermal coal, and revenue from coal trading (either reported or estimated).
7. **Oil & Gas**: as described in section 3.2 of the MSCI Climate Paris Aligned Indexes methodology.
8. **Power Generation**: as described in section 3.2 of the MSCI Climate Paris Aligned Indexes methodology

Further, companies based on the following values-based exclusion criteria are also excluded from the Applicable Universe:

- Nuclear Weapons
- Civilian Firearms
- Alcohol
- Conventional Weapons
- Gambling
- Nuclear Power
- Thermal Coal Power
- Adult Entertainment
- Conventional and Unconventional Oil and Gas
- Oil Sands
- Shale Oil and Shale Gas
- GMO
- Recreational Cannabis
- Uranium Mining
- Oil and Gas Power Generation
- Oil and Gas Refining
- Fossil Fuel Reserves Ownership

Please refer to Appendix I for more details.

2.1.1. Specific Stock Exclusions

The Indexes exclude all securities identified as Investment Trusts by Invesco. The exclusion list is determined and signed off by Invesco in accordance with the referenced methodology document and is also made publicly available. The exclusion list[5] is sent by Invesco to MSCI via e-mail at least 14 business days prior to the effective date of the index review and is also publicly available. The exclusions are reviewed and updated semi-annually and made effective to coincide with the MSCI Semi-Annual Index Reviews as of the close of the last business day of May and November

2.2 Optimization Constraints

At each Semi-Annual 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 corresponding Parent Indexes subject to the following constraints:

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

Table 1: Constraints imposed 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[6]) relative to Parent Index	As described in Section 2.2 - Table 1, of the MSCI Climate Paris Aligned Indexes methodology for the
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 relative to Parent Index	
4.	Aggregate Climate Value-At-Risk under 1.5 degree scenario[8]	

[5] For more details, please refer to https://etf.invesco.com/sites/default/files/documents/IVZ_MSCI_Investment_Trust_Exclusion_Methodology_05.05.23_0.pdf

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

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

[8] For more details on Climate Value-At-Risk, please refer to Appendix II of the MSCI Climate Paris Aligned Indexes methodology document at https://www.msci.com/index-methodology

No.	Transition and Physical Risk Objective	Target Value
5.	Minimum Increase in aggregate weight in companies setting targets relative to the aggregate weight of such companies in the Parent Index.	corresponding 'Transition and Physical Risk Objective'.
6.	Minimum reduction in Weighted Average Potential Emissions Intensity relative to Parent Index	
7.	Minimum reduction in Weighted Average Extreme Weather Climate Value-At-Risk (Aggressive Scenario) relative to Parent Index	
8.	Minimum increase in weighted average Low Carbon Transition (LCT) Score relative to Parent Index Please see more detail on LCT Score in Appendix I	5%

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

No.	Transition Opportunity Objective	Target Value
9.	Minimum ratio of Weighted Average Green Revenue/ Weighted Average Fossil fuels-based Revenue relative to Parent Index	As described in Section 2.2 - Table 2, of the MSCI Climate Paris Aligned Indexes methodology for the corresponding 'Transition Opportunity Objective'.
10.	Minimum increase in Weighted Average Green Revenue relative to the Parent Index	

Table 3: Constraints imposed to meet diversification objectives

No.	Diversification Objective	MSCI ESG Climate Paris Aligned Select Index
11.	Constituent Active Weight	As described in Section 3.3 - Table 3, of the MSCI Climate Paris Aligned Indexes methodology for
12.	Minimum constituent weight	
13.	Security Weight as a multiple of its weight in the Parent Index	
14.	Active Sector Weights (the Energy GICS Sector is not constrained)	

No.	Diversification Objective	MSCI ESG Climate Paris Aligned Select Index
15.	Active Country Weights[10]	the corresponding 'Diversification Objective'.
16.	Specific Risk Aversion	
17.	Common Factor Risk Aversion	
18.	One Way Turnover	10%

The definitions of the target metrics for the optimization are detailed in Appendix III of the MSCI Climate Paris Aligned Indexes methodology[11].

The Weighted Average GHG Intensity on the base Date and the base dates for the respective indexes are described in Appendix I.

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

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

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 Semi-Annual Index Review.

2.3 Determining The Optimized Index

The Index is constructed using the Barra Open Optimizer[6] 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.

[10] 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

[11] For more details, please refer to MSCI Climate Paris Aligned Indexes methodology document at https://www.msci.com/index-methodology

[6] Please refer to Appendix V and VI of the MSCI Climate Paris Aligned Indexes methodology document for more details.

3 Index Maintenance

3.1 Semi-Annual Index Reviews

The Indexes are rebalanced on a semi-annual basis in 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[7] (including MSCI ESG Ratings, MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research, MSCI Climate Change Metrics, MSCI Impact Solutions, MSCI ESG Ratings, and MSCI ESG Governance Metrics) as of the end of the month preceding the Index Reviews for the rebalancing of the Indexes.

3.2 Quarterly Index Reviews

The Indexes are also reviewed on a quarterly basis to coincide with the regular Index Reviews of the Parent Indexes. The changes are implemented at the end of February and August. In general, the pro forma indexes are announced nine business days before the effective date. For the Quarterly Index Reviews, MSCI ESG Ratings, MSCI ESG Controversies Score assessments and MSCI BISR data are taken as of the end of the month preceding the Index Reviews, i.e., January, July and October. For some securities, this 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, for the rebalancing of the MSCI ESG Climate Paris Aligned Benchmark Select Indexes. At the Quarterly Index Reviews, existing constituents are deleted from the MSCI ESG Climate Paris Aligned Benchmark Select Indexes if they do not meet the eligibility criteria described in Section 2.2. Existing constituents that meet the eligibility criteria are retained in the index.

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.

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.

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

The treatment of the common corporate events in the indexes follow the corporate events treatments as described in section 4.2 of the MSCI Climate Paris Aligned Indexes 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 ESG Ratings, and MSCI ESG Governance Metrics. MSCI Indexes are administered by MSCI Limited.

4.1 MSCI Climate Change Metrics

MSCI Climate Change Metrics provide climate data & tools to support institutional investors seeking to integrate climate risk & opportunities into their investment strategy and processes. This includes investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, 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-change-solutions.

4.2 MSCI Climate Value-at-Risk

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

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

4.3 MSCI IMPACT SOLUTIONS: SUSTAINABLE IMPACT METRICS

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

MSCI Sustainable Impact Taxonomy

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

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

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

4.4 MSCI ESG Controversies

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

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

4.5 MSCI ESG Business Involvement Screening Research

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

For more details on MSCI ESG Business Involvement Screening Research, please refer to http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf.

Appendix I: Additional ESG Exclusions Criteria

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 deriving any revenue from the production of firearms or small arms ammunition intended for civilian use.
- All companies deriving 5% or more aggregate revenue from the production and distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use

ADULT ENTERTAINMENT

- All companies classified as "Producer" that earn 5% or more revenue from adult entertainment
- All companies deriving 15% or more aggregate revenue from adult entertainment

ALCOHOL

- All companies deriving 5% or more revenue from the production of alcohol-related products
- All companies deriving 15% or more aggregate revenue from alcohol-related products
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CONVENTIONAL WEAPONS

- All companies deriving 5% or more revenue from the production of conventional weapons and components
- All companies deriving 5% or more aggregate revenue from weapons systems, components, and support systems and services

UNCONVENTIONAL OIL & GAS EXTRACTION

- All companies deriving more than 0% revenue (either reported or estimated) from unconventional oil and gas production. It includes revenue from the production of oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane, as well as revenue from onshore or offshore oil and gas production in the Arctic region. It excludes revenue from conventional oil and gas production including deep water, shallow water, and other onshore/offshore oil and gas.

CONVENTIONAL OIL & GAS EXTRACTION

- All companies deriving more than 0% revenue (either reported or estimated) from conventional oil and gas production. It includes revenue from the production of deep water, shallow water, and other onshore/offshore oil and gas. It excludes revenue from unconventional oil and gas production (oil sands, shale oil, shale gas) and onshore/offshore oil and gas production in the Arctic region.

OIL SANDS

- All companies deriving 0% or more revenue from oil sands extraction.

SHALE OIL AND SHALE GAS

- All companies deriving 0% or more revenue from Shale oil or Shale gas.

RECREATIONAL CANNABIS

- All companies deriving 0% or more revenue from recreational cannabis.

GAMBLING

- All companies deriving 5% or more revenue from ownership of operation of gambling-related business activities
- All companies deriving 15% or more aggregate revenue from gambling-related business activities

GENETICALLY MODIFIED ORGANISMS (GMO)

- All companies that derive 5% or more revenue from activities like genetically modifying plants, such as seeds and crops, and other organisms intended for agricultural use or human consumption

URANIUM MINING

- All companies deriving 5% or more aggregate revenue from uranium mining.

NUCLEAR POWER

- All companies deriving any revenue from nuclear power activities
- All companies generating more than 0% of their total electricity from nuclear power in a given year
- All companies that have more than 0% of installed capacity attributed to nuclear sources in a given fiscal year

THERMAL COAL POWER:

- All companies deriving 5% or more revenue (either reported or estimated) from thermal coal-based power generation.

OIL AND GAS POWER:

- All companies deriving 5% or more revenue (either reported or estimated) from oil and gas-based power generation.

OIL AND GAS REFINING:

- All companies deriving 5% or more revenue (either reported or estimated) from oil and gas refining.

FOSSIL FUEL RESERVES OWNERSHIP:

- All companies having any ownership of fossil fuel reserves.

Appendix II: Changes to this Document

The following sections have been updated effective June 01, 2022:

Section 2.2.1

- Added the "Specific Stock Exclusions"

The following sections have been modified effective December 01, 2022:

Section 2: MSCI ESG Research

- Updated the ESG product descriptions.

Section 3: Constructing the MSCI ESG Universal Select Business Screens Indexes

- Updated the link in the footnote of Section 2.1.1 Specific Stock Exclusions

The following sections have been modified effective May 01, 2023:

Section 1: Introduction

- The methodology book was updated with a description of the Index and footnotes on the Methodology Set

Section 2: Index Construction

- The exclusion criteria for companies involved in ESG Controversies was clarified.
- The target for Aggregate Climate Value -At-Risk was changed 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 3.2 of the methodology document
- The link in the footnote of Section 2.1.1 Specific Stock Exclusions was updated for May 2023.

Section 3: Index Maintenance

- References to "Semi-Annual Index Reviews" and "Quarterly Index Reviews" of the MSCI Global Investable Market Indexes were replaced with "Index Reviews."

Section 4: MSCI ESG Research

- ESG Research Product descriptions were moved from section 2 to section 4

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