

MSCI ACWI Climate Pathway Select Index Methodology

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1 Introduction

The MSCI ACWI Climate Pathway Select Index (the “Index”) aims to maximize exposure to companies that can potentially benefit from opportunities arising from the transition to a lower-carbon economy. The index also aims to increase exposure to companies that are setting science-based emission reduction targets (SBTs) or commit to reduction targets and have a track record of decarbonizing at a rate of at least 7%.

The index is constructed from the MSCI ACWI Index by excluding securities based on certain ESG and Climate Change related criteria, followed by an optimization-based approach, aiming to -

- Increase the weight of companies which are exposed to climate transition opportunities and reduce the weight of companies which are exposed to climate transition risks
- Reduce the weight of companies assessed as high carbon emitters using scope 1, 2 and 3 emissions
- Increase the weight of companies with credible carbon reduction targets through the weighting scheme
- Follow an annualized 7% year-on-year decarbonization trajectory
- Significantly improve the ESG profile of the index

2 MSCI ESG Research

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

The Index uses company ratings and research provided by MSCI ESG Research. In particular, this index uses the following MSCI ESG Research products: MSCI Climate Change Metrics, MSCI Climate Value-at-Risk, MSCI ESG Sustainable Impact Metrics, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research.

For details on MSCI ESG Research’s full suite of ESG products, please refer to:

<https://www.msci.com/esg-investing>

2.1 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics 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-change-solutions>.

2.2 MSCI ESG RATINGS

MSCI ESG Ratings provides research, data, 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, as well as underlying data and metrics used to compile the scores and ratings.

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

2.3 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>

2.4 MSCI ESG BUSINESS INVOLVEMENT SCREENING RESEARCH

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

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

3 Index Construction Methodology

3.1 APPLICABLE UNIVERSE

The Applicable Universe includes all the existing constituents of the MSCI ACWI index (“Parent Index”). This approach aims to provide an opportunity set with sufficient liquidity and investment capacity.

3.2 ELIGIBLE UNIVERSE

The Eligible Universe is constructed from the Applicable Universe by excluding securities of companies based on the exclusion criteria below:

- Controversial, Nuclear, and Conventional Weapons Involvement
- Tobacco Involvement
- Alcohol Involvement
- Civilian Firearms Involvement
- Palm Oil Involvement
- Fossil Fuels Involvement

For further details regarding these exclusion criteria, kindly refer to Appendix II. In addition to the above, companies are also excluded based on their involvement in ESG Controversies and ESG Ratings.

3.2.1. ESG CONTROVERSIES

Companies which meet either of the below exclusion criteria are excluded from the Eligible Universe –

1. All companies having faced very severe controversies pertaining to ESG issues – Defined as companies with an ESG Controversy Score of 0.
2. 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.
3. All companies that fail to comply with the United Nations Global Compact Principles
4. All companies not assessed by MSCI ESG Research for an MSCI ESG Controversy Score

3.2.2. ESG RATINGS

Companies which meet either of the below exclusion criteria are excluded from the Eligible Universe –

1. All companies with an MSCI ESG Rating of ‘CCC’ or ‘B’.
2. All companies not assessed by MSCI ESG Research for an MSCI ESG Rating.

3.3 OPTIMIZATION CONSTRAINTS

At each Semi-Annual Index Review, the indexes are constructed using an optimization process that aims to achieve replicability and investability as well as maximize the weighted average MSCI Low Carbon Transition Score¹ subject to the following constraints:

1. ESG and Climate Change 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 III.

Table 1: Constraints imposed to meet transition and physical risk objectives

No.	Transition and Physical Risk Objective	MSCI ACWI Climate Pathway Select Index
1.	Minimum reduction in Greenhouse Gas (GHG) Intensity (Scope 1+2+3 ²) relative to Parent Index	30%
2.	Minimum average reduction (per annum) in GHG Intensity relative to GHG Intensity at the Base Date ³	7%
3.	Minimum Increase in aggregate weight in companies setting targets relative to the aggregate weight of such companies in the Parent Index. Companies Setting Targets are defined in Appendix III	100%
4.	Minimum increase in Weighted Average ESG Score relative to Parent Index	25%

¹ For further details regarding the MSCI Low Carbon Transition Score, kindly refer to Appendix I of this document.

² 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.

³ 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.

Table 2: Constraints imposed to meet diversification objectives

No.	Diversification Objective	MSCI ACWI Climate Pathway Select Index
5.	Ex-Ante Tracking Error relative to the Parent Index	4%
6.	Maximum number of constituents	400
7.	Constituent Active Weight	+/- 2%
8.	Minimum constituent weight	0.10%
9.	Security Weight as a multiple of its weight in the Parent Index	20x
10.	Active Sector Weights (the Energy GICS Sector is not constrained)	+/-5%
11.	Active Country Weights ⁴	+/-5%
12.	One Way Turnover	5%
13.	Common Factor Risk Aversion	0.0075
14.	Specific Risk Aversion	0.075

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

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

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

⁴ 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.

3.4 DETERMINING THE OPTIMIZED INDEX

The Index is constructed using the Barra Open Optimizer⁵ in combination with the relevant Barra Equity Model. The optimization uses universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of the Indexes.

⁵ Please refer to Appendix V and VI for more details.

4 Maintaining the Index

4.1 SEMI-ANNUAL INDEX REVIEWS

The Index is rebalanced on a semi-annual basis⁶, as of the close of the last business day of May and November, coinciding with the May and November Semi-Annual Index Review of the MSCI Global Investable Market Indexes. The pro forma Index is in general announced nine business days before the effective date.

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

4.2 ONGOING EVENT RELATED CHANGES

The general treatment of corporate events in the Index 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

⁶ Certain ESG datapoints required for historical index rebalancing are unavailable. In those cases, the Index used the values of the those datapoints as of the first date they became available. For example, each periodic rebalancing of the Index prior to October 31, 2014 would have applied the “Controversial, Nuclear and Conventional Weapons” value as of October 31, 2014. The table below summarizes the datapoints with their dates of first availability subsequently used in the rebalancing of the Index.

Datapoint	First Availability Date
Controversial, Nuclear and Conventional Weapons	October 31, 2014
Palm Oil	October 31, 2019
Fossil Fuels	October 31, 2018
Active carbon emissions reduction target/s approved by the Science Based Targets initiative (SBTi)	July 30, 2021
Companies publishing emissions reduction targets	October 31, 2021

The datapoint “Active carbon emissions reduction target/s approved by the Science Based Targets initiative (SBTi)” has only been included in the rebalancing of the Index starting with the May 2020 Semi-Annual Index review and was not used in any Index rebalancing prior to that date.

offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the Index.

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

No new securities will be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

EVENT TYPE

EVENT DETAILS

New additions to the Parent Index

A new security added to the parent index (such as IPO and other early inclusions) will not be added to the index.

Spin-Offs

All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Merger/Acquisition

For Mergers and Acquisitions, the acquirer’s post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.

If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

Changes in Security Characteristics

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted indexes.

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

Appendix I: MSCI Low Carbon Transition Risk Assessment

MSCI ESG Research’s Low Carbon Transition Risk assessment⁷ is designed to identify potential leaders and laggards by holistically measuring companies’ exposure to and management of risks and opportunities related to the low carbon transition.

The outputs of this assessment are two company-level factors:

- (1) **Low Carbon Transition Category:** This factor groups companies in five categories that highlight the predominant risks and opportunities they are most likely to face in the transition (Exhibit 1).
- (2) **Low Carbon Transition Score:** This score is based on a multi-dimensional risks and opportunities assessment and considers both predominant and secondary risks a company faces. It is industry agnostic and represents an absolute assessment of a company’s position vis-à-vis the transition.

Exhibit 1: Low Carbon Transition Categories and Scores

LOW CARBON TRANSITION SCORE	LOW CARBON TRANSITION CATEGORY		LOW CARBON TRANSITION RISK / OPPORTUNITY	
 <p>Score = 0</p>	ASSET STRANDING		Potential to experience “stranding” of physical / natural assets due to regulatory, market, or technological forces arising from low carbon transition.	Coal mining & coal based power generation; Oil sands exploration/production
	TRANSITION	PRODUCT	Reduced demand for carbon-intensive products and services. Leaders and laggards are defined by the ability to shift product portfolio to low-carbon products.	Oil & gas exploration & production; Petrol/diesel based automobile manufacturers, thermal power plant turbine manufacturers etc.
		OPERATIONAL	Increased operational and/or capital cost due to carbon taxes and/or investment in carbon emission mitigation measures leading to lower profitability of the companies.	Fossil fuel based power generation, cement, steel etc.
	NEUTRAL		Limited exposure to low carbon transition carbon risk. Though companies in this category could have exposure to physical risk and/or indirect exposure to low carbon transition risk via lending, investment etc.	Consumer staples, healthcare, etc.
	SOLUTIONS		Potential to benefit through the growth of low-carbon products and services.	Renewable electricity, electric vehicles, solar cell manufacturers etc.
Score = 10				

⁷ For more details on MSCI Climate Change Metrics: <https://www.msci.com/climate-change-solutions>

Calculation methodology

The Low Carbon Transition Categories and Scores are determined by a combination of each company’s current risk exposure and its efforts to manage the risks and opportunities presented by the low carbon transition. The 3-step process followed by MSCI ESG Research is explained below.

Step 1: Measure Low Carbon Transition Risk Exposure

The first step towards measuring the Low Carbon Transition Risk Exposure for a company is the computation of its Carbon Intensity profile – which is informed by its Product Carbon Intensity, Operational Carbon Intensity and Total Carbon Intensity. In the next step, we compute Low Carbon Transition Risk Exposure Category and Score based on Total Carbon Intensity.

Step 2: Assess Low Carbon Transition Risk Management

In the second step, we assess a company’s management of risks and opportunities presented by the low carbon transition. This assessment is based on policies and commitments to mitigate transition risk, governance structures, risk management programs and initiatives, targets and performance, and involvement in any controversies.

Step 3: Calculate Low Carbon Transition Category and Score

In the final step, the Low Carbon Transition Risk Exposure Category and Score that was calculated in Step 1 are adjusted for the strength of management efforts. Following this adjustment, Low Carbon Transition Risk Exposure Score of companies with top or second quartile risk management improves and some top and second quartile companies may move up one category.

Appendix II: Business Exclusions Criteria

The Index excludes securities based on the following ESG and Climate Change related criteria –

1. **Controversial, Nuclear and Conventional Weapons**: All companies that have an industry tie to the manufacture of cluster munitions, landmines, conventional (including depleted uranium), biological/chemical, or nuclear weapons systems and components. This includes companies that provide support systems and services, as well as those with indirect ties to weapons production through ownership.
2. **Tobacco**:
 - All companies that manufacture tobacco products,
 - All companies deriving 5% or more aggregate revenue from the manufacture, distribution, retailing, supply, and/or licensing of tobacco
3. **Alcohol**:
 - All companies that manufacture alcoholic products,
 - All companies deriving 5% or more aggregate revenue from the manufacture, distribution, retailing, supply and/or licensing of alcoholic products
4. **Civilian Firearms**:
 - All companies that manufacture firearms and small arms ammunitions for civilian markets
 - All companies deriving 5% or more aggregate revenue from the production or distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use

5. Palm Oil:

- All companies with any tie to Palm Oil. The scope of ties covers palm oil production, distribution, and ownership ties

6. Fossil Fuels:

- All companies with evidence of owning proven & probable (thermal and metallurgical) coal reserves and/or prove oil and natural gas reserves
- All companies deriving any revenue from fossil fuel (coal, oil, natural gas) extraction, oil & gas downstream activities, and fossil fuel-based power generation

Appendix III: Calculation of Target Metrics

Calculation of GHG Intensity

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

Security Level GHG Intensity =

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

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 $W_1 * 0.93$.

Companies Setting Targets

Relative to their corresponding Parent Indexes, the Indexes require a minimum 100% increase in the aggregate weight of companies setting emissions reduction targets. These companies are identified if they meet *either* of the following criteria:

1. The company has one or more active carbon emissions reduction target/s approved by the Science Based Targets initiative (SBTi)
2. The company meets *each* of the following three criteria:
 - companies publishing emissions reduction targets
 - companies publishing their annual emissions and
 - Companies reducing their GHG intensity by 7% over each of the last 3 years

Appendix V: Barra Equity Model Used in The Optimization

The MSCI ACWI Climate Pathway Select Index currently uses an optimization setup using the MSCI Barra Global Equity Model for Long-Term Investors (GEMTL).

Appendix VI: 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.

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