MSCI ESG ENHANCED FOCUS INDEXES METHODOLOGY

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1 INTRODUCTION

The MSCI ESG Enhanced Focus Indexes (the 'Index') are designed to maximize exposure to positive environmental, social and governance (ESG) factors while reducing the carbon-equivalent exposure to carbon dioxide (CO_2) and other greenhouse gases (GHG) as well as their exposure to potential emissions risk of fossil fuel reserves by thirty percent (30%). The Indexes also aim to maintain risk and return characteristics similar to those of their respective underlying market capitalization weighted indexes (the 'Parent Index').

The Indexes are constructed by selecting constituents of a market capitalization weighted index (the 'Parent Index') through an optimization process that aims to maximize exposure to ESG factors for a target tracking error budget and reduce the carbon-equivalent exposure to CO_2 and other GHG as well as the exposure to potential emissions risk of fossil fuel reserves by thirty percent (30%) with respect to their respective underlying market capitalization weighted indexes (the 'Parent Index') under certain constraints.

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

2 ESG RESEARCH FRAMEWORK

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 designed to help institutional investors efficiently manage research, analysis and compliance tasks across the spectrum of ESG factors.

The MSCI ESG Enhanced Focus Indexes use company ratings and research provided by MSCI ESG Research. In particular, this index uses the following three MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies Score, and MSCI ESG Business Involvement Screening Research.

For details on MSCI ESG Research's full suite of ESG products, please refer to: http://www.msci.com/products/esg/about_msci_esg_research.html

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/documents/1296102/1636401/MSCI_ESG_Ratings.pdf

2.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies (previously known as 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 Score, 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 ESG CARBONMETRICS

MSCI ESG CarbonMetrics evaluates all constituents of the MSCI ACWI Investible Market Indexes. When reported carbon emissions data is not available, Scope 1 & 2 carbon emissions are estimated using MSCI ESG Research's proprietary carbon estimation model. Using MSCI ESG CarbonMetrics, MSCI provides a variety of metrics for assessing the carbon characteristics of an index or investment portfolio. Based on both reported and estimated Scope 1 & 2 carbon emissions, MSCI measures the carbon responsibility, efficiency, and exposure attributed to the MSCI Indexes.

For more details on MSCI ESG CarbonMetrics, please refer to https://www.msci.com/index-carbon-footprint-metrics

3 CONSTRUCTING THE MSCI ESG ENHANCED FOCUS INDEXES

Constructing the MSCI ESG Enhanced Focus Indexes involve the following steps:

- Defining the Parent Index
- Defining the Security Level Carbon Exposure
- Defining the exclusion criteria
- Defining the optimization constraints
- Determining the optimized portfolio

The steps mentioned above are defined in detail in the subsequent sections.

3.1 DEFINING THE PARENT INDEX

ESG Enhanced Focus Index	Parent Index
MSCI World ESG Enhanced Focus Index	MSCI World Index
MSCI EM ESG Enhanced Focus Index	MSCI EM (Emerging Markets) Index
MSCI Europe ESG Enhanced Focus Index	MSCI Europe Index
MSCI EMU ESG Enhanced Focus Index	MSCI EMU Index
MSCI USA ESG Enhanced Focus Index	MSCI USA Index
MSCI Japan ESG Enhanced Focus Index	MSCI Japan Index

3.2 DEFINING THE SECURITY LEVEL CARBON EXPOSURE

The carbon exposure of a security is measured in terms of its greenhouse gas emissions and its potential carbon emissions from fossil fuel reserves. The MSCI ESG Enhanced Focus Indexes use MSCI ESG CarbonMetrics data from MSCI ESG Research.

3.2.1 GREENHOUSE GAS EMISSIONS

MSCI ESG Research collects company-specific direct (Scope 1) and indirect (Scope 2) greenhouse gas (GHG) emissions data from company public documents and/or the Carbon

Disclosure Project. If a company does not report GHG emissions, then MSCI ESG Research uses its proprietary methodology to estimate Scope 1 and Scope 2 GHG emissions. The data is updated on an annual basis. Since the current carbon emissions of a company are directly influenced by its current business activity, MSCI normalizes for size by dividing the annual carbon emissions of the company by the annual sales of the company.

For newly added companies to the index which do not report emission data and where MSCI ESG Research has not estimated the greenhouse gas emissions yet, MSCI uses the average emissions per dollar of issuer market capitalization for the companies in the same industry group, multiplied by the market capitalization of the company as the estimated emission for the company.

3.2.2 POTENTIAL CARBON EMISSIONS FROM FOSSIL FUELS

MSCI ESG Research collects fossil fuel reserves data where relevant for companies which have reserves, typically in the Oil & Gas, Coal Mining and Electric Utilities industries[1]. Fossil fuel reserves can be used for several applications including energy or industrial (e.g. coking coal used for steel production). For the development of the MSCI ESG Enhanced Focus Indexes, only fossil fuel reserves used for energy are taken into account. The data is updated on an annual basis and based on information disclosed by companies. Sources include company publications, other public records and third party data providers. For newly added companies to the index where data is not available yet, MSCI uses zero fossil fuel reserves. The size of reserves of a company typically influences its market valuation, and hence MSCI normalizes for size by dividing the potential carbon emissions of the company by its market capitalization.

To convert reserves data to potential carbon emissions, MSCI ESG Research applies a formula from the Potsdam Institute for Climate Impact Research[2].

3.3 DEFINING THE EXCLUSION CRITERIA

Securities of companies involved in Very Severe business controversies as defined by the MSCI ESG Controversies Methodology are not eligible for inclusion in the MSCI ESG

[1] For more information on MSCI ESG CarbonMetrics, please refer to https://www.msci.com/index-carbon-footprint-metrics

[2] Malte Meinshausen, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame & Myles R. Allen. Greenhouse-gas emission Target for limiting global warming to 2 °C. Nature 458, 1158-1162 (30 April 2009) | doi: 10.1038/nature08017; Received 25 September 2008; Accepted 25 March 2009. Supplementary Information, p. 7.

Enhanced Focus Indexes. This is implemented by excluding constituents of the Parent Index with ESG Controversy Score = 0 ('Red Flag' companies).

3.3.1 BUSINESS EXCLUSION CRITERIA

Companies that are involved in specific businesses which have high potential for negative social and/or environmental impact are ineligible for inclusion in the index.

- Controversial Weapons
- Nuclear Weapons
- Civilian Firearms
- Tobacco
- Thermal Coal
- Oil Sands

In addition to the above, companies that fail to comply with the United Nations Global Compact Principles are also excluded from the MSCI ESG Enhanced Focus Indexes.

Please refer to Appendix 1 for more details on these criteria.

OTHER EXCLUSION CRITERIA

- Missing Controversy Score – Companies not assessed by MSCI ESG Research's MSCI ESG Controversy Scores are excluded from the index.
- Missing ESG Rating or ESG Score – Companies which are not rated by MSCI ESG Research for an MSCI ESG Rating are excluded from the index.

3.4 DEFINING THE OPTIMIZATION CONSTRAINTS

The Optimization process aims to maximize the Index's exposure to ESG scores and simultaneously reduce carbon emissions intensity and potential emissions by at least 30% with respect to the Parent Index for a given tracking error budget. ESG scores are normalized and used in the optimization process. The following ex-ante tracking error targets are used for the construction of MSCI ESG Enhanced Focus Indexes –

No.	ESG Enhanced Focus Index	Ex-Ante Tracking Error
1	MSCI World ESG Enhanced Focus Index	0.5%
2	MSCI EM ESG Enhanced Focus Index	1.0%

3	MSCI Europe ESG Enhanced Focus Index	0.5%
4	MSCI EMU ESG Enhanced Focus Index	0.5%
5	MSCI USA ESG Enhanced Focus Index	0.5%
6	MSCI Japan ESG Enhanced Focus Index	0.5%

Normalization of the ESG scores is designed to allow the optimization process to assess each score in the context of the overall distribution of the ESG scores.

Please refer to Appendix 2 for the Optimization constraints.

3.5 DETERMINING THE OPTIMIZED PORTFOLIO

The Index is constructed using MSCI's Barra® Open Optimizer in combination with the relevant Barra Equity Model[3]. The optimization uses a universe of eligible securities and the specified optimization objective and constraints to determine the constituents of the MSCI ESG Enhanced Focus Indexes.

[3] Please refer to Appendix II for the detailed information on model usage

4 MAINTAINING THE MSCI ESG ENHANCED FOCUS INDEXES

4.1 QUARTERLY INDEX REVIEWS

The Index is rebalanced on a quarterly basis to coincide with the regular Index Reviews (Semi-Annual Index Reviews in May and November and Quarterly Index Reviews in February and August) of the MSCI Global Investable Market Indexes. Changes are implemented at the end of February, May, August and November. The pro forma indexes are in general announced nine business days before the effective date.

ESG scores used for the Quarterly Index Reviews will be taken as of the end of the month preceding the Index Review, i.e., January, April, July and October.

At each Index Review, the optimization process outlined in Section 3 is implemented.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research, and MSCI ESG CarbonMetrics) as of the end of the month preceding the Index Reviews. For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the Index Review. For such securities, MSCI will use ESG data published after the end of month, when available.

4.2 ONGOING EVENT-RELATED MAINTENANCE

The general treatment of corporate events in the MSCI ESG Enhanced Focus Indexes aim 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.

The following section briefly describes the treatment of common corporate events within the MSCI ESG Enhanced Focus Indexes.

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

EVENT TYPE	EVENT DETAILS
New additions to the Parent Index	A new security added to the parent index (such as IPO and other early inclusions) will not be added to the index.
Spin-Offs	All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.
Merger/Acquisition	For Mergers and Acquisitions, the acquirer's post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index. If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.
Changes in Security Characteristics	A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

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

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

APPENDIX 1: BUSINESS EXCLUSION CRITERIA

MSCI ESG Research has developed a framework designed to define significant involvement in controversial activities. According to this framework, there are three tolerance levels: Zero Tolerance, Minimal Tolerance and Low Tolerance.

Each controversial activity screened by the MSCI ESG Enhanced Focus Indexes (except Thermal Coal, Oil Sands and Global Norms) is assigned to one of these tolerance levels:

Activities classified under "Zero Tolerance"

- **Controversial Weapons**
    - All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), as defined by the methodology of the MSCI Ex-Controversial Weapons Indexes available at https://www.msci.com/index-methodology.

Activities classified under "Minimal Tolerance"

- **Nuclear Weapons**
    - All companies that manufacture nuclear warheads and/or whole nuclear missiles.
    - All companies that manufacture components that were developed or are significantly modified for exclusive use in nuclear weapons (warheads and missiles).
    - All companies that manufacture or assemble delivery platforms that were developed or significantly modified for the exclusive delivery of nuclear weapons.
    - All companies that provide auxiliary services related to nuclear weapons.
    - All companies that manufacture components that were not developed or not significantly modified for exclusive use in nuclear weapons (warheads and missiles).
    - All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons.
    - All companies that manufacture components for nuclear-exclusive delivery platforms.

- **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 revenue from the distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
- **Tobacco**
    - All companies classified as a "Producer"
    - All companies deriving 5% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products.

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

- **Thermal Coal**
    - All companies deriving 5% or more revenue (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It excludes: revenue from metallurgical coal; coal mined for internal power generation (e.g. in the case of vertically integrated power producers); intra-company sales of mined thermal coal; and revenue from coal trading.
    - All companies deriving 5% or more revenue (either reported or estimated) from the thermal coal based power generation.
- **Oil Sands**
    - All companies deriving 5% or more revenue from oil sands extraction, which own oil sands reserves and disclose evidence of deriving revenue from oil sands extraction. Companies that derive revenue from non-extraction activities (e.g. exploration, surveying, processing, refining) or intra-company sales are not excluded. Additionally, companies that own oil sands reserves with no associated revenue are also not excluded.
- **Global Norms – United Nations Global Compact Compliance**
    - All companies that fail to comply with the United Nations Global Compact principles.

APPENDIX 2: OPTIMIZATION CONSTRAINTS

At each Quarterly Index Review, the following optimization constraints along with the ex-ante tracking error targets defined in Section 3.4 are used to ensure replicability and investability.

Screened Parent

The Screened Parent is constructed by excluding securities from the Parent Index based on the exclusion criteria as defined in Section 3.3. The security weights are then normalized to 100%.

Optimization Constraints

No.	Parameter	Values
1	Minimum Constituent Weight	Minimum constituent weight in the Screened Parent
2^	Asset Lower Bound	Maximum (Minimum constituent weight in the Screened Parent, 0.5 * Security Weight in the Screened Parent)
3^	Asset Upper Bound	Minimum (3 * Security Weight in the Screened Parent, Security Weight in the Screened Parent +2%)
4^	Active Sector Weights	+/-5%
5^	Active Country Weights*	+/-5%
6^	Minimum Reduction in the Carbon Emission Intensity relative to the Parent Index	30%
7^	Minimum Reduction in the Potential Emissions per dollar of market capitalization relative to the Parent Index	30%
8^	One Way Turnover during May and November Index Review	10%
9^	One Way Turnover during Feb and Aug Index Review	5%
10	Specific Risk Aversion	0.075
11	Common Factor Risk Aversion	0.0075

* Active Country Weights – In case there are countries in the Parent Index which weigh less than 2.5% in the Parent Index, then for such countries the active country upper bound of

+5% is not applicable. When a country weighs less than 2.5% in the Parent Index then the upper bound of country weight in the MSCI ESG Enhanced Focus Index is set at three times of the country's weight in the Parent Index.

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

Infeasible Solution - During the Quarterly and Semi-Annual Index Reviews, in the event that there is no optimal solution that satisfies all the optimization constraints, first the turnover constraint will be relaxed up to a maximum turnover of 30% in steps of 1% until an optimal solution is found. If a feasible solution is not found at turnover of 30%, the ex-ante tracking error is relaxed up to a maximum of 5 times of the original ex-ante tracking error in steps on 0.1%. In the event that feasible solution is not found for maximum ex-ante tracking error, the Index will not be rebalanced for that index review.

The Carbon Emission Intensity and the Potential Emissions per dollar of market capitalization of the Index are calculated using the formulae defined in Appendix I of the MSCI Global Low Carbon Leaders Indexes Methodology (for details about the methodology, please refer to: https://www.msci.com/index-methodology).

APPENDIX 3: NEW RELEASE OF BARRA® EQUITY MODEL OR BARRA® OPTIMIZER

The methodology presently uses MSCI Barra Global Equity Model for Long-Term Investors (“GEMLTL”) for the optimization. A new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

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