

Methodology Book for:

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

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1 Introduction

The MSCI World SRI Filtered PAB, MSCI EM (Emerging Markets) SRI Filtered PAB, MSCI USA SRI Filtered PAB, MSCI Europe SRI Filtered PAB, MSCI EMU SRI Filtered PAB, MSCI Japan SRI Filtered PAB, MSCI Pacific ex Japan SRI Filtered PAB, MSCI EM Asia SRI Filtered PAB, MSCI UK IMI SRI Filtered PAB, MSCI ACWI SRI Filtered PAB Indexes (herein, “MSCI SRI Filtered PAB Indexes”) are free float-adjusted market capitalization weighted indexes that exclude companies that are inconsistent with specific business involvement-based criteria focused on revenue associated with high negative environmental or social impact. These indexes are also designed to represent the performance of companies that have high Environmental, Social and Governance (ESG) ratings relative to their sector peers, to ensure the inclusion of the best-in-class companies from an ESG perspective. Additionally, the MSCI SRI Filtered PAB Indexes aim to target sector weights that reflect the relative sector weights of the underlying MSCI Global Investable Market Indexes to limit the systematic risk introduced by the ESG selection process. Overall, these indexes target coverage of 25%¹ of the underlying MSCI Global Investable Market Index.

The MSCI SRI Filtered PAB Indexes are 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 businesses, Very Severe ESG Controversies, Severe Environmental Controversies, Tobacco Manufacturing, Thermal Coal, Oil & Gas and Fossil Fuel-based power generation.

¹ The MSCI UK IMI SRI Filtered PAB Index targets coverage of 50% of the underlying MSCI Global Investable Markets Index

2 MSCI ESG Research

The MSCI SRI Filtered PAB Indexes use company ratings and research provided by MSCI ESG Research. In particular, these indexes use the following four MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies, MSCI Business Involvement Screening Research and MSCI Climate Change Metrics.

For details on MSCI ESG Research’s full suite of ESG products, please refer to: <https://www.msci.com/esg-investing>

2.1 MSCI ESG RATINGS

MSCI ESG Ratings provides research, analysis and ratings of how well companies manage environmental, social and governance risks and opportunities. MSCI ESG Ratings provides an overall company ESG rating - a seven-point scale from ‘AAA’ to ‘CCC’. In addition, the product provides scores and percentiles indicating how well a company manages each key issue relative to industry peers.

For more details on MSCI ESG Ratings, please refer to: <https://www.msci.com/esg-ratings>

2.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies (formerly known as MSCI Impact Monitor) 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

2.4 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics is designed to support investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, and factoring climate change research into their risk management processes. It provides Carbon Emissions, Fossil Fuel exposure, environmental impact (i.e., clean technology) data and screens, as well as climate-related risk exposure and management assessment on companies such as Low Carbon Transition scores and categories.

For more details on MSCI Climate Change Metrics, please refer to <https://www.msci.com/climate-solutions>

3 Constructing the MSCI SRI Filtered PAB Indexes

The MSCI SRI Filtered PAB 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.

3.1 ELIGIBLE UNIVERSE

The eligible universe for the MSCI SRI Filtered PAB Indexes includes all the constituents of their respective MSCI parent index (the “Parent Index”), as shown in the table below.

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

3.2 CONSTRUCTING THE SRI FILTERED UNIVERSE

3.2.1 ELIGIBILITY CRITERIA

The MSCI SRI Filtered PAB Indexes use company ratings and research provided by MSCI ESG Research to determine eligibility for index inclusion.

3.2.1.1 VALUES AND CLIMATE CHANGE BASED SCREENING CRITERIA

The MSCI SRI Filtered PAB Indexes use MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics to identify companies that are involved in business activities with negative environmental and social impact.

Companies that meet the following 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
 - Oil & Gas-based Power Generation
- Fossil Fuel Reserves Ownership
 - Fossil Fuel Reserves for Energy Application
 - Thermal Coal Reserves

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.

3.2.1.2 ESG RATINGS ELIGIBILITY

The MSCI SRI Filtered PAB 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.

3.2.1.3 ESG CONTROVERSIES SCORE ELIGIBILITY

The MSCI SRI Filtered PAB 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.

3.2.2 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 GICS² 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

² GICS®, the global industry classification standard jointly developed by MSCI Inc. and S&P Global.

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.

3.2.3 SECURITY WEIGHTING

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

3.2.4 ISSUER CAPPING

The maximum weight of any issuer in the SRI Filtered Universe is capped at 5% in accordance with the MSCI Capped Indexes methodology³. The excess weight of the

³ Please refer to the MSCI Capped Indexes methodology at www.msci.com/index-methodology

capped issuers is distributed among the remaining constituents in proportion of their existing weights in the index.

3.3 CONSTRUCTING THE MSCI SRI FILTERED PAB INDEXES

The MSCI SRI Filtered PAB Indexes (“PAB Indexes”) are constructed from their corresponding SRI Filtered Universes in the following steps.

3.3.1 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 Ex-Controversial Weapons Indexes⁴.
2. **ESG Controversies:** All companies having faced very severe controversies pertaining to ESG issues – Defined as companies with an ESG Controversy Score of 0.
3. **Environmental Harm:** All companies having faced very severe and severe controversies pertaining to Environmental issues – Defined as companies with an Environment Controversy Score of 0 or 1.
4. **Tobacco:** All companies that are involved in the manufacturing of Tobacco products
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.

⁴ For more details regarding the MSCI Ex-Controversial Weapons Index methodology, please refer to www.msci.com/index-methodology.

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 generation⁵.

3.3.2 SECURITY SELECTION AND WEIGHTING

After the screening of ineligible companies as per Section 3.3.1 of this methodology document, securities in the SRI Filtered Universe are selected and weighted following an optimization based approach described below in Section 3.3.3 of this methodology book.

3.3.3 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 2
2. Diversification objectives – constraints detailed in Table 3

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

⁵ 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 ⁶) 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 ⁷	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	+/- 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 ⁸	+/-5%
8.	Maximum Issuer Weight	5%
9.	One Way Turnover during Annual Index Reviews	15%
10.	One Way Turnover during Quarterly Index Reviews	5%
11.	Common Factor Risk Aversion	0.0075
12.	Specific Risk Aversion	0.075

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 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.

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.

3.3.4 DETERMINING THE OPTIMIZED INDEX

The Index is constructed using the Barra Open Optimizer⁹ 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.

⁹ Please refer to Appendix 4 and 5 for more details.

4 Maintaining the MSCI SRI Filtered PAB Indexes

4.1 ANNUAL INDEX REVIEW

The MSCI SRI Filtered PAB Indexes are reviewed on an annual basis in May to coincide with the May Semi-Annual Index Review of the Parent Index, 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 data (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 MSCI SRI Filtered PAB 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 MSCI SRI Filtered PAB Indexes.

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

4.1.1 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 3.2.

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 3.2.1

4.1.2 RANKING OF ELIGIBLE SECURITIES

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

- ESG Rating

- ESG Trend¹⁰ (positive ESG Trend preferred to neutral ESG Trend and neutral ESG Trend preferred to negative ESG Trend)
- Current index membership (existing constituents above non-constituents)
- Industry adjusted ESG scores
- Decreasing free float-adjusted market capitalization.

4.1.3 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
- '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
- 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
- Remaining eligible securities in the ranked universe

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

4.2 QUARTERLY INDEX REVIEWS

The MSCI SRI Filtered PAB 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, 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

¹⁰ ESG Trend is defined as the latest change in ESG Rating over the previous 12 months. A security without any change in ESG Rating over the previous 12 months will have a neutral ESG Trend.

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 SRI Filtered PAB 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 4.1.1. Existing constituents that meet the eligibility criteria are retained in the indexes.

Additions from the eligible securities as per Section 3.2 are made only to sectors where the current market capitalization coverage is less than 22.5%(45% for the UK IMI SRI Filtered PAB Index), until the 25%(50% for the 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 UK IMI SRI Filtered PAB Index) to define under-representation.

4.3 CAPPING FREQUENCY

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

4.4 ONGOING EVENT RELATED CHANGES

The following section briefly describes the treatment of common corporate events within the MSCI SRI Filtered PAB Indexes.

No new securities will be added (except where noted below) to the Indexes between Index Reviews. For cases where additions are noted below, securities will be added to the index only if added to the Parent Index.

Parent Index deletions will be reflected simultaneously.

There are no deletions from the MSCI SRI Filtered PAB 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

All 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

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.

The MSCI Corporate Events methodology book is available at:
<https://www.msci.com/index-methodology>

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 MSCI SRI Filtered PAB 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>
- **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 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 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 MSCI SRI Filtered PAB Indexes target 25% (50% for the UK IMI SRI Filtered PAB Index) coverage of the free float-adjusted market capitalization of each Global Industry Classification Standard (GICS®) sector of the regional Parent Index (“cumulative sector coverage”). The underlying principle in the construction of the indexes is to achieve cumulative sector coverage closest to 25% (50% for the 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 (positive ESG Trend preferred to neutral ESG Trend and neutral ESG Trend preferred to negative ESG Trend).
- 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 4.1.3 until the cumulative sector coverage crosses 25% (50% for the 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 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 UK IMI SRI Filtered PAB Index).
- Securities which are ineligible as per Section 4.1.1 will not be selected even if the cumulative sector coverage after selection of all eligible securities is below 25%(50% for the 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 =

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

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 Semi-Annual Index Review (W_t) as per the below formula.

$$W_t = W_1 * 0.93^{\frac{(t-1)}{2}}$$

Where 't' is the number of Semi-Annual Index Reviews since the Base Date.

Thus, for the 3rd Semi-Annual Index Review since the Base Date (t=3), the target Weighted Average GHG Intensity will be $W_1 * 0.93$.

Climate Impact Sectors

NACE¹¹ 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 GICS¹² 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 mapping¹³ 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

¹¹ For further details regarding NACE, please refer to https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background

¹² For further information regarding GICS, please refer to <https://www.msci.com/gics>

¹³ This mapping is available in the [Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks’ ESG Disclosures](#)

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.

Appendix 4: Barra Equity Model Used in The Optimization

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

Appendix 5: 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 6: 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 Methodology¹⁴.

- **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.

¹⁴ 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.

The following sections have been updated since September 2020 -

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

The following sections have been updated effective March 01, 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

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 *
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