

Construction Rules for the Morningstar TME Paris Aligned Benchmark Sustainability Select



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Overview

The Morningstar® TME Paris Aligned Benchmark Sustainability Select Indexes are designed to achieve the Paris Aligned Benchmarks standards laid out in the European Union delegated acts. The indexes seek to reward companies that have lower carbon intensity all else equal using a constrained optimization framework that aims to minimize tracking error and improve diversification relative to the parent benchmark.

The Indexes make use of Carbon Emissions, ESG Risk Rating, Product Involvement, and ESG Controversy data provided by Sustainalytics, a Morningstar company that provides sustainability research.

To forecast tracking error of the index portfolios, Morningstar uses Morningstar Global Industry Standard Risk Model (the risk model and the currency is EUR). For more information on the risk model, refer to [Morningstar Risk Model Methodology](#)

For further information on ESG data used in the index, please see the [Morningstar ESG Index Glossary](#).

Index Inception and Performance Start Date

The index inception date is November 27, 2023. The performance start date, when the first back-tested index value was calculated, is June 19, 2015. For more details, refer to Appendix 4 and 7.

Index Construction

Methodology Summary



For additional details, refer to the following section.

Starting Universe

Starting Universe

At each reconstitution, securities for each Morningstar® TME PAB Sustainability Select Index are derived from the respective regional /country Morningstar Target Market Exposure Index. For more details on benchmark construction, refer to the Construction rules for the [Construction Rules for the Morningstar Global Target Market Exposure Index](#).

Eligibility

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

- Companies must not have a severe (greater than 40) ESG risk scores.
- Baseline Exclusions:
 - The company must not have a null or severe controversy rating (or a level of 5).
 - The company must not be non-compliant with the principles of the United Nations Global Compact.
 - The company must not have any direct involvement in the following controversial weapons categories:
 - Anti-Personnel Mines
 - Biological and Chemical Weapons
 - Cluster Weapons
 - Nuclear Weapons

- Activity-Based Exclusions

- The company must not have any revenue involvement in the following activities:
 - Thermal Coal (Extraction)
 - Thermal Coal (Supporting Products & Services)
 - Tobacco Products (Production)
- The company must not have greater than 5% revenue involvement in the following activities:
 - Adult entertainment (Production)
 - Alcoholic Beverages (Production)
 - Arctic Oil Extraction
 - Gambling (Operations and Specialized Equipment)
 - Military Contracting (Weapons and Weapons Products & Services)
 - Oil & Gas (Production)
 - Shale Extraction
 - Small Arms (Civilian Assault, Civilian Non-Assault, Customers, Key Components, Retail Distribution Assault and Retail Distribution Non-Assault)
 - Tobacco Production (Retail and Supporting Products & Services)
- The company must not have greater than 10% revenue involvement in the following activities:
 - Oil & Gas (Supporting Products & Services)
- The company must not have 50% or more combined revenue from oil & gas generation and coal power generation.

For both baseline and activity-based exclusions, companies with missing values for any of the above screens would be excluded. For more details refer to Appendix 3.

Portfolio Construction

At each semi-annual review, the securities within respective Morningstar TME Paris Aligned Benchmark Sustainability Select Indexes are created using optimization to minimize the ex-ante tracking error of the index and meet the constraints as follows:

Objective Function:

- Minimize ex-ante tracking error relative to parent index.

Constraints:

- No short position allowed.
- The threshold for the maximum weight of a company is defined as:
Maximum Company Weight = Minimum (Company Benchmark Weight * 20, Company benchmark weight + 0.5%, 9%).
- The threshold for the minimum weight of the security is defined as:
Minimum Company Weight = Maximum (Company Benchmark Weight * 1%, Company benchmark weight - 0.5%).

- Morningstar Global Equity Classification Structure (GECS) 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:
 - o Lower bound = Weight in the benchmark - 1%
 - o Upper bound = Weight in the benchmark + 1%

The Energy sector remains unconstrained.
- 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:
 - o Lower bound = Weight in the benchmark - 1%
 - o Upper bound = Weight in the benchmark + 1%
- The maximum one-way turnover is less than 5% at the semi-annual reconstitutions.
- The cumulative high impact NACE sector weight of the index should be greater than or equal to 1.001x compared to the benchmark high impact NACE sector weight. For more details on the NACE sections, refer to Appendix 5.
- The cumulative weight of companies having a weight of greater than 4.5% should be lesser than or equal to 36%.
- The weighted average carbon intensity (Scope 1+2+3 based on EVIC) of the index should be lesser than or equal to the following relative target or absolute targets:
 - o 50% of the benchmark weighted average carbon intensity (Relative target) or
 - o 7% year on year reduction relative to the achieved weighted average carbon intensity (Absolute target)

For more details on the absolute target calculation, refer to Appendix 2.

For more details on optimized construction, refer to Appendix 6.

The company optimal weights are redistributed within the available share classes of a company in the ratio of their parent benchmark weights.

Number of Stocks

The number of stocks in the index is variable, subject to the selection and eligibility criteria at the time of reconstitution.

Index Weighting

The 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.

Index Maintenance and Calculation

Scheduled Maintenance

The index is reconstituted, where the membership is reset, semi-annually. Adjustments are made on the Monday following the third Friday of June and December. If the Monday is a holiday, reconstitution occurs on the next business day. The market, EVIC, NACE, and ESG (including emissions and product involvement) data used for reconstitution is as of the last trading day of May and November.

The index is rebalanced quarterly and implemented after the close of business on the third Friday of March, June, September, and December and is effective the following Monday. If Monday is a holiday, rebalance is effective on the next business day. The market data used for rebalancing is as of the last trading day of February, May, August, and November. During quarterly reviews, parent index eligibility is maintained and securities with a null or severe (level of 5) controversy rating are deleted from the index. The UCITS B-A-C (4.5-9-36) capping at company level is additionally maintained. In the event of breach of this cap, securities above the cap are down weighted to comply with the cap. The excess weight from these capped stocks is redistributed across the portfolio in a manner designed to preserve the relative exposure of the pre-capped weights for as many securities as possible. This may result in some securities that initially breached the cap receiving a lower weight than the cap. For more details, refer to the [Morningstar Indexes Calculation Methodology rulebook](#).

Index files are published according to the Global calendar schedule. For more information, please refer to the [Morningstar Indexes Holiday Calendar](#).

Corporate Actions

The treatment of corporate actions will be as per the alternatively-weighted indexes. For more details, please refer to the [Morningstar Indexes Corporate Actions Methodology rulebook](#).

Index Calculation and Price Data

Details about index calculations and price data can be found in their respective rulebooks: [Morningstar Indexes Calculation Methodology](#) and [Equity Closing Prices Used for Index Calculation](#).

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, eligibility requirements, 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 decommissioning of the index or benchmark index could disrupt subscriber products that reference this index, all subscribers are encouraged to have robust fallback procedures in the event an index is decommissioned. For more details, refer to the [Morningstar Index Decommissioning Policy](#).

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 generally be corrected upon detection. In addition, an incorrect divisor of an index, 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 method described above, 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 Indexes Methodology Committee, and in all instances, the application of a nonstandard process will be reported to the Morningstar Indexes Oversight Committee.

Appendixes

Appendix 1: 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 adjusted for updated free-float and shares outstanding data.

Appendix 2: Calculation of Target Metrics

Calculation of Carbon, or Greenhouse Gas, Intensity

The total emission of a security is defined as the sum of scope 1, scope 2, and scope 3 emissions. Enterprise value including cash is the sum, at fiscal year-end, of the market capitalization of ordinary shares, the market capitalization of preferred shares, and the book value of total debt and noncontrolling interests, without the deduction of cash or cash equivalents. The carbon intensity of a security is defined as the ratio of the total emissions (in metric tons) adjusted for the inflation in EVIC and the EVIC of the company (in millions of U.S. dollars).

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 Morningstar Global Target Market Exposure Large Mid Index in the same NACE section in which the constituent belongs is used. Securities with null NACE section are additionally excluded. A valid carbon intensity value can only be calculated if both the emissions and EVIC values are available for the company.

$$\text{Total Emissions} = (\text{Scope 1} + \text{Scope 2} + \text{Scope 3}) \text{ Emissions}$$

$$\text{Greenhouse Gas Intensity} = \frac{\text{Total Emissions}}{\text{Enterprise Value Including Cash (in Mn USD)}}$$

$$\text{Security Level Carbon Intensity} = \frac{\text{Total Emissions (1 + EVIAF)}}{\text{Enterprise Value Including Cash (in Mn USD)}}$$

$$* \text{Enterprise Value Inflation Factor (EVIAF)} = \frac{\text{Average Enterprise Value Including Cash}}{\text{Previous Average Enterprise Value Including Cash}} - 1$$

$$\text{Enterprise Value Including Cash (EVIC)} = (\text{MktCap}_{\text{Ordinary Shares}} + \text{MktCap}_{\text{Preferred Shares}} + \text{BV}_{\text{Debt}} + \text{NCI})$$

$$\text{Weighted Average Carbon (GHG) Intensity} = \sum (\text{Index Weight} * \text{Security Level GHG Intensity})$$

*The Inflation adjustment factor is calculated at the parent index level.

*Carbon Intensity of securities is adjusted by the EVIAF factor only during those reconstitutions when we observe an increase in the average EVIC value as compared with the previous reconstitution. In case of a decrease, the EVIAF is set to 1.

Calculation of Target High Impact NACE Section Weights

The target weight of the High Impact Sector Group is set at 1.001x its cumulative weight in the Parent Index.

Calculation of Average Decarbonization

The climate transition and Paris-aligned indexes follow a 7% decarbonization trajectory since the base date. The weighted average greenhouse gas intensity of the Index at the previous semi-annual effective reconstitution date is used to compute the target weighted average greenhouse gas intensity at any given semiannual index review, according to the following formula.

$$CI_T = CI_{T-1} * (1 - (0.07))^{(T/2)} \text{ where } T \text{ starts at } 1 \text{ and is increased in steps of } 1.$$

The base date for all carve-outs is set at June 19, 2023 which is considered as C_0 . CI_{T-1} is the achieved carbon intensity of the portfolio on the previous semi-annual effective reconstitution date.

We also aim to achieve a min 50% reduction in greenhouse gas intensity with respect to the custom benchmark index on each reconstitution date. The minimum of these two intensity targets is set as the target portfolio intensity.

Index Name	Base Date	Benchmark intensity (MT CO ₂ /Mn USD EVIC)	Portfolio intensity (MT CO ₂ /Mn USD (EVIC))
Morningstar Developed Markets TME Paris Aligned Benchmark Sustainability Select Index	June 19, 2023	436.1	192.3
Morningstar Developed Europe TME Paris Aligned Benchmark Sustainability Select Index	June 19, 2023	721.5	288.1
Morningstar US TME Paris Aligned Benchmark Sustainability Select Index	June 19, 2023	322.2	127.6

Appendix 3: Baseline & Activity Based Exclusions

Detailed Criteria	Backfill Date	Missing Data Treatment	Threshold for exclusion
Product Revenue Involvement Screens			
Highest Controversy Level	-	Exclude	5
UNGC Compliance Status	-	Include before December 2019, exclude from December 2019	Non-compliant
Anti-Personnel Mines – Category of Involvement	December 2020	Include before December 2020, exclude from December 2020	AP1, AP3
Biological and Chemical Weapons – Category of Involvement	December 2020	Include before December 2020, exclude from December 2020	BC1, BC3
Cluster Weapons – Category of Involvement	December 2020	Include before December 2020, exclude from December 2020	CM1, CM3

Nuclear Weapons - Category of Involvement	December 2020	Include before December 2020, exclude from December 2020	NW1, NW3
Adult Entertainment (Production) - Level of Involvement	December 2019	Exclude	Greater than 1
Alcoholic Beverages (Production) - Level of Involvement	December 2019	Exclude	Greater than 1
Arctic Oil Extraction - Level of Involvement	December 2019	Exclude	Greater than 1
Gambling (Operations) - Level of Involvement	December 2019	Exclude	Greater than 1
Gambling (Special Equipment) - Level of Involvement	December 2019	Exclude	Greater than 1
Military Contracting Weapons - Level of Involvement	December 2019	Exclude	Greater than 1
Military Contracting Weapons (Products & Services) - Level of Involvement	December 2019	Exclude	Greater than 1
Oil & Gas (Production) - Level of Involvement	December 2019	Exclude	Greater than 1
Shale Extraction - Level of Involvement	December 2019	Exclude	Greater than 1
Tobacco Products (Retail) - Level of Involvement	December 2019	Exclude	Greater than 1
Tobacco Products (Supporting Products & Services) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Civilian - Assault) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Civilian - Non Assault) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Customers) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Components) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Retail Distribution - Assault) - Level of Involvement	December 2019	Exclude	Greater than 1
Small Arms (Retail Distribution - Non Assault) - Level of Involvement	December 2019	Exclude	Greater than 1
Tobacco Products (Production) - Level of Involvement	December 2019	Exclude	Any involvement
Thermal Coal (Extraction) - Level of Involvement	December 2019	Exclude	Any involvement
Thermal Coal (Supporting Products & Services) - Level of Involvement	March 2022	Exclude	Any involvement
Oil & Gas Supporting Products & Services - Level of Involvement	December 2019	Exclude	Greater than 2
Thermal Coal Power Generation Revenue - Revenue Percentage	December 2020	Exclude	a%*
Oil & Gas Power Generation Revenue - Revenue Percentage	March 2021	Exclude	b%*

*a+b% is greater than or equal to 50%.

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%

The null values prior to backfill dates are backfilled based on their latest available data for each of the above screens.

Appendix 4: Index Inception Date and Performance Inception Date

Index Name	Parent Index	Performance Inception Date	Inception Date
Morningstar® Developed Markets TME Paris Aligned Benchmark Sustainability Select Index	Morningstar Developed Markets Target Market Exposure Index	June 19, 2015	November 27, 2023
Morningstar® Developed Europe TME Paris Aligned Benchmark Sustainability Select Index	Morningstar Developed Europe Target Market Exposure Index	June 19, 2015	November 27, 2023
Morningstar® US TME Paris Aligned Benchmark Sustainability Select Index	Morningstar US Target Market Exposure Index	June 19, 2015	November 27, 2023

Appendix 5: Climate Impact Sectors

NACE is the European Union's classification of economic activities. According to EU regulation, the NACE sections A, B, C, D, E, F, G, H, and L are deemed high climate impact sectors that cannot be underweight relative to their respective weights in the parent index. However, for the Morningstar TME Paris Aligned Benchmark Sustainability Select Indexes, instead of not underweighting NACE Sections A, B, C, D, E, F, G, H, and L individually, we ensure that the cumulative weight of these NACE Sections is not less than 1.001x their weight in the benchmark. The other sections are left unconstrained as a part of the tilt weighting methodology. Every company in the parent index is mapped to a particular NACE section and further aggregated to form the respective sector constraint cohorts. In the backtest, for companies that had a missing NACE section in their history, the NACE data has been back-propagated as NACE is a slow-changing data. Companies for which we did not have a valid NACE section even after back-propagation have been removed from the eligible universe.

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

Appendix 6: Optimization Methodology**Ex-Ante Tracking Error**

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

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

$X^T F X$ = systematic (factor-driven) risk block of covariance matrix from the risk model

$\lambda = 1.5$, specific risk aversion parameter; $\lambda=1$ results in a specific risk-neutral volatility forecast; $\lambda>1$ 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. $\lambda = 1.5$ 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) The country constraint is relaxed up to 3% in increments of 0.5%
- 2) The sector constraint is relaxed up to 3% in increments of 0.5% while resetting the country constraint
- 3) The turnover constraint is relaxed till 30% in increments of 1% while resetting the country and sector constraints
- 4) The sector and country constraints are relaxed and only the turnover constraint is applied.

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 7: Modifications to the Rulebook

For the methodology details prior to December 2025, refer to

[20250626_Morningstar_TME_PAB_Sustainability_Select_Final_Indexes_Rulebook.pdf](#)

Section	Description	Update Date
Changes in the methodology	<p>The methodology has been changed from a tilt-based framework to an optimisation framework.</p> <p>Removed the 75% selection within each sector based on the lowest ESG risk scores and highest float market capitalisation.</p> <p>Removed the following ESG screens:</p> <ul style="list-style-type: none"> • Controversial Weapons Tailor Made & Essential • Controversial Weapons Non-Tailor Made & Essential • Adult Entertainment (Distribution) • Alcoholic Beverage (Retail) • Alcoholic Beverage (Related Products & Services) • Gambling (Supporting Products & Services) • Military Contracting Non-Weapons (Products & Services) • Oil & Gas (Generation) • Thermal Coal (Power Generation) <p>Added the following ESG screens:</p> <ul style="list-style-type: none"> • Anti-Personnel Mines • Biological and Chemical Weapons 	December 2025

	<ul style="list-style-type: none"> Cluster Weapons Nuclear Weapons <p>Changes in the threshold of ESG screens:</p> <ul style="list-style-type: none"> Oil & Gas (Supporting Products & Services) screen involvement threshold was increased from 5% to 10% 	
Data Correction and Precision	Computational and Reporting Precision Section removed	June 2025
Product involvement-based exclusions	<p>Removed the following screens:</p> <ul style="list-style-type: none"> All screens related to Ownership and Riot Control 	December 2024
Change in Selection Process	Selection process will be changed from a filtered universe to a parent benchmark universe.	December 2024

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 EU benchmark regulations, or 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

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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