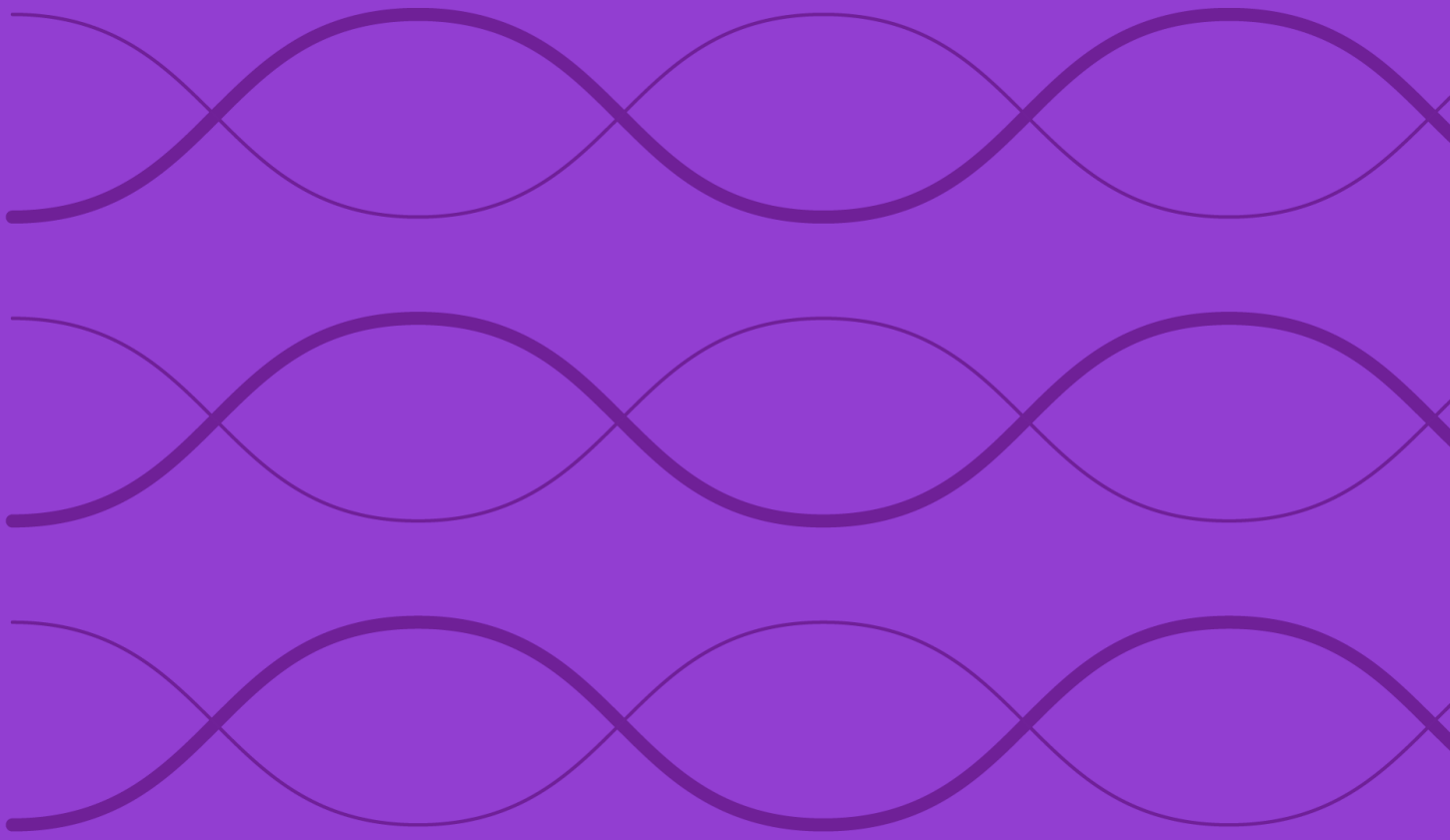
MORNINGSTAR Indexes

Construction Rules for the Morningstar ESG Enhanced Indexes



November 2026

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Overview

The Morningstar ESG Enhanced Indexes aim to minimize the environmental, social, and governance risk of a portfolio and achieve a targeted reduction in carbon emissions intensity, while delivering diversified exposure similar to a parent benchmark, with limits on tracking error. The indexes exclude companies involved in certain product types, companies with severe business controversies, and companies out of compliance with the United Nations Global Compact, but otherwise constrain active weights with respect to the benchmark at the individual holding, sector, and country level. The indexes take a holistic approach to portfolio construction and active risk control within a constrained optimization framework, using a forecast of covariance of asset returns to control the tracking error of the index portfolio.

For more information on the Sustainalytics ESG Risk Rating, controversy scores, and Morningstar Portfolio Sustainability Score and Rating, please refer to the Morningstar Sustainability Rating Methodology. For further information on ESG data used in the index, please see the Morningstar ESG Index Glossary.

To forecast tracking error of the index portfolios, Morningstar uses Morningstar Global Industry Standard Risk Model (the risk model).[1] For more information on the risk model, refer to Morningstar Risk Model Methodology. For the list of available parent benchmark and target currency index variants, refer to Appendix 3.

Index Inception and Performance Start Date

The inception and performance start dates, when the first back-tested index values were calculated, are shown in Appendix 3.

[1] For the emerging markets regional variant, a statistical risk model (PCA) is used instead. See Appendix 2, Appendix 7

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Index Construction

Methodology Summary



Starting Universe

At each reconstitution, constituents of the Morningstar ESG Enhanced Indexes are derived from its respective parent index (the benchmark), as shown in Appendix 11. For further details, refer to the Construction Rules for the Morningstar Global Markets Indexes and the Construction Rules for the Morningstar Target Market Exposure Indexes. Securities must also be covered by the risk model and have ESG Risk, Controversy, and the required product involvement screen data available.

Eligibility

To be eligible for index inclusion, all constituents must meet the following criteria:

- Baseline exclusions:
  - Nonprimary share class
  - Noncompliance with U.N. Global Compact
  - Controversy score of 5 (Severe)
  - Involvement with the following types of products:
    - Civilian firearms
    - Thermal coal
    - Oil sands
    - Tobacco
    - Controversial weapons (including nuclear weapons)
    - Adult entertainment
    - Alcohol

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    - Gambling
- The universe screened for the above filters will be referred to as the “screened parent”

Portfolio Construction

Number of Stocks

The number of stocks in the index is variable, subject to the size of the starting universe and the application of eligibility criteria at the time of reconstitution.

Optimization Parameters

At every reconstitution, the Morningstar ESG Enhanced Index portfolios are created using an optimizer to minimize the objective and meet the constraints as follows:

- ESG Risk of the portfolio is minimized.
- No short positions are allowed.
- Ex-ante tracking error is below the target value.
- ESG Risk of the portfolio is less than or equal to the ESG Risk of the parent index.
- Carbon intensity of the portfolio is at least 30% lower relative to the parent index.
- The maximum weight of a security is restricted to the lesser of 3 times the security weight in the screened parent and the security weight in the screened parent plus 2%.
- The minimum weight of a security is restricted to the greater of half the security weight in the screened parent and the smallest security weight in the screened parent.
- The maximum one-way turnover is less than 10% in June and December reconstitutions and 5% in March and September reconstitutions.
- Sector active weight constraints: To limit deviation from corresponding weights in the parent benchmark, the sector weights in the index are maintained within a lower and upper bound, calculated as:
    - Lower bound = Weight in the benchmark - 5%
    - Upper bound = Weight in the benchmark + 5%
- Country active weight constraints: To limit deviation from corresponding weights in the parent benchmark, the country of classification weights in the index are maintained within a lower and upper bound, calculated as:
    - Lower bound = Weight in the benchmark - 5%
    - Upper bound = Weight in the benchmark + 5%

For more details on the optimization construction, please refer to Appendix 7.

Index Weighting

The company weights of index constituents are determined through an optimization process subject to the objective function and weight constraints described in the "Optimization Parameters" section above.

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Index Maintenance and Calculation

Reconstitution and Rebalancing

The index is reconstituted, where the membership is reset, and rebalanced quarterly on the third Friday of March, June, September, and December. Adjustments are implemented after Friday's market close and reflected the following Monday. The market data used for reconstitution is as of the last trading day of February, May, August, and November.

Index files are published according to the global calendar schedule. For more information, please refer to the Morningstar Indexes Holiday Calendar.

IPO Treatment

IPOs are only eligible for inclusion at the June and December reconstitutions, provided they meet all other eligibility criteria. The parent index's fast-track IPO additions at the March and September rebalances do not apply to this index.

Corporate Actions

The treatment of corporate actions will be as per the alternatively-weighted indexes corporate action methodology. For more details, please refer to the Morningstar Indexes Corporate Actions Methodology.

Index Calculation and Price Data

Details about index calculations and price data can be found in their respective rulebooks: Morningstar Indexes Calculation Methodology and Morningstar Equity Indexes Price Methodology.

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Methodology Review and Index Decommissioning Policy

The index methodology is continually reviewed to ensure it achieves all stated objectives. These reviews consider corporate action treatment, selection, and maintenance procedures. Subscribers to the index will be notified before any methodology changes are made. For more details, refer to the Morningstar Index Methodology Change Policy.

Morningstar Indexes notifies all subscribers and stakeholders of the index that circumstances might arise that require a material change to, or a possible cessation of, the index. These circumstances are generally not within Morningstar's control and may include significant changes to the underlying market structure, inadequate access to necessary data, geo-political events, and regulatory changes. In addition, factors such as low usage or methodology convergence may result in the cessation of an index.

Because the cessation of the index or benchmark index could disrupt subscriber products that reference this index, all subscribers are encouraged to have robust fallback procedures if an index is terminated. For more details, refer to the Morningstar Index Decommissioning Policy.

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Data Correction and Precision

Intraday Index Data Corrections

Commercially reasonable efforts are made to ensure the accuracy of data used in real-time index calculations. If incorrect price or corporate action data affects index calculations, corrections are applied prospectively.

Index-Related Data and Divisor Corrections

Incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered if discovered within two days of its occurrence will be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

For more details, refer to the Recalculation Guidelines.

Exceptions

While Morningstar will seek to apply the methodology as described within this document, the market environment, supervisory, legal, financial, or tax reasons may require an alternative approach to be adopted. A decision to take an alternative approach will be made by the Morningstar Index Methodology Committee, and in all instances, the application of a nonstandard process will be reported to the Morningstar Index Oversight Committee.

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Appendixes

Appendix 1: Modifications to the Rulebook

Section	Description of Change	Update Date
Index Maintenance & Calculation	Added IPO Treatment section	November 2026
Entire Rulebook	Moved rulebook to new template	July 2025
Product Involvement Exclusions	Clarifications to exclusions and added Sustainalytics FieldID	November 2024

Appendix 2: Glossary

Terms	Description
Reconstitution	During each reconstitution, the steps mentioned in the index construction process are performed, resulting in membership reset.
Rebalance	During each rebalancing, the weights are reset and adjusted for updated free-float and shares outstanding data.

Appendix 3: Variants and Inception Dates

Index Name	Risk Model Type	Risk Model Currency	Performance Start Date	Inception Date
Morningstar Developed Europe ex-UK ESG Enhanced Index	Standard	GBP	12/19/2014	10/27/2021
Morningstar UK ESG Enhanced Index	Standard	GBP	12/19/2014	10/27/2021
Morningstar US ESG Enhanced Index	Standard	GBP	12/19/2014	10/27/2021
Morningstar Emerging Markets ESG Enhanced Index	PCA	GBP	12/19/2014	10/27/2021
Morningstar Japan ESG Enhanced Index	Standard	GBP	12/19/2014	10/27/2021
Morningstar Developed Markets Asia-Pacific ex-Japan ESG Enhanced Index	Standard	GBP	12/19/2014	10/27/2021

Appendix 4: Optimization Constraint Settings

Index Name	Tracking Error Target
Morningstar Developed Europe ex-UK ESG Enhanced Index	0.75%
Morningstar UK ESG Enhanced Index	1.75%
Morningstar US ESG Enhanced Index	0.75%
Morningstar Emerging Markets ESG Enhanced Index	1.00%
Morningstar Japan ESG Enhanced Index	0.75%

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Morningstar Developed Markets Asia-Pacific ex-Japan ESG Enhanced Index	1.25%

Appendix 5: Product Involvement Exclusions

ESG Variable	Threshold	Sustainalytics Field ID	Level of involvement exclusion threshold
Small Arms Civilian customers (Assault weapons)-Level of Involvement Id	>0%	171711112999	0
Small Arms Civilian customers (Nonassault weapons)-Level of Involvement Id	>0%	171721112999	0
Small Arms Key components-Level of Involvement Id	>0%	171715112999	0
Small Arms Retail/distribution (Nonassault weapons)-Level of Involvement Id	>5%	171719112999	>1
Small Arms Retail/distribution (Assault weapons)-Level of Involvement Id	>5%	171717112999	>1
Thermal Coal Extraction-Level of Involvement Id	>5%	172811112999	>1
Thermal Coal Power Generation Revenue Percentage	>5%	171025141199	N/A
Oil Sands Extraction-Revenue Percentage	>5%	171026111199	N/A
Tobacco Products Production-Level of Involvement Id	>0%	172911112999	0
Tobacco Products Retail-Level of Involvement Id	>5%	172915112999	>1
Tobacco Products Related Products/Services-Level of Involvement Id	>5%	172913112999	>1
Anti-Personnel Mines-Category of Involvement Id	AP1 or AP3	211111122999	N/A
Biological and Chemical Weapons Category of Involvement Id	C1 or BC3	211112122999	N/A
Cluster Weapons-Category of Involvement Id	CM1 or CM3	211113122999	N/A
Depleted Uranium-Category of Involvement Id	DU1 or DU3	211114122999	N/A
Nuclear Weapons-Category of Involvement Id	NW1 or NW3	211115122999	N/A
White Phosphorus-Category of Involvement Id	WP1 or WP3	211116122999	N/A
Anti-Personnel Mines-Ownership Percentage	>20	211111161199	N/A
Biological and Chemical WeaponsOwnership Percentage	>20	211112161199	N/A
Cluster Weapons-Ownership Percentage	>20	211113161199	N/A
Depleted Uranium-Ownership Percentage	>20	211114161199	N/A
Nuclear Weapons-Ownership Percentage	>20	211115161199	N/A
White Phosphorus-Ownership Percentage	>20	211116161199	N/A

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Adult Entertainment Production-Level of Involvement Id	>5%	171211112999	>1
Adult Entertainment Distribution-Level of Involvement Id	>10%	171213112999	>2
Alcoholic Beverages Production-Level of Involvement Id	>5%	171311112999	>1
Alcoholic Beverages Related Products/Services-Revenue + Alcoholic Beverages Retail-Revenue	Sum>15%	171011171199 & 171011141199	N/A
Gambling Operations-Level of Involvement Id	>5%	171911112999	>1
Gambling Specialized Equipment Revenue+ Gambling Supporting Products/Services-Revenue	Sum >15%	171015141199 & 171015171199	N/A

Level of involvement key:
Level of Involvement 1 – 0%-4.9%
Level of Involvement 2 – 5%-9.9%
Level of Involvement 3 – 10%-24.9%
Level of Involvement 4 – 25%-49.9%
Level of Involvement 5 – 50%-100%

Appendix 6: Morningstar Sectors

The sector assignments from Morningstar Global Equity Classification Structure (GECS) are considered while applying the active sector constraints:

- Basic Materials
- Communication Services
- Consumer Cyclical
- Consumer Defensive
- Energy
- Financial Services
- Healthcare
- Industrials
- Real Estate
- Technology
- Utilities

Appendix 7: Optimization Methodology

Ex-Ante Tracking Error

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$$TE = \left(w_p^T - w_b^T\right)(X^T F X + \lambda D)(w_p - w_b)$$

Where:

w_p	=	**vector of portfolio weights, unknown**
w_b	=	vector of benchmark weights
X	=	matrix of asset factor exposures
F	=	factor covariance matrix
D	=	specific (idiosyncratic, residual) risk block of covariance matrix
$X^T FX$	=	systematic (factor-driven) risk block of covariance matrix from the risk model
λ	=	1.5, specific risk aversion parameter
λ	=	1 results in a specific risk-neutral volatility forecast
λ	>	1 implies greater penalty for asset-specific risk not modelled by systematic risk factor exposures

Any risk model will miss some systematic sources of risk due to bias-variance tradeoff. The model will therefore underestimate the contribution of specific risk to the risk of the overall portfolio, because it assumes the residual risk is perfectly uncorrelated and diversifiable. λ = 1.5 was chosen to compensate for the above effects based on empirical testing of ex-post tracking error.

Handling of Infeasible Optimizations

Constraints will be relaxed if a feasible solution is not obtained. The relaxation happens in the following order:

1) One-way turnover constraint is relaxed up to 30% in increments of 1%

2) The tracking error constraint is relaxed in increments of 0.1%, up to 5 times the value of the original limit; after each increment of the tracking error constraint, the turnover constraint is reset to the original value, and relaxation sequence returns to step (1).

If a feasible solution is not found after the above constraint relaxation, the index will not be reconstituted for that quarterly review, and Index Committee review of the constraint methodology will be conducted and completed by the next quarterly reconstitution date.

Appendix 8: Statistical Risk Model (Principal Component Analysis, PCA)

PCA Covariance Matrix: A covariance matrix is created based on a principal component analysis using weekly U.S.-dollar returns of benchmark securities over the last five years. At least 10% of total weekly returns data (six months of weekly returns) should be available for a security. Otherwise, the security is dropped from the covariance matrix as well as the final portfolio. Only the top N principal components are taken that can explain at least 50% of the total variance.

The security returns are first winsorized at the level of 98%. The weekly returns are then exponentially weighted such that the decay factor is equivalent to the following calculation:

$$\lambda = e^{-\left(\frac{1}{n}\right)}$$

This results in half-life equal to n in 2.

Where: n is the number of observations

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Appendix 9: Carbon Intensity

Carbon intensity of a stock is defined as Scope 1 and 2 emissions in metric tons of greenhouse gases equivalent, divided by revenue in millions of U.S. dollars.

Carbon intensity of a portfolio is defined as the weighted mean of its holdings. For the very small fraction of portfolio holdings where carbon emissions data is not available from Sustainalytics (usually new entrants into the benchmark), carbon intensity is estimated as Morningstar Industry Group average.

Appendix 10: Back-Test Methodology

The following differences applied to the methodology in the simulated (back-tested) performance history of the index prior, but not inclusive of the last reconstitution effective on the inception date:

- Product involvement and U.N. Global Compact compliance data was back-cast from the first available coverage date.
- Simulated ESG Risk score was used before the December 2018 reconstitution. The simulated scores used the data available as of the effective date of the score, utilizing a simplified model of the core ESG Risk methodology that was designed by Sustainalytics in a time period from 2017 up to September 2018.
- Turnover constraint was suspended in the last reconstitution before the inception date, to eliminate path dependency of index inception portfolio on pre-inception back-tested history.

Appendix 11: List of Index Names

Index Name	Parent Benchmark
Morningstar Developed Europe ex-UK ESG Enhanced Index	Morningstar Developed Markets Europe ex-UK Target Market Exposure Index
Morningstar UK ESG Enhanced Index	Morningstar UK Index
Morningstar US Markets ESG Enhanced Index	Morningstar US Target Market Exposure Index
Morningstar Emerging Markets ESG Enhanced Index	Morningstar Emerging Markets Target Market Exposure Index
Morningstar Japan ESG Enhanced Index	Morningstar Japan Target Market Exposure Index
Morningstar Developed Markets Asia Pacific ex-Japan ESG Enhanced Index	Morningstar Developed Markets Asia-Pacific ex Japan Target Market Exposure Index

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About Morningstar Indexes

Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers, and advisors in navigating investment opportunities across major asset classes, styles, and strategies. From traditional benchmarks and unique IP-driven indexes to index design, calculation, and distribution services, our solutions span an investment landscape as diverse as investors themselves.

Morningstar Index Methodology Committee

The Morningstar Index Methodology Committee oversees all new index development, index methodology changes, and cessation of indexes for any indexes where Morningstar owns the intellectual property. This committee is also charged with ensuring that indexes align with Morningstar Research principles and values. The group comprises members of the index team with index research, product development, product management, client service, index implementation, and operation expertise who provide the first layer of governance over index design and methodology.

Morningstar Index Operations Committee

The Morningstar Index Operations Committee governs the processes, systems, and exception handling of the day-to-day management of all live indexes, including index rebalancing and reconstitution, restatements, market classification, and contingency management. The committee oversees the annual review of index methodology, as required by the European Benchmarks Regulation ("BMR"), ensuring that methodologies remain fit for purpose and continue to achieve their stated investment objectives. The group comprises members of the index team with data, operations, corporate actions, product development, index launch, client service, and index management experience who provide the first layer of governance over index operations.

Morningstar Index Oversight Committee

The Morningstar Index Oversight Committee is responsible for the index oversight function as per the requirements of the European BMR, providing independent oversight of all aspects of the governance of benchmark administration as required by the BMR. Its remit extends to all calculation and administration-related business activities of Morningstar Indexes, including administration of Morningstar-owned benchmarks as well as client-owned benchmarks and index calculation. The oversight function is part of the organizational structure of Morningstar but is separate and independent from the index business, index management, and the other index committees.

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