

MSCI SRI FILTERED PAB INDEXES METHODOLOGY

September 2023

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1 Introduction

The MSCI SRI Filtered PAB Indexes¹ (the “Indexes”) are free float-adjusted market capitalization weighted indexes designed to represent the performance of companies that are selected from an underlying index based on Environmental, Social and Governance (ESG) criteria. These criteria exclude constituents based on involvement in specific business activities, as well as ESG ratings and exposure to ESG controversies. The Indexes are derived from underlying MSCI indexes (“Parent Indexes”) and aim to achieve sector weights that reflect the sector weights of the corresponding Parent Indexes. The Index construction targets 25%² free float-adjusted market capitalization coverage of each Global Industry Classification Standard (GICS®)³ sector by selecting constituents primarily based on criteria including the ESG rating, the trend in that rating and the company’s industry-adjusted ESG score.

The MSCI SRI Filtered PAB Indexes are also designed to align with the minimum requirements for EU Paris Aligned Benchmarks (EU PAB). As a final step, the SRI Filtered PAB Indexes are constructed using an optimization-based approach and aim to:

- Reduce the weighted average greenhouse gas intensity by 50% compared to the underlying investment universe.
- Reduce the weighted average greenhouse gas (GHG) intensity by 7% on an annualized basis
- Exclude companies based on their involvement in Controversial Weapons, ESG Controversies, Environmental Controversies, Tobacco Manufacturing, Thermal Coal, Oil & Gas and Fossil Fuel-based power generation⁴.

¹ The full list of Indexes is in Section 2.1 of this document.

² 50% for the MSCI UK IMI SRI Filtered PAB Index.

³ GICS, the global industry classification standard jointly developed by MSCI Inc. and S&P Dow Jones Indices.

⁴ 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 Constructing the MSCI SRI Filtered PAB Indexes

The Indexes are constructed by first constructing an SRI Filtered Universe, followed by an optimization based process to align with the minimum requirements of the EU PAB.

2.1 Eligible Universe

The eligible universe for the Indexes includes all the constituents of their respective Parent Index, as shown in the table below.

Index Name	Parent Index
MSCI ACWI SRI Filtered PAB Index	MSCI ACWI
MSCI World SRI Filtered PAB Index	MSCI World Index
MSCI World ex EMU SRI Filtered PAB Index	MSCI World ex EMU Index
MSCI EM (Emerging Markets) SRI Filtered PAB Index	MSCI EM Index
MSCI EM Asia SRI Filtered PAB Index	MSCI EM Asia Index
MSCI USA SRI Filtered PAB Index	MSCI USA Index
MSCI Europe SRI Filtered PAB Index	MSCI Europe Index
MSCI EMU SRI Filtered PAB Index	MSCI EMU Index
MSCI UK IMI SRI Filtered PAB Index	MSCI UK IMI
MSCI Japan SRI Filtered PAB Index	MSCI Japan Index
MSCI Pacific ex Japan SRI Filtered PAB Index	MSCI Pacific ex Japan Index

2.2 Constructing The SRI Filtered Universe

2.2.1 Eligibility Criteria

The Indexes use company ratings and research provided by MSCI ESG Research⁵ to determine eligibility for index inclusion.

2.2.1.1 Values and Climate Change Based Screening Criteria

The Indexes use MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics to identify companies that are involved in the following business activities. Companies that meet the business involvement criteria are excluded from the SRI Filtered Universe for all Indexes except the MSCI UK IMI SRI Filtered PAB Index. Please refer to Appendix 1 for details on these criteria.

Values-based Exclusions:

- Tobacco
- Controversial Weapons
- Civilian Firearms
- Nuclear Weapons
- Conventional Weapons
- Alcohol
- Adult Entertainment
- Gambling
- Genetically Modified Organisms
- Nuclear Power

Climate Change-based Exclusions:

- Extraction & Production
 - Thermal Coal Mining
 - Unconventional Oil & Gas Extraction
 - Conventional Oil & Gas Extraction
- Power Generation
 - Thermal Coal-based Power Generation
 - Oil & Gas-based Power Generation
- Fossil Fuel Reserves Ownership
 - Fossil Fuel Reserves for Energy Application
 - Thermal Coal Reserves

⁵ 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.

Specifically, for the MSCI UK IMI SRI Filtered PAB Index, In addition to the Screening Criteria outlined in Section 3 of the MSCI SRI Indexes methodology, the underlying universe of the indexes is subject to additional criteria for the following business activities. Please refer to Appendix for details on these criteria.

- Fossil Fuels
- Thermal Coal
- Oil and Gas

Please refer to Appendix 6 for details on these criteria.

2.2.1.2 ESG Ratings Eligibility

The Indexes use MSCI ESG Ratings to identify companies that have demonstrated an ability to manage their ESG risks and opportunities. Companies are required to have an MSCI ESG Rating of 'A' or above to be eligible for inclusion in the SRI Filtered Universe for all Indexes except the MSCI UK IMI SRI Filtered PAB Index. Specifically, for the MSCI UK IMI SRI Filtered PAB Index, companies are required to have an MSCI ESG Rating of 'BB' or above to be eligible for inclusion in the SRI Filtered Universe.

2.2.1.3 ESG Controversies Score Eligibility

The Indexes use MSCI ESG Controversies Scores to identify companies that are involved in very serious controversies associated with the environmental, social, or governance impact of their operations and/or products and services. Companies are required to have an MSCI ESG Controversies Score of 4 or above to be eligible for inclusion in the SRI Filtered Universe for all Indexes except the MSCI UK IMI SRI Filtered PAB Index. Specifically, for the MSCI UK IMI SRI Filtered PAB Index, companies are required to have an MSCI ESG Controversies Score of 1 or above to be eligible for inclusion in the SRI Filtered Universe

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

2.2.2 Index Construction

The SRI Filtered Universe targets 25% (50% for the UK IMI SRI Filtered PAB Index) of the free float-adjusted market capitalization within each GICS sector of the underlying Parent Index.

The SRI Filtered Universe is constructed by applying the above methodology to their respective Parent Indexes.

The SRI Filtered Universes for the MSCI World SRI Filtered PAB and MSCI EM (Emerging Markets) SRI Filtered PAB Indexes are constructed by applying the above methodology to the regional carve-outs of their corresponding Parent Indexes and then aggregating them together.

The following regions are used to construct the SRI Filtered Universe for the MSCI World SRI Filtered PAB Index:

Region	Regional Carve-out
Developed Asia Pacific	MSCI Pacific Index
Developed Europe & Middle East	MSCI Europe & Middle East Index
Canada	MSCI Canada Index
USA	MSCI USA Index

The following regions are used to construct the SRI Filtered Universe for the MSCI EM (Emerging Markets) SRI Filtered PAB Index:

Region	Regional Carve-out
Emerging Asia	MSCI Emerging Markets Asia Index
Emerging Europe, Middle East & Africa	MSCI Emerging Markets Europe, Middle East & Africa Index
Emerging Latin America	MSCI Emerging Markets Latin America Index

The SRI Filtered Universes for the MSCI World SRI Filtered PAB Index and the MSCI EM SRI Index are aggregated to construct the SRI Filtered Universes for the MSCI ACWI SRI Filtered PAB Index.

2.2.3 Security Weighting

Eligible constituents in the SRI Filtered Universe are weighted in proportion of their free float-adjusted market capitalization.

2.2.4 Issuer Capping

The maximum weight of any issuer in the SRI Filtered Universe is capped at 5% in accordance with the MSCI Capped Indexes methodology⁶. The excess weight of the capped issuers is distributed among the remaining constituents in proportion of their existing weights in the index.

2.3 Constructing the Indexes

The Indexes are constructed from their corresponding SRI Filtered Universes in the following steps.

2.3.1 Screening of Ineligible Companies

The Eligible Universe is constructed from the SRI Filtered Universe by excluding securities of companies based on the exclusion criteria below –

1. **Controversial Weapons:** All companies involved in Controversial Weapons as defined by the methodology of the MSCI Global Ex-Controversial Weapons Indexes⁷.
2. **ESG Controversies:** All companies assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversy Score of 0). A Red Flag indicates an ongoing, Very Severe ESG controversy implicating a company directly through its actions, products, or operations.
3. **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).
 - 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.
4. **Tobacco:** All companies that are involved in the manufacturing of Tobacco products

⁶ Please refer to the MSCI Capped Indexes methodology at www.msci.com/index-methodology

⁷ For more details regarding the MSCI Global Ex-Controversial Weapons Index methodology, please refer to <https://www.msci.com/index/methodology/latest/XCW>.

5. **Thermal Coal Mining:** All companies deriving 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. 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)
6. **Oil & Gas:** All companies deriving 10% or more revenue from oil and gas related activities, including distribution / retail, equipment and services, extraction and production, pipelines and transportation and refining but excluding biofuel production and sales and trading activities.
7. **Power Generation:** All companies deriving 50% or more revenue from thermal coal based power generation, liquid fuel based power generation and natural gas based power generation⁸.

2.3.2 Security Selection and Weighting

After the screening of ineligible companies as per Section 2.3.1 of this methodology document, securities in the SRI Filtered Universe are selected and weighted following an optimization based approach described below in Section 2.3.3 of this methodology book.

2.3.3 Optimization Constraints

At each Annual and Quarterly 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 SRI Filtered Universe subject to the following constraints:

1. Climate objectives – constraints detailed in Table 1
2. Diversification objectives – constraints detailed in Table 2

The definitions of the target metrics for the optimization are detailed in Appendix 3.

⁸ As per https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter7.pdf, thermal coal based power generation, liquid fuel based power generation and natural gas based power generation have median lifecycle emissions exceeding 100gCO₂/kWh.

Table 1: Constraints imposed to meet climate objectives

No.	Climate Objectives	MSCI SRI Filtered PAB Indexes
1.	Minimum reduction in Greenhouse Gas (GHG) Intensity (Scope 1+2+3 ⁹) relative to the Parent Index	50%
2.	Minimum average reduction (per annum) in GHG Intensity relative to GHG Intensity of the index at the Base Date ¹⁰	7%
3.	Minimum active weight in High Climate Impact Sector relative to Parent Index as defined in Appendix 3	0%

Table 2: Constraints imposed to meet diversification objectives

No.	Diversification Objective	MSCI SRI Filtered PAB Indexes
4.	Constituent Active Weight relative to the SRI Filtered Universe ¹¹	+/- 2%
5.	Security Weight as a multiple of its weight in the SRI Filtered Universe	20x
6.	Active Sector Weights (the Energy GICS Sector is not constrained) relative to the SRI Filtered Universe	+/-5%
7.	Active Country Weights relative to the SRI Filtered Universe ¹²	+/-5%
8.	Maximum Issuer Weight	5%

⁹ 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.

¹⁰ 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. Additionally, the May 2022 Index review for the MSCI Pacific ex Japan SRI Filtered PAB Index was conducted by applying a base reset. Hence, in this case, constraint 2 mentioned in table 1 was not applied. For subsequent index reviews, the Base Date for MSCI Pacific ex Japan SRI Filtered PAB Index will be as per the May 2022 Index review.

¹¹ The May 2023 Index Review for MSCI UK IMI SRI Filtered PAB Index was conducted by relaxing the Constituent Active Weight lower bound constraint to -3% in order to achieve a feasible solution during the optimization process.

¹² 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.

No.	Diversification Objective	MSCI SRI Filtered PAB Indexes
9.	One Way Turnover during Annual Index Reviews ¹³	15%
10.	One Way Turnover during Quarterly Index Reviews	5%
11.	Common Factor Risk Aversion	0.0075
12.	Specific Risk Aversion	0.075

During the Index Reviews, 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/down 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 Index Review.

2.3.4 Determining the Optimized Index

The Indexes are constructed using the Barra Open Optimizer¹⁴ in combination with the relevant Barra Equity Model. The optimization uses the universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of and the weights of constituents in the Indexes.

¹³ The May 2022 Index Review for MSCI Japan SRI Filtered PAB Index and the MSCI Pacific ex Japan SRI Filtered PAB Index was conducted by relaxing the one-way turnover constraints to 36% and 33%, respectively. The one-way turnover constraint was relaxed at the May 2023 Index Review for the MSCI ACWI (30%), EMU (33%), Europe (28%), Japan (45%), Pacific ex Japan (27%), USA (31%), World (30%) and World ex EMU (30%) SRI Filtered PAB Indexes in order to achieve a feasible solution during the optimization process.

¹⁴ Please refer to Appendix 4 and 5 for more details.

3 Maintaining the MSCI SRI Filtered PAB Indexes

3.1 Annual Index Review

The Indexes are reviewed on an annual basis in May to coincide with the May Index Review of the Parent Indexes, and the changes are implemented at the end of May. The pro forma indexes are generally announced nine business days before the effective date.

In general, MSCI uses MSCI ESG Research data¹⁵ (including MSCI ESG Ratings, MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research and MSCI Climate Change Metrics) as of the end of the month preceding the Index Reviews for the rebalancing of the Indexes. 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, for the rebalancing of the Indexes.

At each Annual Index Review, the SRI Filtered Universe is updated, and the composition of the Indexes is reassessed in order to target 25% (50% for the MSCI UK IMI SRI Filtered PAB Index) free float-adjusted cumulative market capitalization of each sector of the Parent Index.

3.1.1 Updating the Eligible Universe

The eligible universe is updated during each Annual Index Review.

Companies that are not existing constituents of the SRI Filtered Universe are evaluated using the same eligibility criteria described in Section 2.2.

Existing constituents of the SRI Filtered Universe are maintained in the eligible universe if they meet all the following conditions:

- MSCI ESG Rating of 'BB' or above
- MSCI ESG Controversies Score of 1 or above
- Not screened by the business involvement criteria described in Section 2.2.1.1

¹⁵ See section 4 for details of data sourced from MSCI ESG Research used in the Indexes.

3.1.2 Ranking of Eligible Securities

For each sector, eligible securities of the regional Parent Index are ranked based on the following criteria:

- ESG Rating
- ESG Trend (positive ESG Trend preferred to neutral ESG Trend and neutral ESG Trend preferred to negative ESG Trend)¹⁶
- Current index membership (existing constituents above non-constituents)
- Industry adjusted ESG scores
- Decreasing free float-adjusted market capitalization.

3.1.3 Selection of Eligible Securities

For each sector, eligible securities of the regional Parent Index are then selected from the ranked universe in the following order until the target 25% (50% for the UK IMI SRI Filtered PAB Index) coverage by cumulative free float-adjusted market capitalization is reached:

- Securities in the top 17.5% (35% for the UK IMI SRI Filtered PAB Index) cumulative free float-adjusted market capitalization coverage of the ranked universe, including the first security that increases the cumulative coverage above 17.5% (35% for the UK IMI SRI Filtered PAB Index)
- 'AAA' and 'AA' rated securities in the top 25% (50% for the UK IMI SRI Filtered PAB Index) cumulative free float-adjusted market capitalization coverage of the ranked universe, including the first security that increases the cumulative coverage above 25% (50% for the UK IMI SRI Filtered PAB Index)
- Current index constituents in the top 32.5% (65% for the UK IMI SRI Filtered PAB Index) cumulative free float-adjusted market capitalization coverage of the ranked universe, including the first security that increases the cumulative coverage above 32.5% (65% for the UK IMI SRI Filtered PAB Index) if that security is a current index constituent
- Remaining eligible securities in the ranked universe

Please see Appendix 2 for additional details on the ranking and selection rules.

¹⁶ Please refer to Appendix 2 for more details.

3.2 Quarterly Index Reviews

The Indexes are also reviewed on a quarterly basis in February, August and November to coincide with the regular Index Reviews of the Parent Indexes. The changes are implemented at the end of February, August and November. The pro forma indexes are generally announced nine business days before the effective date.

For the Quarterly Index Reviews, MSCI ESG Ratings, MSCI ESG Controversies Score assessments, MSCI BISR data and MSCI Climate Change Metrics 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 Indexes.

At the Quarterly Index Reviews, existing constituents are deleted from the SRI Filtered Universe if they do not meet the eligibility criteria described in Section 3.1.1. Existing constituents that meet the eligibility criteria are retained in the indexes.

Additions from the eligible securities as per Section 2.2 are made only to sectors where the current market capitalization coverage is less than 22.5% (45% for the MSCI UK IMI SRI Filtered PAB Index), until the 25% (50% for the MSCI UK IMI SRI Filtered PAB Index) target is reached.

Market price movements may cause small deviations in the sector coverage between two Index Reviews. Therefore, to minimize turnover, a buffer of 10% is used on the target coverage of 25% (50% for the MSCI UK IMI SRI Filtered PAB Index) to define under-representation.

3.3 Monthly Review of Controversies

Index constituents are reviewed on a monthly basis for the involvement in ESG and Environmental Controversies¹⁷.

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

¹⁷ The monthly review of ESG and Environmental Controversies is applied within the Index, starting on July 2023, and is not applicable historically prior to that date.

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.

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

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

3.4 Capping Frequency

The indexes are capped at the Annual Index Review as well as the Quarterly Index Reviews.

3.5 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 Indexes, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the Indexes.

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

There are no deletions from the Indexes between Index Reviews because of a security becoming ineligible because of MSCI ESG Rating downgrade and/or decrease in MSCI ESG Controversies Score and/or change in business involvement.

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

Securities created as a result of the spin-off of an existing Index constituent will not be added to the Index at the time of event implementation. Reevaluation for inclusion in the Indexes 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 and MSCI Climate Change Metrics. MSCI Indexes are administered by MSCI Limited.

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/esg-and-climate-methodologies>.

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 at: <https://www.msci.com/esg-and-climate-methodologies>.

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

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>.

Appendix 1: Values and Climate Change Based Screening Criteria

Companies whose activities meet the following values and climate change-based criteria, as evaluated by MSCI ESG Research, are excluded from the Indexes.

Values-based Exclusions Criteria:

- **Tobacco**
 - All companies classified as a “Producer”
 - All companies deriving 5% or more aggregate revenue from the production, distribution, retail, supply and licensing of tobacco-related products
- **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 Global Ex-Controversial Weapons Indexes available at <https://www.msci.com/index/methodology/latest/XCW>
- **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) but can be used in nuclear weapons

- All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons but have the capability to deliver 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 aggregate revenue from the production and distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
- **Conventional Weapons**
 - All companies deriving 5% or more aggregate revenue from weapons systems, components, and support systems and services
- **All Weapons**
 - All companies deriving 10% or more aggregate revenue from:
 - the production and distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
 - the production of conventional weapons
 - weapons systems, components, and support systems and services
- **Alcohol**
 - All companies deriving 5% or more revenue from the production of alcohol-related products
 - All companies deriving 15% or more aggregate revenue from the production, distribution, retail and supply of alcohol-related products
- **Adult Entertainment**
 - All companies deriving 5% or more revenue from the production of adult entertainment materials
 - All companies deriving 15% or more aggregate revenue from the production, distribution and retail of adult entertainment materials

- **Gambling**
 - All companies deriving 5% or more revenue from ownership or 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 deriving 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
- **Nuclear Power**
 - All companies generating 5% or more of their total electricity from nuclear power in a given year
 - All companies that have 5% or more of installed capacity attributed to nuclear sources in a given fiscal year
 - All companies deriving 5% or more aggregate revenue from nuclear power activities including revenue from the ownership or operation of nuclear power plants, ownership or operation of active uranium mines, and supply of key nuclear-specific products or services to the nuclear power industry.

Climate Change-based Exclusions Criteria:

- **Extraction & Production**
 - **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 does not cover 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
 - **Unconventional Oil & Gas Extraction**
 - All companies deriving more than 0% revenue (either reported or estimated) from unconventional oil and gas production. It covers

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 does not cover 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 the production of deep water, shallow water, and other onshore/offshore oil and gas. It does not cover revenue from unconventional oil and gas production (oil sands, shale oil, shale gas) and onshore/offshore oil and gas production in the Arctic region.
- **Power Generation**
 - **Thermal Coal-based Power Generation**
 - All companies generating 10% or more of their total electricity from thermal coal in a given year
 - All companies that have 10% or more of installed capacity attributed to thermal coal in a given year
 - All companies deriving 5% or more revenue (either reported or estimated) from thermal coal-based power generation
 - **Oil & Gas-based Power Generation**
 - All companies generating 30% or more of their total electricity from liquid fuel and natural gas in a given year
 - All companies that have 30% or more of installed capacity attributed to liquid fuel and natural gas in a given year
 - All companies deriving 30% or more revenue (either reported or estimated) from liquid fuel- and natural gas-based power generation
- **Fossil Fuel Reserves Ownership**
 - **Fossil Fuel Reserves for Energy Application**
 - All companies, regardless of their industries, with evidence of owning fossil fuel reserves used most likely for energy applications. For high intensity industries (Energy, Utilities,

Diversified Metals & Mining), this factor flags companies with evidence of fossil fuel reserves (excluding metallurgical coal). For other industries, it flags companies with evidence of fossil fuel reserves (excluding metallurgical coal) and deriving revenue from business segments associated with energy application of fossil fuels such as thermal coal mining, oil & gas exploration & production and downstream activities e.g. refining; distribution & retail; pipeline & transportation; trading and fossil fuel based power generation. Fossil fuel reserves are defined as proved and probable reserves (i.e. 2P) for coal and proved reserves (i.e. 1P) for oil and natural gas. Evidence of owning reserves includes companies providing the exact volume of reserves, and companies making a statement about their ownership of reserves.

- **Thermal Coal Reserves**

- All companies that own thermal coal reserves

Appendix 2: Guidelines on Achieving the Target Sector Coverage of 25%

The Indexes target 25% (50% for the MSCI UK IMI SRI Filtered PAB Index) coverage of the free float-adjusted market capitalization of each GICS sector of the regional Parent Index. The underlying principle in the construction of the Indexes is to achieve cumulative sector coverage closest to 25% (50% for the MSCI UK IMI SRI Filtered PAB Index), while aiming to maintain index stability.

The following guidelines are used in achieving the target cumulative sector coverage of 25%:

- For each sector, the eligible companies of the regional Parent Index are first ranked based on the company level ESG Rating.
- If two companies have the same ESG Rating, the company with better ESG Trend is given priority. ESG Trend is defined as the direction of the change in ESG Rating as of the latest review of the ESG Rating for a company.
 - Positive ESG Trend is given the highest priority. Positive ESG Trend indicates any upgrade in ESG Rating of any scale as of the latest review of the company's ESG Rating.
 - Neutral ESG Trend indicates an unchanged ESG Rating as of the latest review of the company's ESG Rating. Also, companies that receive a re-initiated ESG Rating due to a change in the ESG Ratings Industry are considered to have a neutral ESG Trend.
 - Negative ESG Trend is given the lowest priority. Negative ESG Trend indicates any downgrade in ESG Rating of any scale as of the latest review of the company's ESG Rating.
- In case of two companies with the same ESG Rating and the same ESG Trend, an existing index constituent is given priority to maintain index stability. Between two existing constituents with the same ESG Rating and the same ESG Trend, the company with the higher industry-adjusted ESG Score is given priority. For two existing index constituents with the same industry-adjusted ESG score, the security with the largest free float-adjusted market capitalization is given priority.
- The cumulative sector coverage at each rank is calculated.
- In each sector, companies are selected as per the rules mentioned in Section 3.1.3 until the cumulative sector coverage crosses 25% (50% for the MSCI UK

IMI SRI Filtered PAB Index) or there are no eligible securities left to be selected.

- MSCI defines the company that increases the cumulative sector coverage above 25%(50% for the UK IMI SRI Filtered PAB Index) as the “marginal company”.
 - If the marginal company is a current index constituent, then it is always selected.
 - If the marginal company is not a current index constituent, then it is selected only if the cumulative sector coverage with the marginal company is closer to 25% (50% for the UK IMI SRI Filtered PAB Index) compared to the cumulative sector coverage without the marginal company.
- The minimum cumulative sector coverage is set to 22.5% (45% for the MSCI UK IMI SRI Filtered PAB Index).
 - The marginal company is always selected if this is required to achieve cumulative sector coverage of 22.5% (45% for the MSCI UK IMI SRI Filtered PAB Index).
- Securities which are ineligible as per Section 3.1.1 will not be selected even if the cumulative sector coverage after selection of all eligible securities is below 25% (50% for the MSCI UK IMI SRI Filtered PAB Index).

Appendix 3: Calculation of Target Metrics

Calculation of GHG Intensity

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

Security Level GHG Intensity =

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

Enterprise Value Inflation Adjustment Factor (EVIAF) =

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

Weighted Average GHG Intensity of Parent Index =

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

Weighted Average GHG Intensity of Derived Index =

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

Climate Impact Sectors

NACE¹⁸ 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 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:

¹⁸ For further details regarding NACE, please refer to https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background

1. MSCI has published a mapping¹⁹ 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. **$N_H \geq N_L$** : If the number of NACE classes in the High Climate Impact Sector is at least equivalent to the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the High Climate Impact Sector
 - b. **$N_H < N_L$** : If the number of NACE classes in the High Climate Impact Sector is less than the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the Low Climate Impact Sector
5. Using the GICS Sub-Industry to Climate Impact Sector mapping created in Step 4, and the security-level GICS Sub-Industry, each security in the Parent Index is classified in either High Climate Impact Sector or Low Climate Impact Sector.

¹⁹ This mapping is available in the [Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosures](#)

Appendix 4: Value-Based Exclusion Criteria for the MSCI UK IMI SRI Filtered PAB Index

In addition to the Screening Criteria outlined in Section 3 of the MSCI SRI Indexes methodology, the underlying universe of the indexes is subject to additional criteria for the following business activities.

- **Fossil Fuels**

All companies excluded by the MSCI Global Fossil Fuels Exclusion Indexes Methodology²⁰.

- **Thermal Coal**

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

- **Oil and Gas**

- **Oil Sands** – All companies deriving more than 0% revenue (either reported or estimated) from oil sands extraction for a set of companies that own oil sands reserves and disclose evidence of deriving revenue from oil sands extraction. This factor does not include revenue from non-extraction activities (e.g. exploration, surveying, processing, refining); ownership of oil sands reserves with no associated extraction revenues; revenue from intra-company sales.
- **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 deepwater 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.

²⁰ Please refer to the MSCI Global Fossil Fuels Exclusion Indexes methodology at www.msci.com/index-methodology

- **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 deepwater, shallow water, and other onshore/offshore oil and gas.
- **Oil and Gas Refining** - All companies deriving more than 5% revenue (either reported or estimated) from refining oil and gas.
- **Oil & Gas-based Power Generation** - All companies generating more than 5% of their total electricity from liquid fuel based power generation.

Appendix 5: Decarbonization Trajectory of Indexes

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

Index Name	Parent Index	Base Date	W_1 (tCO ₂ /M\$ Enterprise Value + Cash)
MSCI ACWI SRI Filtered PAB Index	MSCI ACWI Index	June 1, 2020	242.23
MSCI World SRI Filtered PAB Index	MSCI World Index	March 1, 2022	154.05
MSCI World ex EMU SRI Filtered PAB Index	MSCI World ex EMU Index	March 1, 2022	137.72
MSCI EM (Emerging Markets) SRI Filtered PAB Index	MSCI EM (Emerging Market) Index	March 1, 2022	295.33
MSCI EM Asia SRI Filtered PAB	MSCI EM Asia Index	March 1, 2022	241.03
MSCI USA SRI Filtered PAB Index	MSCI USA Index	March 1, 2022	107.55
MSCI Europe SRI Filtered PAB Index	MSCI Europe Index	March 1, 2022	193.58
MSCI EMU SRI Filtered PAB Index	MSCI EMU Index	March 1, 2022	241.03
MSCI UK IMI SRI Filtered PAB Index	MSCI UK IMI Index	March 1, 2022	276.32
MSCI Japan SRI Filtered PAB Index	MSCI EM Japan Index	March 1, 2022	286.67
MSCI Pacific ex Japan SRI Filtered PAB Index	MSCI Pacific ex Japan Index	March 1, 2022	165.85

Appendix 6: Barra Equity Model Used in The Optimization

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

Appendix 7: New release of Barra® Equity Model or Barra® Optimizer

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

Appendix 8: Changes to this Document

The following sections have been updated as of September 2020:

- Section 3.1, 3.3 – Added reference to MSCI EM Asia SRI Filtered PAB Index

The following sections have been updated as of February 2022:

- Section 3.3: Updated to align with the minimum requirements of the EU PAB
- Appendix 1: Updated screening criteria for conventional weapons and thermal coal reserves
- Corporate Action: Updated corporate action treatment for new additions to the parent index

The following sections have been updated as of May 2022:

- Section 3.3: Added footnotes for the constraints that were relaxed during May 2022 SAIR.

The following sections have been updated as of October 2022:

- Section 3.1: Added reference to the MSCI World ex EMU SRI Filtered PAB Index

The following sections have been updated as of May 2023:

- Section 1: Updated the description of the MSCI SRI Filtered PAB Indexes and added footnote on Methodology Set
- Section 2.3.1: Clarified the exclusion criteria for companies involved in ESG Controversies
- Section 2.3.3: Added footnotes for the constraints that were relaxed during the May 2023 Index Review
- Section 3.1: 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 3.4: Clarified the treatment of Corporate Events
- Section 4: Moved that section after the Section 3 (Maintaining the MSCI SRI Filtered PAB Indexes)

The following sections have been modified effective July 3, 2023:

Section 3: Maintaining the Indexes

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

The following sections have been modified effective September 1, 2023:

Section 2.2.1.3

- Clarified the exclusion criteria for companies involved in ESG Controversies.

Appendix 5:

- A new section which highlights the decarbonization trajectory of Indexes by providing the Base Date of each Index was added in Appendix 5. This covers all Indexes which are based on the MSCI SRI Filtered PAB Index Methodology.

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